Wilfrid Laurier University

Scholars Commons @ Laurier

Theses and Dissertations (Comprehensive)

2007

Capturing the Variability in a Person's Social World: Individual Differences in Interpersonal Behavior Across and Within Interaction Partners

Alana Greco
Wilfrid Laurier University

Follow this and additional works at: https://scholars.wlu.ca/etd

Part of the Psychology Commons

Recommended Citation

Greco, Alana, "Capturing the Variability in a Person's Social World: Individual Differences in Interpersonal Behavior Across and Within Interaction Partners" (2007). *Theses and Dissertations (Comprehensive)*. 845.
https://scholars.wlu.ca/etd/845

This Thesis is brought to you for free and open access by Scholars Commons @ Laurier. It has been accepted for inclusion in Theses and Dissertations (Comprehensive) by an authorized administrator of Scholars Commons @ Laurier. For more information, please contact scholarscommons@wlu.ca.

CAPTURING THE VARIABILITY IN A PERSON'S SOCIAL WORLD: INDIVIDUAL DIFFERENCES IN INTERPERSONAL BEHAVIOR ACROSS AND WITHIN INTERACTION PARTNERS

by

Alana Greco

Honours Bachelor of Science, University of Toronto, 2005

THESIS

Submitted to the Department of Psychology

In partial fulfillment of the requirements

Master of Arts

Wilfrid Laurier University

2007

©Alana Greco, 2007

Library and Archives Canada

Published Heritage Branch

395 Wellington Street
Ottawa ON K1A 0N4
Canada

Bibliothèque et Archives Canada

Direction du Patrimoine de l'édition

395, rue Wellington
Ottawa ON K1A 0N4
Canada

Your file Votre référence
ISBN: 978-0-494-32273-4
Our file Notre référence
ISBN: 978-0-494-32273-4

NOTICE:
The author has granted a non-exclusive license allowing Library and Archives Canada to reproduce, publish, archive, preserve, conserve, communicate to the public by telecommunication or on the Internet, loan, distribute and sell theses worldwide, for commercial or non-commercial purposes, in microform, paper, electronic and/or any other formats.

The author retains copyright ownership and moral rights in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author's permission.

AVIS:
L'auteur a accordé une licence non exclusive permettant à la Bibliothèque et Archives Canada de reproduire, publier, archiver, sauvegarder, conserver, transmettre au public par télécommunication ou par l'Internet, prêter, distribuer et vendre des thèses partout dans le monde, à des fins commerciales ou autres, sur support microforme, papier, électronique et/ou autres formats.

L'auteur conserve la propriété du droit d'auteur et des droits moraux qui protège cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

In compliance with the Canadian Privacy Act some supporting forms may have been removed from this thesis.

While these forms may be included in the document page count, their removal does not represent any loss of content from the thesis.

Conformément à la loi canadienne sur la protection de la vie privée, quelques formulaires secondaires ont été enlevés de cette thèse.

Bien que ces formulaires aient inclus dans la pagination, il n'y aura aucun contenu manquant.

Canada

Abstract

The current studies examined people's (and, more peripherally, their perceptions of others') interpersonal behavior using two different methodologies. This research utilizes the framework of Interpersonal Theory, which indicates that there are two orthogonal dimensions of interpersonal behavior—dominance and friendliness (Carson, 1969; Kiesler, 1983; Wiggins, 1982). People's interpersonal behaviors were characterized by dimension scores for each interaction partner. In Study 1 a new, one-time measure was administered in the lab that assessed behaviors based on 45 specific interaction partners. In Study 2, a Palm Pilot was used to collect people's interpersonal behaviors over multiple occasions of interacting with the same interaction partners across 21 days. We were interested in whether individual differences in these behaviors could be reliably captured using both of these methodologies, with a particular focus on people's *variability* in these two contexts. We calculated means, standard deviations, and correlations between interpersonal dimensions from the participant's behavior, and we calculated these same summary statistics for their perceptions of others' behaviors. Additionally, we examined how these behaviors and perceptions related to different interpersonal measures. More specifically, we investigated whether people's interpersonal problems reflect a mean behavioral problem across their various interpersonal interactions, or whether *too much consistency* or *too much variability* over their interpersonal interactions is an important additional factor. The means for both dominance and friendliness showed expected patterns. That is, someone who reported being too dominant, also engaged in many dominance behaviors across their 45 interaction partners and across 21 days. The results revealed that the relationship between interpersonal problems and both self-standard deviation and other-standard deviation were not of a "*too variable*" or a "*too consistent*" sort.

Acknowledgements

First and foremost, I would like to thank my advisor, Dr. Pamela Sadler for her mentorship, guidance, and patient encouragement. Her continuous support was fundamental in my academic growth as well as my growth as a researcher. I would also like to express my gratitude to my committee members, Dr. Lara Kammrath and Dr. Christian Jordan, for their constructive feedback and insightful ideas with regard to my research.

To my father Donato and his wife Sandra, my brother Anthony, and my sister Antoinetta, I would like to say thank you for all your love and support. I would also like to thank my Nonna Maria, who has been one of the most influential women in my life. Her strength and determination has motivated me to always strive for the better things. I thank my mother Veronica who for 17 years of my life taught me to value education, pursue it with passion, and to the best of my ability.

I am grateful to my friends, Maria Cozza and Tanya D'Emilio, who have for the past 10 years provided me with much love and laughs. Additionally, I would like to thank my fellow graduate students, Amy Grant, Tara Dumas, Susan Battista, Enoch Landau, and Sonja Brubacher. Your support intellectually and emotionally has been invaluable over the past two years. Last but not least, I thank my friend Nooreen Popat for providing me with much enjoyed social-intellectual banter throughout our friendship.

Table of Contents

Abstract i
Acknowledgments ii
Table of Contents iii
List of Tables v
List of Figures vi
List of Appendices vii
Introduction 1
Interpersonal Theory 2
Perspectives on Behavioral Variability 6
Perspectives on Variability and Interpersonal Difficulties 9
Perspectives on Variability and Well-being 10
Perceptions of Others 11
Focus of Current Studies 13
Study 1: Variability in Perceived Interpersonal Behavior over 45 Different Interaction Partners 21
Proposed Hypotheses 23
Method 27
Results 31
Discussion 48
Study 2: Self and Other Perceptions of Interpersonal Behavior Over 21 Days 53
Proposed Hypotheses 54
Method 59
Results 63
Discussion 80
General Discussion 82
References 99
Footnotes 104
Tables 107

Figures 119
Appendices 149

List of Tables

Table 1 Study 1 Descriptives for 12 Indices

Table 2 Gender Differences in Indices

Table 3 Predictor Variable Reliability

Table 4 Relevant Structural Summary Information for Correlations of Ipsatized IIP, CSIV, and SBI Octants with each of the 12 Indices (Study 1)

Table 5 Examples of Variability and Interaction Partner Influence

Table 6 Study 2 Descriptives for 16 Indices

Table 7 Study 2 Gender Differences in the 16 Indices

Table 8 Reliabilities for the Predictor Variables in Study 2

Table 9 Relevant Structural Summary Information for Correlations of Ipsatized IIP, CSIV, and SBI Octants with each of the 16 Indices (Study 2)

Table 10 Relevant Structural Summary Information for Correlations of Ipsatized CSIE Octants with each of the 16 Indices (Study 2)

Table 11 Relationship between Predictor Variables

Table 12 Relationship between 16 Indices and WB, and SWLS

List of Figures

Figure 1	Interpersonal Circumplex, Eight Octants-PA, BC, DE, FG, HI, JK, LM, and NO
Figure 2a	Bivariate Distribution Plots for 45 Interaction Partners
Figure 2b	Bivariate Distribution Plots for 21 Days
Figure 3	Expected Cosine Wave pattern- general graphs
Figure 4	Study 1 Inventory of Interpersonal Problems Circumplex Plots (Indices 1-12)
Figure 5	Study 1 Circumplex Scale of Interpersonal Values Plots (Indices 1-12)
Figure 6	Study 1 Social Behavior Inventory Plots (Indices 1-12)
Figure 7	Study 2 Inventory of Interpersonal Problems Circumplex Plots (Indices 1-16)
Figure 8	Study 2 Circumplex Scale of Interpersonal Values Plots (Indices 1-16)
Figure 9	Study 2 Social Behavior Inventory Plots (Indices 1-16)
Figure 10	Study 2 Circumplex of Interpersonal Efficacy Plots (Indices 1-16)

List of Appendices

Appendix A	Inventory of Interpersonal Problems Circumplex
Appendix B	Circumplex Scale of Interpersonal Values
Appendix C	Social Behavior Inventory
Appendix D	List Names of 45 People You Have Interacted With
Appendix E	Self-Other Questionnaire
Appendix F	Big Five Inventory
Appendix H	Circumplex of Interpersonal Efficacy
Appendix I	Ryff Well-being Scale
Appendix J	Satisfaction with Life Scale
Appendix K	Event-Contingent Questionnaire

Introduction

The purpose of this research is to investigate how three different sources of variability were related to adaptive versus maladaptive interaction patterns by looking at well-being, interpersonal problems, and interpersonal efficacy. Furthermore, we examined these sources of variability in interpersonal behaviors using two very different methodologies. This work attempts to capture people's full social world in two different ways, first by asking about their behavior and perceptions with 45 different interaction partners in the lab, and second by asking about their behavior and perceptions after various interactions over 21-days outside of the lab. We were interested in obtaining a comprehensive understanding of people's different interaction partners in their social world. We examined people's interpersonal behaviors with different interaction partners and also their perceptions of the interaction partners' interpersonal behaviors.

In Study 1, we examined how much people's dominance and friendliness behaviors and their perceptions of others' behaviors changes as they interact with different people. We developed a new method of capturing these individual differences in people's behavior variability and their perceptions of others' behavior variability. We asked participants to list 45 people with whom they have interacted and rate 16-trait adjectives to describe their behaviors. By asking them to list 45 interaction partners, we hoped to capture a reasonably comprehensive list of the interaction partners in people's actual social world. We developed 12 new indices that measured central tendency and scatter or dispersion from people's behavior ratings. In Study 2, we examined the influence of interaction partner on how predictable people's interpersonal behaviors were. In particular, we were interested in individual differences in the degree to which a person's behavior can be predicted by

interaction partner. Moreover, we wanted to distinguish whether predictable variability can be healthy and adaptive and unpredictable variability maladaptive and problematic. A palm pilot was used to gather data on a large number of interactions with different partners across 21-days.

We begin by introducing the main features of Interpersonal Theory. A brief background of Interpersonal Theory is presented in order to familiarize the reader with many of the concepts and constructs that will be used as the framework for this study. We then examine perspectives on behavioral variability across situations and occasions. Variability in interpersonal behaviors and interpersonal difficulties is examined subsequently. Next, we discuss the importance of effective interpersonal interactions, well-being, and life satisfaction. We then introduce our two methodologies and indices that we developed to measure individual differences in interpersonal behaviors. We conclude with an overall summary of the driving features and hypotheses in the present work.

Interpersonal Theory

Satisfying interactions with others are very important to people's feelings of well-being and happiness. Unfortunately, sometimes the processes involved in social interactions can become quite complicated and can lead to feelings of frustration and dissatisfaction. However, before further discussing adaptive and satisfying interactions, an understanding of how interpersonal theory describes behavior is necessary.

Interpersonal theorists suggest that people have relatively stable, trait-like, or preferred interpersonal styles that are demonstrated reasonably consistently in their behaviors when interacting with others (Carson, 1982; Kiesler, 1996; Wiggins, 2003). According to the theorists, there are two basic and unrelated dimensions which are used to

describe interpersonal style—dominance and friendliness. These two main dimensions are usually shown on a Cartesian plane with dominance on the Y-axis and friendliness on the X-axis. The dominance dimension focuses on power, control, authority, and status. Behaviors along this dimension range from assertive and dominant to submissive and passive. The friendliness dimension focuses on intimacy, relationship closeness, and familiarity. Behaviors in this dimension range from warm and agreeable to critical and cold. Different interpersonal styles reflect variations in these two dimensions and can occupy co-ordinate points within the interpersonal space. Although most agree that the two main dimensions anchor the space, some researchers refer to quadrants (e.g. Carson, 1969), others refer to eight pie-shaped octants (e.g. Wiggins, 1982), and others refer to sixteenths (e.g. Kiesler, 1983).

The present work uses primarily dimensional and octant representations. Interpersonal styles represented by adjacent octants tend to have a "fuzzy set" like quality, such that those located beside each other are more similar. In addition, in accordance with a Cartesian plane system, those located at right angles tend to be unrelated, and those opposite each other are negatively related (see Figure 1). These octants are named according to the style or general type of behavior that they capture (e.g. the dominance octant is characterized by assertive and controlling behaviors). For ease, the octants are also assigned two-letter designations based on their position in the circumplex going counterclockwise from the position at the top. For example, PA designates the assured-dominant octant while HI is used to refer to the unassured-submissive octant (Kiesler, 1983). The names of the eight octants are PA, BC, DE, FG, HI, JK, LM, and NO.

Proponents of Interpersonal Theory (e.g., Leary, 1957; Sullivan, 1953) suggest that people are inherently social and our behavior during interactions is influenced by not only our personalities or preferred interpersonal styles, but also by other important situational factors. In particular, the situational component of the theory emphasizes that during social interactions interpersonal behavior is affected by an ongoing negotiation of who is going to be more or less dominant and what level of friendliness or hostility will be shown by both people. That is, the theory suggests not only consistency in trait-like interpersonal style, but also adjustments or deviations from one's interpersonal style depending on behaviors shown by one's interaction partner.

According to Interpersonal Theory, a main principle that governs behavior in interpersonal interactions is *complementarity* (Carson, 1969; Kiesler, 1983). The principle of complementarity is divided into two subsidiary concepts: reciprocity and correspondence. Reciprocity occurs along the dominance dimension, such that dominant behaviors tend to evoke submissive behaviors and submissive behaviors evoke dominance behaviors. Correspondence occurs along the friendliness dimension, such that friendly behaviors tend to pull for friendly behaviors and hostile behaviors tend to evoke hostile behaviors.

Although there is a tendency to pull for complementary behaviors in interactions, people do not always act in such a manner. That is, people's behavior may sometimes be *noncomplementary* (Carson, 1969; Horowitz, 2004). For example, if we consider a person's behavior on the two dimensions as "bids" or "invitations" for the other person to respond in complementary ways, then the other person may accept both, only accept one, or accept neither of the bids. Thus, in complementary behaviors, the bids on both

dimensions are accepted. *Acomplementary* behaviors are either opposite on the dominance dimension or similar on the affiliation dimension, but not both (e.g., hostile dominance that is met with friendly submission or friendly dominance that is met with friendly dominance). Thus, in these types of pairings only one of the two bids is rejected. Behaviors that are described as *Anticomplementary* are dominance behaviors that are not opposite and affiliation behaviors that are not similar (e.g., hostile dominance that is met with friendly dominance or friendly submission that is met with hostile submission). Thus, in these types of pairings both bids are rejected. Kiesler and Carson indicate that complementary interactions are the most rewarding and satisfying. Acomplementary interactions are less rewarding. However, anticomplementary interactions are the least rewarding and tend to be aversive and stressful.

Sadler and Woody (2003) examined the extent to which peoples' trait interpersonal styles predicted behavior in a particular situation, as well as the degree to which the interaction partners moved in complementary ways to accommodate the behavior of their partner. They examined interpersonal style and complementarity in male-female pairs collaborating on a joint task. The results of the study demonstrated evidence for two important aspects of Interpersonal Theory. In particular, they found evidence both of stability of interpersonal dominance and interpersonal friendliness (from trait to situation). In addition, there was evidence of interpersonal complementarity, such that each interaction partner modified their own situational behavior to be more complementary with the behavior of the other. This study highlighted that consistency in interpersonal behavior and movement or variations in interpersonal behavior are both important aspects of the theory.

Perspectives on Behavioral Variability

Previous research has generally focused on asking people to complete questionnaires that require them to report their typical or mean levels of interpersonal behaviors. For example one commonly used measure, the Social Behavior Inventory (Moskowitz, 1994) asks respondents to indicate how often over the last month they completed certain interpersonal behaviors, such as setting goals for others. Questions such as this essentially ask respondents to provide a mean or an average for how often they completed certain behaviors over a period of time. Mean levels of behavior are a very useful source of information. For example, they give us a quick and easy way to characterize the typical behavior of a person. However mean levels of a behavior do not provide any information about how much a person changes their behaviors from situation-to-situation or from partner-to-partner.

Indeed, researchers such as Mischel and Shoda (1995) and Moskowitz (1994) argue that an individual's social behaviors tend to be quite variable across different situations and thus the variability that surrounds a mean level of a behavior is a very important source of information. Mischel (1968) argued that the actual degree of predictability of social behaviors that can be achieved with traits is negligible. In a more recent paper, Mischel and Shoda (1995) indicate that by dividing up the circumstances in which a person behaves into different classes, behavior can then be shown to be more stable. They indicate that researchers should attend to situational factors that define classes of situations within which an individual behaves consistently. For example, consider that a person may be cold in interacting with authority figures, but warm in interacting with peers. Unfortunately, Mischel and Shoda offered very little information about how to

categorize the relevant classes of situations for any particular individual (or set of individuals). Their main idea, however, is that a person's variability (or inconsistency) with regard to a broad trait is actually comprised of highly consistent behaviors within each relevant class of situations. For example consider the same person just mentioned previously, if they are consistently cold with authority figures and consistently warm with peers, when looking at their behaviors across both kinds of situations, they would show a lot of variability. However, if you look at their behaviors within each situation, they would show more consistency.

Other researchers such as Fleeson (2001) argue that an individual's standing on a trait can be characterized not only with a central tendency (mean level of behavior) but also with dispersion. He examined individuals' everyday trait behavior across three studies using the Big Five and affect scales. Over a period of two to three weeks, participants were asked to report how they were feeling and had been acting during the previous hour. His main conclusion was that a person's dispersion on a trait is just as important as their mean for a full understanding of that trait. Not only did peoples' mean level of a trait show stable individual difference, people's degree of variability (standard deviation) across time also demonstrated highly consistent tendencies. For a particular trait, for example extraversion, some people may vary a lot in their extraverted behaviors; whereas some people may not vary at all in their extraverted behaviors.

Moskowitz and Zuroff (2004) have examined patterns of variability across occasions in the interpersonal traits of dominance, submission, agreeableness (that is, the interpersonal construct of friendliness which is consistent with LM behaviors in Figure 1, rather than the Big Five trait), and quarrelsomeness (that is, the interpersonal construct of

hostility which is consistent with DE behaviors in Figure 1). They characterized variability on these traits using three types of standard deviations, which they called flux, spin, and pulse. The most relevant measure of variability for our present study is flux. Flux is defined as the variability in individuals' mean score on each of the four main poles of the circumplex and is simply calculated by taking the standard deviation around each mean across the occasions. Moskowitz and Zuroff argue that these types of fluctuations within the individual on these four types of traits constitute meaningful variables with which to characterize individuals, in addition to their overall mean levels of each trait. For example, Moskowitz and Zuroff (2005b) found that higher flux scores in submissiveness were strongly correlated with higher levels of neuroticism. In other words, people who varied a lot in their interpersonal submissiveness surrounding their mean levels showed higher levels of neuroticism. Paulhus and Martin (1987, 1988) indicate that being situationally appropriate in interpersonal behaviors is very important in addition to being interpersonally flexible. Thus, highly neurotic individuals may be too readily adapting to their interaction partners, constantly engaging in a variety of different interpersonally inappropriate behaviors in an attempt to secure a satisfying interaction. This constant change or flux in interpersonal behaviors for highly neurotic individuals may be associated with social anxiety or nervousness about how they come across to others and lead to a lower well-being and life satisfaction.

From the foregoing work, we can see that the variability or dispersion in people's interpersonal behavior is an important individual-difference characteristic supplementing their mean level of behavior. Another issue that arose from the work presented is how to measure people's interpersonal variability. Fleeson (2001) and Moskowitz and Zuroff

(2004, 2005b) used event sampling to investigate people's variability in their interpersonal behaviors and big five traits. The occasions in these studies were relatively unconstrained. Participants were either asked to report about significant interactions freely as they occurred, or after a certain number of hours.

Another way to sample interpersonal occasions is to focus on the interaction partner. For example, Suh (2002) asked participants to rate 25 traits about the self when interacting with four specific types of interaction partner (i.e., parents, romantic partner, same-gendered friend, and stranger) as well as to rate these 25 traits as they apply to their "general self". The results suggest that if people viewed their "self" more consistently across these five situations (i.e., with four interaction partners and one more generalized view), they were more likely to experience higher life satisfaction, more positive affect, and less negative affect. This study demonstrates that variability may be measured across a set of constrained occasions, like certain classes of interaction partner. Thus, a prime candidate for the classes of situational factors (in the Mischel and Shoda sense) which are particularly relevant for interpersonal behavior is the interaction partner.

We know that people's expression of interpersonal traits is strongly affected by the partner they are interacting with (Sadler & Woody, 2003; Suh, 2002). If we ask the question why and how do people vary, the answer may be that they are consistent with a particular partner but quite variable across different partners. Consider a person who has three partners, and is different with each partner. Across these three partners the person's behavior may look quite variable. However, if they consistently interact with these same set of partners across multiple occasions and we examine their behavior with each interaction partner, their general variability would look more stable. Interaction partner

may serve both as a potentially consistent source of variability in behavior of a person across partners, and as a class within which we can look for stronger consistency within an individual.

Perspectives on Variability and Interpersonal Difficulties

Interpersonal theorists have suggested that some variability in interpersonal style may be healthy, as long as it is attuned to interaction partner. Effective social interactions involve an appropriate adaptation of interpersonal behaviors to each interaction partner (Andrews, 1991; Carson, 1969; Paulhus & Martin, 1988). Affecting people's ability to adjust their interpersonal behaviors is rigidity (too much consistency) or too much variability. These extremes in people's interpersonal variation can be maladaptive for their social interactions (Kiesler, 1996).

One of the hallmarks of maladaptive interpersonal behaviors is too much consistency or rigidity (Kiesler, 1996). People who are rigid may display consistent behaviors across occasions regardless of whether the demands of the situation change. This may be caused by an inability to exhibit a wide variety of interpersonal behaviors or a lack of responsiveness to different interaction partners and situations. Due to the principle of complementarity (Kiesler, 1996), a rigid individual may pull for a more rigidly constricted range of responses from their interaction partners. They tend to persistently force others to adapt to them and do not modify their own behavior readily. Furthermore, they may ignore the bids from the interaction partner because they are too consistent with their restricted range of behaviors. As a result, these individuals may not as readily get what they want from their social interactions. Therefore, this part of Interpersonal Theory would suggest that a lack of flexibility is maladaptive and not helpful.

At the other extreme, people who show too much variability may be attempting to adjust their interpersonal style too readily, so much so that their behaviors become unpredictable across occasions. This high unpredictability may be due to emotions, motives, or other idiosyncratic causes. People who are too variable may display inconsistent behaviors across occasions and interaction partners. These people may be able to exhibit a variety of interpersonal behaviors; however their behaviors may not be appropriately attuned to the person they are interacting with. For example, an individual who is too variable may respond to all aspects of the interaction—the partner, the situation, and other people in the situation (Leary, 1957). A person who adjusts too readily may seem not to have a social personality of his or her own. Presumably such a person could too readily respond to others (and thus always appear like a reflection of another person). As another example, a person who is experiencing strong emotions such as social anxiety may ignore or miss messages their interaction partner is trying to convey due to preoccupation with their own internal states. This in turn, may cause the interaction partner to feel frustrated because of the unpredictability of the person's behaviors. In either case (adjusting to others too readily or being chaotic for more idiosyncratic reasons), the result may be that highly variable individuals may not get what they want from their social interactions, even though they may think they are being responsive to their partners. Therefore, this part of Interpersonal Theory would suggest that too much variability, variability that is unpredictable and not well attuned to the interaction partner, is maladaptive and not helpful.

Perspectives on Variability and Well-being

Researchers such as Kiesler (1983) and Tracey (2005) posit that individuals who are interpersonally flexible experience less distress than those individuals who are more rigid. Interpersonally rigid individuals are those who have an inability to alter behaviors in different social situations. That is, they tend to adopt an overly narrow set of preferred interpersonal behaviors. Individuals who are overly consistent or unresponsive to their interaction partners may experience interpersonal distress and other feelings of maladaptiveness because they are not getting what they want from their interactions. For example, Ciarrochi, Said, and Deane (2005) investigated whether behavioral rigidity increased the adverse effects of stress on mental health. They found a direct relationship between rigidity and poor mental health, increased anxiety, stress, depression, and hopelessness.

Tracey (2005) explored the relation between rigidity and interpersonal distress and whether interpersonal consistency was a moderator of adaptability. He argued that rigidity can exist at the trait level, as some people are more likely to engage in only a few types of behaviors. Furthermore, this trait index of rigidity is viewed as a reflection of an individual's ability to vary their own behavior in social situations. In Study 2 he examined whether individuals who displayed rigid (highly consistent) behaviors reported greater levels of interpersonal distress. Participants completed the Interpersonal Adjectives Scales (IAS) and the Inventory of Interpersonal Problems Circumplex (IIP-C). Octant scores on the IAS provided vector scores which were used to calculate the trait rigidity/extremeness indices. Scores on the IIP-C were used as a measure of interpersonal distress. Participants interacted with a randomly assigned partner on a mutual task, which was video taped and

coded. The results indicated that more trait rigid individuals (i.e., those who had greater IAS vector scores) showed higher levels of distress.

Interpersonal Theory suggests that people who tend to adjust their interpersonal dominance and friendliness during social interactions, in response to those with whom they are interacting, may experience less frustrating and more rewarding social interactions (Kiesler, 1996; Paulhus & Martin, 1987, 1988; Wiggins, 2003). In other words, being able to adjust to your partner appropriately rather than just being unpredictably variable can be more adaptive. As was previously shown by Moskowitz and Zuroff (2005b), people who were higher in flux surrounding their submissive behaviors were also higher in neuroticism.

Taken together, the findings from Ciarrochi, Said, and Deane (2005), Moskowitz and Zuroff (2005b), and Tracey (2005) indicate that extremes in interpersonal variability may result in interpersonal difficulties. In other words, these types of extremes in behaviors variability may lead to dissatisfying and stressful interactions. These findings suggest that there may be some optimal level of variability to ensure more satisfying and rewarding interactions.

Perceptions of Others' Behaviors

Although our primary focus in the present study is about how variability in behavior is related to people's problems and well-being, it is also possible that people's problems and well-being are related to how they perceive others. Indeed there is considerable evidence that suggests that people who are hostile or aggressive may perceive more hostility in others (Orobio de Castro, Veerman, Koops, Bosch, & Monshouwer, 2002).

In an interesting study, Dodge and Somberg (1987) examined whether aggressive boys displayed biases towards attributing hostile intentions to others' behaviors. Furthermore, they examined if aggressive boys also showed a deficit in interpreting others' intentions. Aggressive and non-aggressive boys viewed videos depicting one young boy (who was a provocateur) commit a behavior which leads to a negative consequence for another boy. The intentions of the provocateur are varied in four different scenarios: (1) the intention is clearly hostile, (2) the intention is accidental, (3) the intention is prosocial, and (4) the intention is ambiguous. The results of the study suggest that aggressive boys were less skilled at interpreting the intentions of the provocateur in the video. Furthermore, they were also more likely to attribute hostile intentions to the provocateur when the intention was ambiguous. This suggests that the ways in which others' behaviors and intentions are viewed can be affected by personality characteristics (e.g., aggression).

People who have interpersonal difficulties or problems in certain domains may also show similar attribution or intention biases when perceiving the behaviors of others. For example, consider people who indicate that they have a lot of problems in hostility (i.e., they are "too hostile") and perceive themselves to act quite hostile across different interaction partners. These people may more readily perceive others as acting in a more hostile manner in their interactions. Consider someone who indicates that they have a lot of problems in dominance. People with dominance problems may perceive themselves to act quite dominantly with different interaction partners and may more readily perceive others as showing a lot of dominance as well. Furthermore, a person who is efficacious in friendly behaviors may notice these behaviors in others more than someone who is not.

Being interpersonally too consistent or too variable may also be associated with people's perceptions of others' interpersonal behaviors. A rigid individual may persistently force others to adapt to them and may ignore signals (or bids) coming from their interaction partner. In contrast, people who show too much variability may be attempting to adjust their interpersonal style too readily, leaving their interaction partner confused because they are so unpredictable. If a person is ignoring or not paying attention to the bids from their interaction partner, they may interpret the interaction quite differently. Thus, their views of their interaction partner's behaviors may be influenced by the extremes in their own interpersonal behaviors.

Focus of the Current Studies

First, in Study 1, we look at assessment of variability in interpersonal behavior over 45 different interaction partners (i.e., across-person variability) using a one-time measure completed in the lab. That is, this approach assesses how much a person's dominance behaviors (for example) change as they interact with different partners. Consider two individuals who perceive themselves to have the same mean level of dominance—both are moderately dominant when averaged over all 45 of their interaction partners. On the one hand, Sally's dominance levels vary quite a lot over 45 different interaction partners: She may be very dominant with her mom, very submissive with her boss, moderately dominant with some of her friends, slightly dominant with her hair dresser, and so forth. On the other hand, Sam's dominance varies very little (i.e., he perceives himself to be highly consistent) regardless of with whom he interacts: He may be moderately dominant with his mom, and with his boss, with his friends, his hairdresser, and so forth.

The above example highlights possible individual differences in *variability*; however, we would also expect that this approach would capture individual differences in people's *mean* levels of behavior. It is interesting to consider how individual differences in (both in terms of means and variabilities of behaviors over 45 interaction partners) may be related to people's interpersonal problems. Consider people's mean levels of dominance behavior over 45 people. Those who are high on dominance problems (i.e., they have problems being "too dominant") may report higher mean dominance levels over 45 people than those who are low on dominance problems. Conversely, those who are high on submissiveness problems (i.e., they have problems being "too submissive") may report lower mean dominance levels of 45 people than those who are low on submissiveness problems.

More importantly in this investigation is the question of whether self-reported interpersonal problems reflect variability difficulties. We investigate two possibilities in this regard: too much variability and too little variability (or too much consistency). If interpersonal problems reflect *too much variability*, then people who are high in dominance problems (i.e., they have problems being "too dominant") should have *higher* standard deviations of dominance dimension behavior over 45 people than those who are low in dominance problems. Those who are high in submissiveness problems (i.e., they have problems being "too submissive") should also have *higher* standard deviations of dominance over 45 people than those who are low in submissiveness problems. That is, we could expect *positive correlations* between the variability of dominance behavior over 45 people and the problems at both poles of the same dimension (dominance problems and submissiveness problems)[1]. On the other hand, if interpersonal problems reflect *too little*

variability (or too much consistency), then people who are high in dominance problems (i.e., they have problems being "too dominant") should have *lower* standard deviations of dominance dimension behavior over 45 people than those who are low in dominance problems. And those who are high in submissiveness problems (i.e., they have problems being "too submissive") should also have *lower* standard deviations of dominance over 45 people than those who are low in submissiveness problems. That is, we could expect *negative correlations* between the variability of dominance behavior over 45 people and the problems at both poles of the same dimension (dominance problems and submissiveness problems).

Note that with this first kind of approach, a person's dominance is assessed by asking what s/he is like *on balance* or *on average* with each person. Thus, with this particular approach, multiple occasions with the same interaction partner are *not* assessed. In contrast, the second type of variability includes people's variability over multiple occasions with the same interaction partner. This type of variability is obtained in Study 2 by assessing interpersonal behavior over many interaction partners during a 21-day period. This approach allows us to collect information with regard to two types of partners: those with whom the person has interacted on more than one occasion, and those with whom the person has interacted only once. However, this approach does not discriminate between across- and within-person variability. Rather, this approach focuses on obtaining as much variability in people's real life circumstances as possible over this period of time including both types of partners (one-occasion and many-occasion) and both types of variability over 21 days (across- and within-person). This second type of variability is also captured by a standard deviation over a larger number of interactions (approximately 120 interactions

over 21 days) than the first type of variability. For example, let us consider Sally and Sam in this particular 21-day context. Again, both have about the same moderate level of dominance averaging over their respective 120 interactions during the 21 days. However, now Sally's high variability includes her dominance with her mom in several circumstances as well as with her friends on multiple occasions, several interactions with her boss, and so forth. Thus, it is possible that her behavior is *even more* variable than what was captured using the first type of approach. Likewise, Sam's low variability now includes his dominance with his mom in several circumstances, as well as with his friends on multiple occasions, several interactions with his boss, and so forth. Thus, it is possible that his behavior, too, is more variable than what was captured using the first type of approach. In sum, this second type of variability may be a better, more comprehensive measure of people's daily interaction styles and how they may (or may not) differ over a variety of circumstances.

Once again, we investigate how well self behavior obtained using this second type of approach (both in terms of means and standard deviations over 21 days) relates to people's interpersonal problems. As a particular focus, do people's interpersonal problems reflect "too much variability" (in accordance with ideas suggested by theorists such as Leary, 1957) or "too little variability" (in accordance with ideas suggested by theorists such as Kiesler, 1996)? In addition, we relate these people's behaviors to measures of personality styles and psychological adjustment. For example, do people who feel more efficacious in enacting particular interpersonal behaviors show patterns of variation in their interactions across 21 days that suggest *skillful variability* (more akin to flexibly responding to different interaction partners) or *skillful consistency* (more akin to "sticking

with what you know well")? Furthermore, do people who are more interpersonally variable tend to report higher well being and life satisfaction (perhaps due to being "flexible" in managing a variety of interactions and partners)? Alternatively, do people who are more interpersonally consistent tend to report higher well being and life satisfaction (perhaps due to being "predictable" in managing their interactions)?

The foregoing two types of approaches are measured in the present work using a standard deviation. For example, in Study 1 variability is measured by computing the standard deviation of a person's dominance over 45 different interaction partners, and in Study 2, variability is measured by computing the standard deviation of a person's dominance over all interactions reported in 21 days. Neither one of these first two approaches attempts to address how *predictable* is a person's behavior in terms of with whom they are interacting. Therefore, the third type variability that we capture is a type of within-person variability that we operationalize and describe from now on as predictability. This approach involves measuring what proportion of variance in a person's behaviors can be accounted for by his or her interaction partner. We measure this degree of predictability in people's behavior using the 21-day Palm Pilot methodology in Study 2. For example, let us consider Sally and John in this particular 21-day context. Both have about the same moderate level of dominance, averaging over their respective 120 interactions over the 21 days. Both also have a high level of variability in their dominance behaviors, as indexed by the standard deviation on dominance. However, Sally's variability may be *highly predictable*, depending on with whom she is interacting: She is consistently high in dominance with her mother, consistently moderate in dominance with her friends, and low in dominance with her boss. If her high variability over all her

interaction partners is quite predictable based on interaction partner, then the proportion of variance in her behavior that is due to interaction partner (as indexed by an intraclass correlation) may be quite high (say around 80%). In contrast, John's high variability may be *quite unpredictable*. With his mother, he is sometimes high, sometimes moderate, and sometimes low in dominance. His dominance behavior tends to be similarly unpredictable with other interaction partners, such as with his friends and with his boss. If his high overall variability is quite unpredictable based on interaction partner, then the proportion of variance in his behavior that is due to interaction partner (as indexed by an intraclass correlation) may be quite low (say around 5%). In sum, this approach provides a different measure of people's within-person variability that distinguishes those who are more predictable from those who are more unpredictable based on interaction partner.

Why might this third approach be important? High variability, as indexed by a standard deviation, may not necessarily be a maladaptive quality. Perhaps some people who are highly variable are simply more skilled or flexible, in that they are able to enact a wide variety of different behaviors, but in ways that may be quite predictable to any one of their particular interaction partners. On the other hand, perhaps people who are more unpredictable based on interaction partner have less skill in managing a variety of interaction partners and occasions. Rather than responding to how their various interaction partners are behaving, their variability may be due to idiosyncratic and other hard-to-predict sources. This unpredictability, in turn, could make it quite awkward for the majority of their interaction partners, who may not be able to predict what this person will be like from occasion to occasion.

In this light, it is interesting to consider how well this predictability relates to specific types of maladaptive qualities (such as people's interpersonal problems and personality variables such as neuroticism), as well as to somewhat more adaptive or positive qualities (such as people's interpersonal self efficacy and well being and life satisfaction). In terms of the relationships with interpersonal problems, perhaps the proportion of variance is a better, more finely tuned measure than the two types of standard deviations we compute. Therefore, in a similar fashion to the approach relating the standard deviation to interpersonal problems, we focus on whether people's interpersonal problems show patterns of correlations that are more supportive of a "high predictability" problem or "low predictability" problem based on interaction partner. As previously mentioned, we also relate the proportion of variance to measures that tend to be more associated with people's positive psychological adjustment, such as interpersonal efficacy, well being, and life satisfaction. For example, do people who are higher in predictability based on interaction partner in a particular dimension (such as dominance) tend to also feel efficacious in domains (octants) that are relevant to that dimension (such as dominance and submissiveness)? Likewise, do people who are higher in predictability based on interaction partner in a particular dimension have a greater well being and satisfaction with life?

Study 1: Variability in Perceived Interpersonal Behavior over 45 Different Interaction Partners

The present work examines whether there are individual differences in how consistent or variable people behave over a variety of interaction partners. In addition, we

investigate whether there are reliable associations between patterns of self behavior and perceptions of others' behaviors.

In order to examine these individual differences, we asked participants to list 45 people with whom they have interacted on more than one occasion. To capture people's full social world, participants were told that these interaction partners could include people they like as well as people they dislike. After participants listed 45 people, they were asked about their behavior and their perceptions of others' behavior for all 45 people. They completed a 16-adjective questionnaire indicating how they behave when interacting with each person from the list. In other words, they filled out the 16-adjective questionnaire 45 times for their self behaviors. Participants were also asked about their perceptions of how the 45 people on their list behave when they interact with them (perceptions of others). Once again, they filled out the same 16-adjective questionnaire indicating how they think each of the 45 people on the list behaves toward them when interacting. In other words, they completed the 16-adjective questionnaire another 45 times for their perceptions of others' behavior.

Individual differences in self behaviors and perceptions of others' behaviors can be captured using two means (dominance and friendliness means), and two standard deviations (dominance and friendliness standard deviations). The relationship between how related a person perceives their dominance and friendliness behaviors are also captured by a correlation between the two dimensions. From these behaviors and perceptions, we derived 12 new indices for each participant. We calculated self indices (that is, indices denoting behaviors of the self), other indices (that is, indices denoting

perceptions of others), and indices about the relationship between self behavior and perceptions of others. These indices will be further explained in the results sections.

Proposed Hypotheses

In this study, we aim answer two main questions. The first question asks whether there are reliable individual differences in the 12 new indices we calculated. Secondly, we would like to know if these indices are related in interesting ways to standard interpersonal questionnaires that assess interpersonal problems, interpersonal values, and interpersonal trait behavior.

Predictions about Interpersonal Problems. We advance predictions about the relationship between problems and mean levels of behavior, as well as between problems and variability of behavior. We also extend these hypotheses to perceptions of others. Individual differences in the above-mentioned indices may be related to people's interpersonal problems. First, the overall pattern of relationships for problems in all octants with *mean levels of behavior* over 45 people is described in the Results section; however, we illustrate the idea with two examples here. Consider a person who has problems with dominance. That is, they are too dominant on interpersonal measures of difficulties. For example, they indicate it is hard for them to "take instructions from people who have authority over me". What might this suggest in terms of their mean dominance behavior over 45 people? We would expect that they would be consistently dominant (they are too dominant) with their 45 interaction partners. Therefore, the correlation between dominance problems and self-dominance mean should be positive. That is, the higher participants' dominance problems are, the higher their mean self-dominance would be over 45 people. By similar reasoning, a person who is higher on submissiveness problems (they are too

submissive) should tend to be consistently submissive over their 45 interaction partners. Therefore, the correlation between submissive problems and self-dominance dimension mean should be negative.

Second, are interpersonal problems of a *too much variability* sort or *too much consistency* sort? If interpersonal problems reflect difficulties expressing too much variability in dominance behaviors over 45 people then we would expect to see positive correlations between dominance octant and submissiveness octant with self-dominance standard deviation. If interpersonal problems reflect difficulties expressing too much consistency, then we would expect negative correlations between the dominance octant and submissive octant with self standard deviation.

Third, we extend the above mentioned hypotheses about problems to *mean levels* and *variability in perceptions of others*. Considering a person with dominance problems, what might this suggest in terms of their perceptions of others' dominance over 45 people? One possibility is that a person who is consistently being too dominant (for example) may perceive others to consistently be highly dominant as well. Thus, we might expect the correlation between self-dominance problems and other-dominance mean to be positive. Perhaps people who are too dominant readily tap into this behavior, noticing it in themselves as well as in other people's behaviors. In addition, we would expect a similar pattern of correlations, as predicted for self-dominance standard deviation, for interpersonal problems and others' standard deviation. In other words, if it is a problem of expressing too much variability then the correlations between others' standard deviation and the dominance octant and submissiveness octant will both be positive. In contrast, if it is a problem of expressing too much consistency then the correlations between others'

standard deviation and the dominance octant and submissiveness octant will both be negative.

All of the foregoing hypotheses about the relationships between problems and mean levels of behavior and variability of behavior extend to the friendliness dimension as well. The overall expected patterns will be described in the Results section.

Predictions about Interpersonal Values and General Trait Behavior. We advance similar predictions about the relationship between values and trait behaviors and mean levels of behavior, as well as between values and trait behaviors and variability of behavior. We also extend these hypotheses to perceptions of others.

Interpersonal Values. Consider a person who indicates that they highly value interpersonal dominance. That is, they indicate that it is important for them "to appear confident". We would expect the correlation between dominance values and self-dominance mean to be positive. By similar reasoning, a person who values submissiveness should tend to be highly submissive over their 45 interaction partners. Therefore, the correlation between submissive values and self-dominance dimension mean should be negative.

Furthermore, if a person highly values dominance we would expect them to act more consistently dominant across all their 45 interaction partners. We would expect a negative correlation between dominance values and self-dominance standard deviation. Similarly, if a person values submissiveness, then we would expect a positive correlation between submissiveness values and self-dominance standard deviation.

General Trait Behaviors. Consider a person who indicates that they are highly trait dominant. That is, they indicate that over the last month they frequently "set goals for

others". We would expect that people who are highly trait dominant would engage in a lot of dominance behaviors across their 45 interaction partners. Therefore, the correlation between trait dominance and self-mean dominance should be positive. Furthermore, we would expect these highly trait dominant people to be consistently dominant. Thus, we would expect a positive correlation between highly trait dominant people and self-dominance standard deviation.

All of the foregoing hypotheses about the relationships between interpersonal values and trait behavior and mean levels of behavior and variability of behavior extend to the friendliness dimension as well.

Predictions about Correlations. As previously mentioned, according to Interpersonal Theory, octants that are 90 degrees to one another should not be related. The dominance and friendliness dimensions are at 90 degrees to one another. Thus, the correlations between behaviors on these dimensions should be zero. Likewise, if participants perceive others' behaviors in accordance with Interpersonal Theory, we would also expect other-dominance and other-friendliness correlations to be zero.

According to interpersonal reciprocity we would expect a negative correlation between self-dominance and other-dominance (perceived reciprocity) because dominant behavior should pull for the opposite behavior. Likewise, according to interpersonal correspondence, we would expect a positive correlation between self-friendliness and other-friendliness (perceived correspondence), because friendly behavior pulls for friendly behavior.

In Study 1 we hope to do two things: (1) identify whether our indices reveal reliable individual differences, and (2) show that these individual differences relate to other variables in interesting ways.

Method

Participants

One hundred sixteen participants from Wilfrid Laurier University were recruited to take part in the study over three semesters. Forty two participants were recruited from a Psychology summer paid participant pool for which they were each paid twenty dollars. The remaining seventy three participants were Psychology 100 students who participated for course credit. There were 54 men and 62 women who took part in the study. Ages ranged from 18-45, with a mean age of 20.85 years.[2] We removed five participants from the analysis because of incomplete data.[3] Therefore, the final sample consisted of 51 men and 60 women.

Measures

Inventory of Interpersonal Problems Circumplex. The IIP-C (Alden, Wiggins & Pincus, 1990) asks participants to rate how distressed they are by each of 64 interpersonal problems, eight items tapping each circumplex octant. Participants are asked two kinds of questions representing deficits and excesses. They are asked whether an item *is too hard for them* to do, or whether they *do the item too much.* An example of a dominance problem (PA octant) is the deficit, "It's hard for me to understand another person's point of view". An example of an affiliation problem (LM octant) is the excess, "I try to please other people too much". Participants are asked to rate these problems on a scale from 0 (*not at all*) to 4 (*extremely*) (see Appendix A).

Circumplex Scale of Interpersonal Values. The CSIV (Locke, 2000) asks participants about their agentic and communal values. There are 64 items on the questionnaire. Participants read the following instructions: "For each item below, answer the following question: "When I am in interpersonal situations (such as with close friends, with strangers, at work, at social gatherings, and so on), in general how important is it to me that I act or appear or am treated this way?" The questionnaire has eight subscales covering all the circumplex octants. Approximately half the items (38 questions) ask people about what they value in themselves and the remaining items (26 questions) are about what people value or want from others. For example, a question that taps values desired in the self is, "I put their needs before mine" (JK octant). An item that taps values or wants desired in others is, "They think I am a nice person" (JK octant). Participants are asked to rate these items on a scale of 0 (*not at all*) to 4 (*extremely*) (see Appendix B).

Social Behavior Inventory. The SBI (Moskowitz, 1994) asks participants to rate how often they engaged in 46 behaviors over the last month. The questionnaire has four subscales: dominance, submission, agreeableness (circumplex friendliness), and quarrelsomeness (circumplex hostility). An example of a dominance question is, "I set goals for others". An example of a quarrelsome item is, "I criticized others". Participants are asked to rate these behaviors on a scale from 1 (*never*) to 6 (*almost always*) (see Appendix C).

Self-Other Questionnaire. The Self-Other questionnaire has three sections. In the first section, participants list 45 people they have interacted with on more than one occasion. The list includes the name of the person, their relationship, and how long they knew each person (see Appendix D). In the second section, participants answer questions

about their own behavior with each of the 45 people listed in section 1. In the third section, they answer questions about each of the 45 other people's behavior.

Section two consists of 16 adjectives, two from each octant of the circumplex. These adjectives, which are shown in Figure 1, were selected during the course of another project (Hodara, 2007). Participants are asked to indicate on a scale from 1 (*extremely inaccurate*) to 8 (*extremely accurate*) how accurately these words describe their behavior. The instructions are the following, "Please think about how you behave when you interact with _____. It might be helpful to call to mind one or two interactions in particular. From your perspective, please indicate how well each adjective describes you when you interact with _____" (see Appendix E). Participants complete their answers to the 16 adjectives indicating what their own behavior is like when interacting with the first person on their list from section one. They complete these 16 adjectives for their own behavior with the second person from their list, and so on. Therefore, participants complete this list of 16 adjectives for their own behavior 45 times, once per person listed in section one.

Section three consists of the same 16 adjectives and the same response scale. However, participants are asked to indicate how accurately these words describe others' behavior. Participants complete their answers to the 16 adjectives indicating what they think the other person's behavior is like when interacting with them. They complete the 16 adjectives for the first person on their list from section one, then for their second person on their list, and so on. Therefore, participants complete these 16 adjectives 45 times assessing each of the other people's behavior.

Procedure

Participants completed a series of questionnaires on computer or paper.[4] The study was conducted in the lab and participants completed the study either in small groups or one-on-one with the experimenter. Participants filled out the three interpersonal questionnaires always beginning with the SBI. This was done so that participant reports of values or problems would not affect their reports of their behavior.[5] They then completed the three sections of the Self-Other questionnaire. Between sections two and three of the Self-Other questionnaire, participants were given a break (approximately 10 minutes), during which drinks and snacks were provided. In total, participants took approximately two hours to complete the study. Because of the length and repetitiveness of the study, participants were given the option of receiving personalized feedback based on their data as an added incentive to continue to give their best effort throughout the study.

Three different types of orders on the Self-Other questionnaire were counterbalanced to help control for fatigue and ordering effects. First the 16 adjectives were counterbalanced so that approximately half the participants (N=61) received all the adjectives in the order listed in Appendix E; whereas the other half of participants (N=55) completed the adjectives such that the last eight were presented first. In other words, the adjective "assertive" (which is the ninth adjective in Appendix E) and "outgoing" (which is the tenth adjective) were presented as the first and second adjectives on the counterbalanced list. Second, approximately half of the participants (N=55) completed section two (self behaviors) before section three (other perceptions), whereas the remaining participants completed the two sections in the opposite order. Third, the order in which each interaction partner's name appeared in sections two and three was counterbalanced. Notably, the order in which all participants rated each interaction partner

was determined by the number the participant placed them on their list. However, for approximately half of the participants (N=61), if "Mom" was the first name in section one, then "Mom" was the first person presented in section two and in section three. Likewise if "Dad" was the second name in section one, then "Dad" was the second person presented in sections two and three. For the remaining participants (N=55), the names in sections two and three were presented in the reverse order. For example, if "Mom" was the first name in section one, then "Mom" was the 45^{th} person presented in section two and in section three. Similarly, if "Dad" was the second name in section one, then "Dad" was the 44^{th} person presented in sections two and three, and so on for all 45 interaction partners.

Results

For each participant we calculated 12 indices to capture behavior, perceptions, and the relationship between these variables over 45 interaction partners. The first five indices are about behavior: self-dominance mean (Index 1), self-friendliness mean (Index 2), self-dominance standard deviation (Index 3), self-friendliness standard deviation (Index 4), and correlation between self-dominance and self-friendliness (Index 5). The next five indices are about perceptions of others: other-dominance mean (Index 6), other-friendliness mean (Index 7), other-dominance standard deviation (Index 8), other-friendliness standard deviation (Index 9), and correlation between self-dominance and self-friendliness (Index 10). The last two indices are about two relationships between behavior and perceptions that are particularly relevant in interpersonal theory. The correlation between self-dominance and other-dominance (Index 11) characterizes the degree of perceived reciprocity across all 45 interactions. Self-friendliness and other-friendliness correlation (Index 12) characterize the degree of perceived correspondence.

Summary of Our Approach and Main Indices

These indices were captured as follows. For each participant we calculated four dimension scores: self-dominance, self-friendliness, other-dominance, and other-friendliness. Recall that each participant responded to 16 adjectives (shown in Appendix E) for their self behaviors and perceptions of others' behaviors for each of the 45 people listed. To calculate the mean self-dominance dimension score, the following steps were taken: (1) with each partner, the self ratings for the two adjectives in each octant were averaged to obtain octant scores, (2) A self-dominance dimension score with each partner was computed using the following trigonometric formula (Dryer & Horowitz, 1997):

Self Dom = PA + .707BC + (0DE) - .707FG – HI - .707JK + (0LM) + .707NO,

(3) For each participant, the average of these dimension scores over all interactions was computed. The same three-step approach was followed to compute self-friendliness dimension scores, but using the following trigonometric formula in step 2 instead:

Self Fri = LM + .707NO + (0PA) - .707BC – DE - .707FG + (0HI) + .707JK.

Other-friendliness and other-dominance dimension scores were computed in the same manner; however we used the scores from the perceptions of others.

These four mean dimension scores are indices 1, 2, 6, and 7 in subsequent analyses. The remaining indices were computed from the results from step 2. For example, self-dominance standard deviation (Index 3) is the standard deviation of self-dominance dimension scores with the 45 interaction partners. The self-friendliness standard deviation (Index 4) was computed the same way across the 45 self-friendliness dimension scores. The correlation between self-dominance and self-friendliness (Index 5) is simply the correlation of the 45 self-dominance and self-friendliness dimension scores.

To help illustrate the usefulness of these indices, consider that each person's dominance and friendliness behaviors can be shown in a bivariate distribution plot. For example, Figure 2a shows two participants' self ratings from Study 1. Plotted along the X-axis are friendliness dimension behaviors and along the Y-axis dominance dimension behaviors. Each point in the graph represents friendly and dominant behaviors per interaction partner. There are 45 points for each participant. In other words, one point (or dot) represents a person's dominant or friendly behaviors with a particular interaction partner. If we look at the plot on the left-hand side, on average, this person appears slightly more dominant than submissive (M = 2.5). This person's mean friendliness is about 0. However, if we now examine the standard deviations around those two means, we can see that this person varies somewhat in their dominance behaviors depending on whom they are interacting with (from about -5 to 8). Furthermore, when we look at their friendliness behaviors, they vary quite a lot (from about -15 to 15). That is, their standard deviation for friendly behaviors would be quite large. So this person can show quite friendly behaviors and hostile behaviors depending on whom they are interacting with. Of course, we can also examine how related this person's dominance and friendliness behaviors are by examining the correlation between their dominance and friendliness behaviors over 45 interaction partners.

Now if we examine the plot on the right-hand side of Figure 2a, on average this person is more dominant and friendly across all of their interaction partners than the person in the previous example. Their mean dominance is around a 6.0 on this scale and mean friendliness is about 10.0. We can further see that there is not a lot of movement around these means from partner to partner (i.e., the standard deviations surrounding both

of these means are small). Across this person's 45 interaction partners, they are generally quite friendly and dominant.

As these two examples illustrate, individual differences in each person's bivariate distribution of their behaviors over 45 people in dominance and friendliness can be captured well using two means and two standard deviations (and a correlation, although we do not emphasize this last index here). Thus, for each participant we used these five indices, plus the corresponding five indices for their perceptions of others. Two additional indices for perceived reciprocity and perceived correspondence were also used.

The results are presented in three sections. The assessment of whether the new indices capture reliable individual differences is presented first. Next the reliabilities of the predictor variables (interpersonal problems, values, and interpersonal style) are presented. We then report the findings on the relationship between the predictor variables and the indices.

Individual Differences on 12 New Indices. We calculated the reliability of each of the 12 indices using an approach similar to the split-half method. For example, for each participant's self-friendliness scores, we split them into the scores from the odd- and even-numbered interaction partners. For each participant, we then calculated the mean for the odd-numbered interaction partners and the mean for the even-numbered interaction partners across all participants. The means for the odd scores and even scores were then correlated. We boosted the correlation between even and odd scores by using the traditional equation for split half reliability: $r_{cc} = 2r_{AB} / 1 + r_{AB}$. This approach produced the reliability for self mean friendliness. A similar approach was used for the remaining indices.

The reliabilities of the indices are presented in the last column of Table 1. For the self-mean and self-standard deviation indices (1-4), the reliabilities were excellent, ranging from .91 to .99. The reliabilities for the perceptions of other-mean and other-standard deviation indices (6-9) were good to excellent, all above .83. Generally, the reliabilities of the correlations were not as good as for the means and standard deviations (Indices 5, 10, 11, and 12); however they were all reasonably acceptable or good, ranging from .55 to .73.

The mean, standard deviation, maximum and minimum of each index are presented in the first four columns of Table 1. Because these indices are new, it was important to examine these descriptive statistics to ensure that there were indeed individual differences on each of them. The means of the indices are presented in column 1 of the Table 1. The column of standard deviations as well as the column of minimum and maximum values indicates individual differences on all 12 indices. We also examined the skew of each index to ensure that the distributions of the indices were approximately normal. The skews of the indices were all below 3, which according to Kline (2005) is acceptable.

Interestingly, the overall average for perceived reciprocity (the correlations between self-dominance and other-dominance, Index 11) was approximately zero, $M = -.06$. On average, participants saw their dominance behaviors and that of others to be unrelated, rather than strongly negatively related as Interpersonal Theory would predict. Furthermore, the average perceived correspondence (self-friendliness and other-friendliness correlation, Index 12) was positive, $M = .59$, which is consistent with what Interpersonal Theory would predict.

Although we did not advance any hypotheses specific to gender differences, we used t-tests to examine any potential differences in the indices due to gender. The means

for each gender on each of the 12 indices are presented in Table 2. On average, women behaved in a more friendly manner than men, $M_{male} = 6.81$, $M_{female} = 8.05$, $t = -2.26$, $p < .05$. Furthermore, in comparison to men, on average women perceived others as more dominant, $M_{male} = 1.38$, $M_{female} = 2.28$, $t = -2.15$, $p < .05$, and more variable in their dominance, $M_{male} = 2.26$, $M_{female} = 3.40$, $t = -3.05$, $p < .01$.

Predictor Variable Reliabilities. The reliabilities for the predictor variables are presented in Table 3. The reliabilities for the Inventory of Interpersonal Problems Circumplex (IIP-C) are presented in the first column of numbers. They ranged from good to very good (.75 to .88). The obtained reliabilities for the IIP-C are consistent with what has been published in papers (Alden, Wiggins, & Pincus, 1990). The reliabilities of the Circumplex Scale of Interpersonal Values (CSIV) are presented in the third column of numbers. These CSIV reliabilities also were reasonably good, ranging from .68 to .84. These reliabilities are consistent with those published in Locke (2001). The fifth column of numbers contains the reliabilities for the Social Behavior Inventory (SBI). The reliabilities of the SBI were acceptable, ranging from .72 to .79. These findings are consistent with the reliabilities in published literature (Moskowitz, 1994).

In addition to the above reliabilities, we also calculated the reliabilities of the ipsatized items from the IIP-C, CSIV, and SBI. Ipsatization is proposed to minimize response bias in scores. Ipsatized scores are calculated by subtracting each person's overall mean on a particular measure from each of their subscale scores. In theory, removing the overall mean for each participant removes a general factor that may affect the scores. Some researchers (e.g., Erickson, Newman, & Pincus, 2007) argue that this general factor may include important variance, which then would be removed when scores are ipsatized.

However, this method of ipsatizing scores is commonly used by Interpersonal researchers (e.g., Locke, 2001; Moskowitz, 1994; Moskowitz & Zuroff, 2004). Often the patterns of correlations of subscales within the same questionnaire do not work properly before they are ipsatized, and this is often the case with correlations between external variables, too.

To our knowledge researchers do not usually report the reliabilities of their ipsatized subscales. Because all of the correlations we present in subsequent analyses are with the ipsatized subscales, we thought it was important to present the reliabilities of the ipsatized items for each subscale. It is expected that such reliabilities would be lower than for the non-ipsatized subscales, because the overall mean for each person is subtracted out.

The reliabilities of the ipsatized IIP-C (presented in column two of Table 3) were reasonably good, ranging from .60 to .79. Column four contains the ipsatized reliabilities for the CSIV. Surprisingly, three of the subscales fell far below the acceptable .60 cutoff. They ranged from .33 to .49. The remaining five subscales were acceptable, ranging from .59 to .72.[6] The SBI reliabilities are presented in column six. The reliabilities were reasonably acceptable, ranging from .53 to .70. In sum, generally the reliabilities of the ipsatized subscales for the predictor variables were reasonably acceptable, with the exception of dominance (PA), hostile-submissive (FG), and friendly-dominant values (NO). The lower reliabilities on these three latter subscales would be expected to depress any correlations of these subscales with the 12 indices.

Relationship between the Predictor Variables and Indices

This section examines our hypotheses regarding the relationship between the indices and the main predictor variable—interpersonal problems (which was assessed overall, without reference to interaction partner). In addition, very brief summaries of the

relationship between the indices and two additional predictor variables (trait values and trait behavioral style) are also given. However, we first start by exploring the detailed pattern of predictions and statistical tests that we used.

Structural Summary. In order to examine the relationships between the predictor variables and the indices, we constructed a series of plots with the indices on the Y-axis and the ipsatized octant subscales on the X-axis. We expected the plots to reveal an overall pattern of a cosine or sine wave as shown in Figure 3 (assuming no measurement error and perfectly related constructs). The first graph shows the expected pattern of correlations of interpersonal problems with mean dominance dimension behaviors over 45 interaction partners. Thus, we would expect a dominance score to correlate positively with the PA scale (dominance problems), correlate negatively with the HI scale (submissiveness problems), and correlate approximately zero with both the DE (hostility problems) and the LM (friendliness problems) scales (because according Interpersonal Theory, the dominance and friendliness dimensions are unrelated). We would also expect dominance scores to correlate positively with both BC and NO scales (but not as positively as the correlations with PA) and correlate negatively with both FG and JK scales (but not as negatively as the correlations with HI). Similarly, in the second graph in Figure 2 the expected pattern of correlations between mean friendliness dimension behaviors over 45 interaction partners and each problem octant is shown. In this case however, we would expect mean friendliness scores to correlate positively with the LM scale (friendliness problems), correlate negatively with DE scale (hostility problems), and correlate approximately zero with both the PA scale (dominance problems) and the HI scale (submissiveness problems). Furthermore, mean friendliness scores should correlate

positively with both the JK and NO scales (but not as positively as the correlations with LM) and negatively with both the BC and FG scales (but not as negatively as the correlations with DE).

The third and fourth plots in Figure 3 show two alternative patterns of correlations of interpersonal problems we might expect with the standard deviations of dominance dimension scores. The third plot reflects a hypothesis of interpersonal problems showing up as *too much variability* in dominance behavior over 45 interaction partners. Specifically, if we look across the graph, if people's interpersonal problems reflect difficulties expressing too much variability in dominance behaviors over 45 people, then we would expect to see positive correlations between PA and HI with self-dominance standard deviation, zero correlations with DE and LM (because according to Interpersonal Theory these dimensions are unrelated), and positive correlations with BC, FG, JK, and NO but not as high as the correlations with PA and HI. The fourth plot in Figure 2 shows the expected pattern if interpersonal problems show up as *too much consistency* in dominance behaviors over 45 interaction partners. In particular, if people's interpersonal difficulties reflect difficulties expressing *too much consistency*, then we would expect negative correlations with PA and HI, zero correlations with DE and LM, and negative correlations with BC, FG, JK, and NO but the latter four correlations should not be as highly negative as the correlations with PA and HI.

In sum, the third and fourth plots represent two competing hypotheses about the relationship of variability to dominance behavior. A parallel set of hypotheses about the relationship of interpersonal problems to friendliness behavior were also examined. These friendliness plots should have the same form shown in the third and fourth plots in Figure

3; however, expected high points and low points would be shifted. For too much variability for friendliness (akin to the third plot), we would expect the most positive correlations with LM and DE, zero correlations with PA and HI, and moderately positive correlations with BC, FG, JK, and NO. In contrast, for too much consistency for friendliness (akin to the fourth plot), we would expect the most negative correlations with LM and DE, zero correlations with PA and HI, and moderately negative with BC, FG, JK, and NO.

To summarize the shape and structure of such overall patterns of correlations with circumplex measures in terms of their cosine properties (particularly those patterns shown in the first two plots of Figure 3), researchers have used a "structural summary" which consists of three indicators: elevation, amplitude, and (angular) displacement (Dickinson & Pincus, 2003; Gurtman & Balakrishnan, 1998; Gurtman & Pincus, 2000). These three indicators together describe the actual, obtained cosine or sine curve. Elevation is the mean value or the mean of all the correlations across the profile. Amplitude is the distance from the mean value to the highest peak on the curve. For example, if the curve has a large amplitude (a high peak and trough) this would indicate a highly discriminating pattern; whereas, a small amplitude (closer to a flat line) would indicate a low discriminating pattern, perhaps not very different from zero. The displacement is the peak angle of the profile curve and reflects the displacement from the angle 0^0, which is defined at the LM octant. This peak angle corresponds with the interpersonal style that is most highly related to the particular variable of interest on the Y-axis. A fourth indicator, R^2 is a summary number that compares how well the actual data summarized by the three indicators—elevation, amplitude, and displacement— fits the ideal cosine curve that is expected. It is

equal to the sum of squares predicted divided by the sum of squares total. R^2 is akin to a predictive omnibus test, like R^2 in a regression. There are no official guidelines for interpreting the value of R^2, however in papers that have used R^2, good or excellent "goodness-of-fit" values seem to range from about .80 to 1.0 (perfect cosine curve).

The primary indicators relevant to the present examination are displacement and R^2. We are interested in displacement because it functions like a slope in regression. We want to examine whether the angle of our correlations are consistent with what would be predicted. For example, if the octants of a circumplex measure like the IIP-C are all correlated with a variable such as a mean dominance dimension behavior over 45 people, then the highest correlation with the Y-axis variable should be the dominant octant of the circumplex, which would be located at 90^0 from LM (0^0). R^2 would allow us to test whether our profile curves were adhering to the expected cosine or sine wave pattern.

R^2 and angular displacement as they are typically calculated are not appropriate tests of the predicted standard deviation curves as shown in the third and fourth plots in Figure 3. This is because the typical R^2 and displacement calculations assume opposing (positive and negative) correlations consistent with a full cosine or sine curve. Therefore, in describing our variability results, we focus on the pattern (i.e., two positive correlations with the appropriate octants or two negative correlations with the appropriate octants). Nonetheless, we report the R^2 and displacement just in case any of the variability curves ended up approximating a sinusoidal curve (which would be inconsistent with our variability hypotheses but an intriguing circumplex pattern, nonetheless).

The other two indicators, elevation and amplitude, were not of particular interest in the current study. For the purpose of our analyses we ipsatized the IIP-C octant scores and

removed each person's overall mean. Thus, we would expect elevation to be zero for all participants. In addition, we did not advance any hypotheses about how high and low the peaks of the cosine and sine curves would be. For example, the maximum correlations on all example plots are either positive or negative one. Therefore, for the most part, the hypotheses advanced do not suggest differences in amplitude[7]. For these reasons, we did not examine these two indicators in our analysis of the correlation profiles.

Inventory of Interpersonal Problems-Circumplex. Recall that one set of hypotheses are about whether individual differences in particular indices are related to people's interpersonal problems. For example, do people who indicate they have problems being too dominant also indicate higher levels of their own dominance over 45 people? Likewise, do people who indicate they have problems being too friendly also indicate higher levels of their own friendliness over 45 people? In order to answer these types of questions, we correlated these means with each of the eight subscales of the IIP-C. We plotted the relationship between the ipsatized octants and each index. These plots are shown in Figure 4 and the relevant structural summary information in Table 4. Although information for the plots for all 12 indices is given in Figure 4 and Table 4, we describe only the results for the means, standard deviations, and perceived complementarity in the upcoming text.

In addition, please note that the ninth correlation shown at the far right of each of the Figure 4 plots depicts the relationship between the overall mean on the problems scale (which was subtracted out of the eight ipsatized octant scores) and each index. We did not advance any specific hypotheses about how this mean over all problems would correlate with the 12 indices; however, because some researchers argue that this mean may contain

important variance, we thought it was important to briefly examine its relationship to each index. Because these ninth correlations do not have to do with the overall expected patterns of relationships between interpersonal octant problems and behavior and perceptions over 45 people, we discuss them together (across all Figure 4 plots) at the end of this section.

Patterns with IIP-C Means. The plots of problems with self-mean dominance and self-mean friendliness are shown in Figures 4.1 and 4.2. The very high R^2 values shown in Table 4 for these plots suggest that people's interpersonal problems in each of the 8 octants correlated in the expected sinusoidal way with their reports of their own mean behaviors over 45 people (for both dominance and friendliness). Furthermore both displacement angles were very close to what was expected, with the angle for self-mean dominance only 3 degrees away from the expected angle of 90, and for self-mean friendliness only 9 degrees away from the expect angle of 360 degrees. For example, as shown in plot 4.1, people with dominance problems (i.e., they were "too dominant") reported that they were significantly more dominant over 45 interaction partners (r (111) = .26, p = .01), and people with submissiveness problems (i.e., they were "too submissive") reported that they were significantly less dominant over 45 interaction partners (r (111) = -.30, p = .001). The plots of problems with other-mean dominance and other-mean friendliness scores are shown in Figures 4.6 and 4.7. The R^2 and displacement angle for other-mean friendliness in Table 4 were also excellent. These values suggest that people's interpersonal problems correlated in the expected sinusoidal way with their reports of other-mean friendliness behaviors over 45 people at approximately the expected displacement angle for friendliness (LM). Surprisingly, people's interpersonal problems

did not correlate in the expected sinusoidal way with their reports of others' mean dominance, as shown by a very low R^2 value.

Patterns with IIP-C Variabilities. Another set of hypotheses was about whether interpersonal problems were problems in excessive variability or excessive consistency. The relevant plots are shown in Figures 4.3, 4.4, 4.8, and 4.9. There was no clear support for these hypotheses. In fact, in all four plots the two most crucial correlations were in opposite directions, rather than in the same direction. Somewhat surprisingly, the R^2 values suggest that there was very good evidence for a sinusoidal pattern for other-dominance standard deviation, and a hint of a sinusoidal pattern for self-dominance standard deviation and other-friendliness standard deviation. Other-friendliness standard deviation had a displacement angle only 10 degrees away from what could be expected; however angles for self-dominance and other-dominance standard deviations were closer to what could be expected for a competitiveness (or hostile-dominant) variable on the Y-axis.

Patterns with IIP-C Perceived Complementarity. In an exploratory manner, we plotted the relationships between interpersonal problems and reciprocity (Index 11), and perceived correspondence (Index 12), which are shown in Figure 4.11 and 4.12. According to the R^2 values, both perceived reciprocity and correspondence showed some hints of a sinusoidal pattern. However, the displacement angle for perceived reciprocity was closer to what would be expected for a friendliness variable on the Y-axis, rather than one that taps a construct related to dominance. In addition, the displacement angle for perceived correspondence was closer to what could be expected for submissiveness problems, rather than with friendliness problems (which might be more expected).

Relationships with Overall IIP-C Means. As was previously mentioned, we plotted the relationship between the overall mean for interpersonal problems and the indices (the ninth correlation located on the far right on each plot in Figure 4). Considering interpersonal problems over all octants (without reference to any particular octant), in comparison to those who reported fewer interpersonal problems overall, people who reported more interpersonal problems were significantly lower in mean dominance and friendliness behaviors over 45 people, and they perceived their interaction partners to be significantly lower in dominance and friendliness, too. They also reported significantly more variability in their dominance behavior and less variability in others' dominance behavior. Taken together, these results suggest that having a lot of interpersonal problems overall is related to people's dominance and friendliness behaviors, as well as how they see others' dominance and friendliness behaviors, both in terms of means and variabilities. All other correlations of overall interpersonal problems with the indices were not statistically significant.

Circumplex Scale of Interpersonal Values. We plotted the relationship between the iCSIV subscales and the 12 indices. These plots can be found in Figure 5. The relevant structural summary information is presented in Table 4. For the patterns of relationships of the CSIV octants with the means, very high R^2 values were obtained in all four cases (for plots 5.1., 5.2, 5.6, and 5.7). These values suggest that people's interpersonal values in each of the 8 octants correlated in the expected sinusoidal way with their reports of their own and others' mean behaviors over 45 people for both dominance and friendliness. The displacement angles self and other friendliness were close to what could be expected, however the angles for dominance which were 68^0 (self-mean dominance) and 40^0 (other-

mean dominance) were closer to what would be expected for an NO (extraversion) variable on the Y-axis.

For the patterns of relationships of the CSIV octants with the standard deviations, there was no evidence for consistency in behaviors or perceptions that were more valued (see Figures 5.3, 5.4, 5.8, and 5.9). Indeed, in all four cases the two most crucial correlations were closer to zero. Interestingly, the R^2 values revealed good evidence for a sinusoidal curve for self-friendliness and a hint of sinusoidal pattern for perceptions of others' dominance variability. Nonetheless, the displacement angle for self-friendliness standard deviation was more consistent with hostility values (which is opposite to what one might expect for a friendliness variable on the Y-axis). Furthermore, the displacement angle for other-dominance standard deviation was closer to friendly-dominance rather than to straight dominance. Therefore, people's values in each of the octants (at least when considered on their own in this study) do not appear to have much predictive power in terms of how variable they see themselves and others.

For the patterns of relationship between the CSIV octants with perceived reciprocity and perceived correspondence (see Figures 5.11 and 5.12), there were very good R^2 values, indicating these plots adhered well to a sinusoidal pattern. However, the angles of displacement were not consistent with what would be expected of dominance or friendliness. Rather the angles were 233^0 and 328^0, closer to values in FG (introversion) and JK (friendly-submission).

The ninth correlation for all Figure 5 plots tells us how well people's overall scores on the values scale correlates with each of the 12 indices. Considering interpersonal values over all octants, in comparison to those who held fewer interpersonal values overall,

people who held more interpersonal values had significantly more variability in their own dominance behavior over 45 people and they perceived less of a relationship between their partners' levels of dominance and friendliness; however, in both cases these effects were quite modest.

Social Behavior Inventory. We plotted the relationship between the iSBI subscales and the 12 indices (see Figure 6). Note that these plots look somewhat different from those in Figures 4 and 5 because there are only four main subscales, rather than eight. However, the same circumplex principles apply to relationships with this measure. The relevant structural summary information for the iSBI is presented in Table 4. For the relationships of the SBI subscales to the means over 45 people (see plots 6.1, 6.2, 6.6, and 6.7), three of the R^2 values were excellent. In particular, for self means, people's trait interpersonal behavior correlated in the expected sinusoidal way with their reports of their own mean behaviors (for both dominance and friendliness). The displacement angles were consistent with what could be expected for self-friendliness. However, the angle for self-dominance was more consistent with hostility. For example, people who were more trait dominant reported that they were more dominant in their behaviors over 45 interaction partners, and people who were more trait submissive reported that they were less dominant over 45 interaction partners at approximately the appropriate displacement angle. People's trait interpersonal behavior also correlated in the expected sinusoidal way with their reports of other-mean friendliness behaviors over 45 people. However, there was somewhat weaker support for the curve of correlations between trait interpersonal behavior and reports of other-mean dominance behaviors.

The plots of trait behaviors with the variability indices are shown in Figures 6.3, 6.4, 6.8, and 6.9. Interestingly, all four curves for self- and other-standard deviations (for both dominance and friendliness) were significantly sinusoidal. Furthermore, both curves for behavior of the self obtained displacements that were consistent with what could be expected. A somewhat similar, but weaker, pattern was shown for the curves for behavior of others over 45 interaction partners.

For the relationships of the SBI subscales and perceived complementarity (see plots 6.11 and 6.12) the high R^2 values indicate a strong sinusoidal curve. However, the displacement angles in both cases were about 40 degrees less than would be expected.

Looking at the ninth correlation on all the plots in Figure 6, there were no significant results for the correlations that compared people's overall trait interpersonal behavior (without reference to any particular pole) to each of the 12 indices.

Study 1 Discussion

The present work used a new methodology to examine people's own and perceptions of others' interpersonal behavior in their real social worlds. Our main goals were twofold:

(1) to develop reliable indices from this dataset that would allow us to capture and assess

individual differences in behaviors and perceptions, not only in terms of central tendency, but also in terms of scatter dispersion (at both univariate and multivariate levels),

(2) to determine whether these individual differences related to other variables in interesting ways, particularly interpersonal problems.

The new methodology we devised to capture people's perceptions of their social world was successful. In other words, having people list 45 of their different interaction partners and then rate their own interpersonal behaviors and those of their interaction partners' led to an array of interesting results. The means and standard deviations of the 12 indices revealed that there are substantial individual differences in these variables. The frequency distributions of these variables were normally distributed and there were no unacceptable skew or kurtosis. Furthermore, the means and standard deviations over 45 people were generally more reliable (in the very good to excellent range) than the four correlations (which still tended to be acceptable to good).

Although, we primarily assessed whether these were reliable individual differences in the 12 new indices (as shown by the scatter around the means on these indices), four of the actual means were of some theoretical interest. In particular, people did not see their self-dominance and -friendliness (Index 5) and other-dominance and -friendliness (Index 10) as related, which is in accordance with what Interpersonal Theory would predict.

The individual differences in the indices capturing people's self behavior and other assessments over 45 people were related to their interpersonal problems in interesting ways. Both self-dominance and -friendliness means showed a sinusoidal form at expected angles. Other-friendliness mean also showed a sinusoidal pattern, however the angle was closer to a more friendly-submissive angle. Surprisingly, other-dominance mean did not show a sinusoidal form.

We found that people who indicated that they had a lot of problems in a particular octant, for example dominance (PA octant), indicated that they acted more dominantly

across their 45 interaction partners. Similar results were found for people who had problems in submissiveness, friendliness, and hostility.

We tested a hypothesis which asked whether problems were of a *too much variability* or a *too much consistency* type. For example, were the correlations between perceived interpersonal problems in the dominance and submissive octants with self- and other-dominance standard deviations either positive (too much variability) or negative (too much consistency)? We found that the relationship between the self- and other-standard deviation indices and the ipsatized octant subscales indicated that interpersonal problems, at least using this methodology, do not seem to be of a "*too variable*" nor a "*too consistent*" sort. Furthermore, the R^2 values were all quite low, indicating that these curves were not sinusoidal either.

We examined the correlations between interpersonal difficulties and self- and other-dominance and friendliness (Indices 5 and 10), perceived reciprocity and perceived correspondence. The results showed that having interpersonal problems did not seem to influence people's perceptions of these relationships. However, the most striking finding in these results was that interpersonal difficulties in dominance (PA octant) were negatively related to people's perceived correspondence. In other words, people who have more problems in dominance see their own friendliness and others' friendliness as less related. Interpersonal theory indicates that friendly behaviors pull for friendly behaviors from interaction partners. Thus, our results suggest that having problems in dominance affects how people behave and how people perceive others' in this relationship.

The analyses from the indices and the CSIV yielded very strong support for sinusoidal relationships between self- and other-dominance and friendliness means.

Furthermore, the displacement angles for these curves were generally as expected, except that self- and other-dominance means were closer to a friendly-dominant angle. Participants who reported that they valued dominance also reported being more dominant in their interactions across their 45 interaction partners. However, this did not affect their perceptions of other-dominance means across the interactions. Unexpectedly, perceptions of other-dominance means were strongly related to valuing friendliness and unfriendliness. Participants who reported valuing friendliness thought both they and others behaved in a much friendlier manner across the interactions. In contrast, those who valued unfriendliness perceived themselves and others to be less friendly across their 45 interactions. There was no evidence to suggest that someone who values dominance or friendliness behaves more consistently dominant or friendly or perceives others' dominance or friendliness behaviors to be more consistent. Furthermore, although three of the four curves did not show evidence of sinusoidal pattern, self-friendliness standard showed a sinusoidal pattern. Although, the relationships between interpersonal values and perceived reciprocity and between perceived correspondence showed good evidence of sinusoidal form, the most crucial correlations were not large enough to be statistically significant.

The analyses from the indices and the ipsatized SBI provided support for the validity of our mean indices. Moreover, how people rated themselves on trait behaviors correlated quite well with our newly developed indices for mean dominance and friendliness. The results showed strong evidence for sinusoidal relationships between iSBI octants and the means for self-dominance, self-friendliness, and other-friendliness. However, other-dominance mean the relationship was somewhat weaker. All the

displacement angles for these mean curves were consistent with what could be expected. For the variability indices, there was no evidence to suggest that someone who is highly trait dominant or trait friendly behaves or perceives others' to be more consistently dominant or friendly. Although, all four variability curves were strongly sinusoidal, the curves obtained displacement angles that were more indicative of a distant or hostility variable. This suggests, for example, people who were more variable in their friendliness behaviors indicated that they and others' were more trait hostile.

In Study 1 we used a new paradigm to assess participants' perceptions of their own and others' behaviors by referring to 45 specific interaction partners. The analyses suggest that this new approach and the accompanying indices are a reliable and valid way of measuring perceptions in interpersonal behaviors. This approach allowed us to assess people's perceptions of their variability in dominance and friendliness from interaction partner to interaction partner during one session in the lab. One important working assumption with this approach is that *within each interaction partner, participants behave quite consistently*. That is, in the Study 1 paradigm, participants were essentially required to provide an average of how they behave with each interaction partner, rather than reporting about multiple occasions with each partner. Study 2 was designed to examine this working assumption. More specifically, within each interaction partner, do people behave consistently or more variably? Furthermore, are there reliable individual differences in how much variability can be predicted by interaction partner?

Study 2: Self and Other Perceptions of Interpersonal Behaviour Over 21 Days

According to Interpersonal Theory, people tend to adjust their behaviors according to with whom they are interacting. One way to examine whether people change their behaviors in response to their partner is to look at perceived reciprocity and correspondence values. However, these correlations do not tell us how much people and how often people adjust their behaviors in their different social interactions.

Consider the perceived dominance levels of a person who behaves quite consistently with each interaction partner. The data for one such person is shown as Example 1 in Table 5, for four occasions with each of three interaction partners— mother, boyfriend, and boss. This person acts quite consistently dominant regardless of their interaction partners. Comparing the three means across the different interaction partners, they are almost the same. Furthermore, this person does not show a lot of variability in their dominance behaviors (as can be seen from their overall standard deviation which is low). This person's consistent behavior is also not well predicted by the person with whom they are interacting.

Now consider the Example 2. In this case, there is more variability within each interaction partner. The overall variability is much higher than in the previous case, indicating that this person varies across their interaction partners. However, as indicated by the proportion of variance there were no systematic differences due to interaction partner (i.e., the interaction partner does not explain variability in the person's behavior).

In contrast, consider Example 3 in Table 5. The data consists of all the same data points, but now they are distributed differently within each interaction partner. This person is consistently moderately dominant with her mother, consistently high in dominance with her boyfriend, and consistently low in dominance with her boss. Her standard deviation for

dominance across all occasions (ignoring interaction partner), shows considerable variability; however, this variability is largely explained by interaction partner. The approach of study 1 assumes that the data has this sort of general pattern, in that we only obtain one relevant observation per interaction partner.

This illustrates the issue of what proportion of variance is explained by interaction partner for each person. This can be thought of as an individual difference variable where at one extreme is a social chameleon (whose social behavior with one partner is different than their social behavior with other partners) and at the other extreme is a person whose behavior is completely unpredictable (whose social behavior with one partner is just as variable as it is with another partner). Thus, if we had a group of people and asked them what the extreme version of the person in Example 3 is like, they may have very different ideas about what the target person is like. That is, what the person is like depends on who they are interacting with. Likewise, if we polled all the interaction partners of the extreme version of Example 2, these people should agree that it is very hard to characterize what the person is like because to each interaction partner, the person in Example 2 looks unpredictable.

Proposed Hypotheses.

In the present work, we aim answer three main questions. The first question asks whether there are reliable individual differences in similar indices as described in Study 1, but using a different methodology that asks people to report on each interaction shortly after it happens over a period of 21 days. The second question asks whether there are reliable individual differences in how well people's dominance and friendliness behaviors can be accounted for by their interaction partner. That is, is "how much of people's

perceived behavior is explained or predictable depending on with whom they are interacting" an individual difference variable worth further exploration? Perhaps two people who are highly variable over all their interactions are quite different in how predictable this variability is. A person who is highly predictable based on interaction partner may be a "flexible" individual— someone who easily or skillfully can manage a wide variety of different interaction partners. Thus, this type of predictable variability may be more adaptive. In contrast, a person who is highly unpredictable based on interaction partner may be more difficult to interact with because any particular partner may not know what to expect they will be like from one occasion to the next. Therefore, this type of unpredictable variability may be more maladaptive. We also investigate how predictable people's views of others' dominance and friendliness behaviors are based on interaction partner. In sum, the second question investigates whether reliable individual differences exist on four additional "proportion of variance" indices that capture how predictable self and other-dominance and friendliness behaviors are based on interaction partner.

The third question asks whether certain types of variability may be more adaptive or maladaptive in two ways: (a) similar to Study 1, we investigate whether interpersonal problems may reflect "too much variability" or "too much consistency" over 21 days using 16 indices (the 12 original and the four "proportion of variance" indices), and (b) we also investigate how correlated these indices are with other personality variables and well-being, such as feelings of efficacy, overall well-being and satisfaction with life.

Note that we did not find support in Study 1 for our variability hypotheses, but perhaps in Study 1 we did not fully measure all the variability that one could have. Therefore, we try to collect a more comprehensive sample of variability in Study 2. In

addition, in Study 2 we purposely had participants complete both the methodology from Study 1 and Study 2, so that we could assess the validity of the indices obtained in Study 1.

Predictions about the 16 Indices (Hypotheses 1 and 2). The self and other means, standard deviations, and correlations in Study 2 will show reliable individual differences. The four new "proportions of variance" indices will also show reliable individual differences. The overall standard deviations will show that there are individual differences in how predictable people's dominance and friendliness behaviors are to be based on interaction partner, as well as how predictable their perceptions of others are, based on interaction partner.

Predictions about Interpersonal Problems (Hypothesis 3a). Our predictions for the patterns of correlations between the IIP-C octants and the indices for Study 2 were the same as those described for Study 1 (e.g., as shown in Figure 3). Although we did not find support for these hypotheses in Study 1, we retest them using a different methodology which may capture a more comprehensive understanding of people's variability.

In addition to the 12 plots presented in Study 1, we also include four additional plots with the "proportion of variance" variables on the Y-axis. It is possible that these four new variability indices are better indicators of variability and therefore show the expected patterns in the third or fourth graphs of Figure 2 more clearly.

Predictions about Relationships with Interpersonal Efficacy (Hypothesis 3B). Individual differences in the 16 indices may be related to people's self-reported interpersonal efficacy in similar patterns to those mentioned previously. We anticipate patterns of correlations between the mean indices (self- and other- dominance and

friendliness) over 21 days and self efficacy to show the sinusoidal patterns shown in the first two plots in Figure 3. For example, consider a person who indicates they are highly efficacious in dominance. That is, they feel they are able to display dominant behaviors. What might this mean in terms of their self mean dominance over the 21 days? We predict that people who perceive themselves to be quite efficacious in dominance would show a positive relationship with self-dominance mean across the 21 days.

Are people who are more efficacious in a particular domain skillful in a somewhat flexible way, or do they tend to "stick with what they know" and are essentially skillful in a consistent way? A possible distinction between a person who is skillfully consistent and one who is interpersonally rigid is that a person who is rigid *can not* engage in different interpersonal behaviors as the interaction demands change. In contrast, a person who is skillfully consistent may be someone who generally enacts particular interpersonal behaviors knowing that they have previously been successful using this behavior in previous social interactions. However, if the interaction demands change this person would be able to modify their behaviors.

Thus, is efficacy of a *highly variable* sort or *highly consistent* sort? If being interpersonally efficacious reflects a more *flexibly skillful* person, then we would expect to see *positive correlations* between the dominance octant and the submissiveness octant with self-dominance standard deviation. If being interpersonally efficacious reflects a more *consistently skillful person* then we would expect *negative correlations* between the dominance octant and submissive octant with self standard deviation. The third and fourth plots in Figure 3 show what the expected patterns of correlations would look like for interpersonal problems if they were a too much variability type or too much consistency

type. We can examine the same plots to see what the relationship would look like for efficacy of a *highly variable* sort or *highly consistent* sort.

Considering the same person who indicates they are highly efficacious in dominance, what might this mean in terms of their perceived dominance of others over 21 days and their perceived degree of consistency or variability in others' dominance? One possibility is that a person who sees themselves as highly efficacious in dominant or submissive behaviors may perceive others to also be efficacious in dominant or submissive behaviors as well. Thus, we would expect the correlation between efficacy in the PA octant and other-dominance mean to be positive. We would also expect a similar pattern of correlations, as predicted for self-dominance standard deviation, for interpersonal efficacy and others' standard deviation. In other words, if efficacy is of a *highly variable* sort then the correlations between others' standard deviation and the dominance and submissiveness octants will both be positive. In contrast, if efficacy is of a *highly consistent* sort, then the correlations between others' standard deviation and the dominance octant and submissiveness octant will both be negative.

All of the foregoing hypotheses between interpersonal efficacy and mean levels and variability of behavior and between interpersonal efficacy and mean levels and variability of perceptions extend to the friendliness dimension as well.

Is it possible that our new variables, the proportions of variances, would be a better indicator of people's variability or consistency than their standard deviations? We would predict a similar pattern of correlations for the proportions of variance as for the standard deviations. For example, if being interpersonally efficacious reflects a more flexibly skillful person, then we would expect to see positive correlations between the dominance

and the submissiveness octants with other-dominance standard deviation. In contrast, if being interpersonally efficacious reflects a more consistently skillful person then we would expect negative correlations between the dominance and submissive octants with other-dominance standard deviation.

In sum, in Study 2, we hope to do three main things: (1) identify reliable individual differences in the 16 indices calculated across 21 days, (2) identify reliable individual differences in four additional indices that capture how well people's interpersonal behaviors and their perceptions of others' behavior can be accounted for by the person with whom they are interacting, and (3) examine how these 16 across-time indices correlate with measures of interpersonal difficulties and flexibility. Furthermore, we included measures of well-being and satisfaction with life to see if they were related to mean levels or variability in interpersonal behavior. In addition to these three main questions, we also compare the indices from the one-time lab measure to the indices from the across-time, 21-day repeatedly administered palm pilot measure.

Method

Participants

Of the 116 participants who took part in the first study, 35 participants[8] also took part in Study 2. We had people from Study 1 complete Study 2 so that we could assess the convergent validity of the indices. Participants were first year students who were enrolled in PS100; they participated for course credits and other incentives. There were 17 men and 18 women who took part in Study 2. Ages ranged from 18-22, with a mean age of 18.61.

Measures

Participants were asked to complete the IIP-C, the CSIV, the SBI, and the Self-Other Questionnaire (see Study 1 for a full description of these measures).

Circumplex Scale Interpersonal Efficacy. The 32-item CSIE (Locke & Sadler, 2007) asks participants about their confidence to engage in a variety of interpersonal behaviors. Participants read the following instructions: "For each of the following behaviors, rate how sure you are that you can act that way with other people". The questionnaire has eight subscales covering all eight interpersonal circumplex octants. For example, a question that taps dominance (PA octant) efficacy is, "I can be forceful". An example of a friendly (LM octant) efficacy question is, "I can understand their feelings". Participants are asked to rate these behaviors on a scale ranging from 0 (*I am not at all confident that...*) to 4 (*I am extremely confident that...*) (see Appendix H).

Psychological Well-Being Scale. The 18-item Ryff's WB Scale (Ryff, 1989) is a measure of an individual's well-being at a particular moment in time. The scale has six subscales: self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth. Participants read the following instructions: "The following items ask about how you feel about yourself and your life. Please read each statement and then circle the appropriate numbers on the scale to indicate how you have felt during the past month." Participants are asked to rate the statements on a seven-point Likert scale from 1 (*Strongly disagree*) to 7 (*Strongly agree*). An example of a statement form the scale is, "I like most aspects of my personality" (see Appendix I).

Satisfaction with Life Scale. The five-item SWLS (Diener et al., 1985) asks participants to rate their life satisfaction or global cognitive judgments of their life. Participants are asked to indicate how much they agree with each statement using a likert

scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). An example of a question is "The conditions in my life are excellent" (see Appendix J).

Participants completed additional measures of personality variables of functional flexibility (Battery of Interpersonal Capabilities, BIC, Paulhus & Martin, 1988), self-monitoring (Self-Monitoring Scale, SMS, Snyder, 1974), and Big Five traits (Big Five Inventory, BFI, John, Donahue, & Kentle, 1991). However, the analyses of these variables are beyond the scope of this thesis.

Palm Pilot Measures. To measure participants' interpersonal behavior across the 21 days, a 44-item Daily Interactions Questionnaire was developed. The Daily Interactions Questionnaire asked participants to respond to a series of preliminary questions related to the time of their interaction, their relationship with their interaction partners and the first name and last initial of the particular partner they reported on, as well as two sets of 16 trait-related adjectives that measured how they perceived their own behavior and the behavior of their interaction partner. The adjectives used were adopted from a previous study by Hodara (2007). Using a Likert scale that ranged from 1 (*Extremely Inaccurate*) to 9 (*Extremely Accurate*), participants filled out the 16-item scale about their own interpersonal behavior and the interpersonal behavior of their interaction partners (these 16-adjectives were the same as the adjectives from sections two and three of the Self-Other Questionnaire). Participants were presented with an adjective (for example, "I was outgoing") and had to tap on the pop-up menu to indicate how accurately this sentence describes how they (and their interaction partner) behaved.

Lastly, using a very similar pop-up menu, participants indicated the degree to which their interactions had been pleasant, stressful, conflictual, and harmonious.

Participants rated these behaviors using a scale that ranged from 1 (*Extremely Unpleasant*) to 9 (*Extremely Pleasant)*; likewise for the other three affect adjectives (see Appendix K).

Procedure

Participants were invited to take part in a 21-day palm pilot study. Participants were told that the study was composed of three components. The first component was the initial session (Study 1) which was two hours long. The second component was completing the short questionnaire on the palm pilot six times a day for 21-days. The last component of the study was returning to the lab six times to have download sessions. For successfully completing the study, participants received five credits towards their first year Psychology course, a three dollar Tim Horton's coupon, and were entered into a raffle for a chance to win 50 dollars. In addition, to keep participants motivated, they also received snacks each time they returned to the lab.

The initial lab session was part of Study 1. Participants completed a series of questionnaires which asked about their interpersonal traits, values, and difficulties. More specifically, participants completed the IIP-C, CSIV, and SBI. They then completed the three sections of the Self-Other Questionnaire. Moreover, participants were asked to list 45 people they had interacted with on more than one occasion. They then rated how accurately 16 adjectives described their own behavior while interacting with the 45 people and their perceptions of the behaviors of those 45 people (sections two and three of the Self-Other Questionnaire). Between sections two and three of the Self-Other Questionnaire, participants received a break (approximately 10 minutes), during which drinks and snacks were provided.

Once participants completed the questionnaires for Study 1, they signed out their palm pilot and were given instructions and training on how to use it. Participants were told to report on six significant interactions each day over the 21 days. A significant interaction was defined as any interaction that lasts for five minutes or longer. Participants were told to complete the palm pilot questionnaire immediately after each interaction or within two hours of the interaction. Participants returned to the lab two to three days after they received the palm pilot in order to download their data and receive constructive feedback on their adherence to the study requirements. After this initial feedback, participants returned to the lab twice per week. In total, participants were asked to return to the lab six times. These sessions were approximately 10 to 15 minutes in length and allowed us to download the data from their palms onto our main research computer, to prevent any loss of data over the 21 days. During each of the downloading sessions, participants were asked to complete one measure. In the first download session participants completed the BFI. During their second download session the Ryff's WB Scale was completed. In the third session participants completed the SMS. The CSIE was administered in the fourth download session. In the fifth session participants completed the BIC. In the final download session participants filled out the SWLS. However, the SWLS was completed in the last session because it was the shortest questionnaire. In the sixth session participants returned their palm pilot, were debriefed, and given a sheet with information regarding the purpose and hypotheses to take home with them.

Results

We once again calculated the same 12 indices as we did in Study 1 to examine the individual differences in people's dominance and friendliness behaviors. Like in Study 1,

for Study 2 each person's dominance and friendliness behaviors across the 21 days can be shown in a bivariate distribution plot. Figure 2b shows the plots for two of the participants in Study 2 for illustrative purposes: The person on the left was highly variable in their behaviors over 21 days and the person on the right was highly consistent in their behaviors over 21 days. Each point on the plot represents self dominance and friendliness behavior during one interaction. Therefore, the same interaction partner may be represented by multiple points. For example, if a participant interacted with their friend "Sally" eleven times over the 21 days, then eleven points on the graph represent that participant's behavior with Sally.

Note that, if we look at the first plot of the highly variable person, this variability shows how much a person varies within interaction partner as well as across interaction partners. If we closely examined this person's interactions with Sally, we may see that eight of the times they interact this person is friendly and dominant. However, in three of their interactions this person behaved quite unfriendly and dominant towards Sally. This demonstrates the importance of looking at means and standard deviations across interaction partners but more importantly, variability within interaction partners (which are examined using indices 1-12).

As mentioned previously, we examined one particular component of within interaction partner variance which assessed how predictable the behavior or perceptions were based on interaction partner. Therefore, we calculated the proportions of variance accounted for by interaction partner for self-dominance, self-friendliness, other-dominance, and other-friendliness. In order to calculate the proportions of variance, partners with whom only one interaction occurred during the 21 days were first removed.

This step was taken because there needs to be several occasions for each interaction partner in order to determine if a participant's dimension scores are predicted by the partner.[8] The proportion of variance accounted for by interaction partner was then computed using a one-way ANOVA for each participant for each interpersonal dimension (one ANOVA for self-reported dominance, one ANOVA for self-reported friendliness, one ANOVA for other-reported dominance, one ANOVA for other-reported friendliness). For each of these four ANOVAs, the dependent variable was the dimension score (computed with that partner), and the independent variable was the interaction partner. For example, participant 1 had 134 interactions in total over the 21 days. Fifteen of those interactions were removed because the participant only interacted with those 15 people on one occasion. In the remaining 119 interactions, this participant had 18 different interaction partners and therefore, for each of the four ANOVAs computed for this participant, there were 18 levels of the independent variable. The N per cell was unequal because there were more occasions for some interaction partners than others. For each ANOVA, the eta-squared is an intra-class correlation (Kenny, Albright, Malloy, & Kashy, 1994).

These four indices tell us how predictable a participant's behaviors and perceptions of others are based on their interaction partner. As previously mentioned, this could be useful because perhaps some people who are highly variable (according to their standard deviation) are predictable depending on with whom they interact, whereas others who are highly variable (according to their standard deviation) are not. Therefore, this index would distinguish between these two types of highly variable people, whereas the standard deviation would not.

The results are presented in several sections. Descriptives for the palm pilot data are presented first. The reliabilities and descriptives of the 16 indices are presented next. The relationship between the Study 1 and Study 2 indices are examined next. Then we present the relationship between the 12 indices from Study 2 and the four new indices in Study 2. Finally, the reliabilities of the predictor variables and the relationship between the predictor variables and the indices are presented.

Descriptive Statistics for Palm Pilot Data. On average, participants reported 95 interactions across the entire testing period. Participants also reported on the gender of their interaction partners and what type of relationship they had with each interaction partner. The total number of male versus female interaction partners was approximately equal (52 percent of interaction partners were men and 48 percent women). Examining the different types of relationships, we found that the majority of interactions were with friends (approximately 66%), followed by approximately 14 percent of interactions being with family members (parents, siblings, and other relatives). Interestingly, less than 1 percent of interactions were with romantic partners. Approximately 8 percent of interactions were with classmates, approximately 3 percent of interactions were with a boss or a co-worker, approximately 5 percent were with acquaintances, and another 5 percent of interactions were listed as with "other".

We also asked participants to list the mode of communication. Participants chose from a list of three options which included face-to-face interactions, telephone conversations, or live internet conversations (i.e., msn, live chat rooms, interactive game playing, etc.). The majority of the reported interactions were face-to-face (71%), compared to telephone (13%) or live internet chatting (16%).

Individual Differences on the 16 Indices. We calculated the reliability of the 16 indices using an approach similar to the one used in Study 1. We used a split-half method. However, for each index we took participants' self-friendliness (or self-dominance, other-friendliness, other-dominance) scores and split them into first half and second half of their interactions (rather than odd versus even interaction partners). We then calculated the mean for the first half of the interactions and the mean for the second half of the interactions. The means for the first half scores and second half scores were correlated across participants. We boosted the correlation between first and second half scores by using an equation that gives the reliability for a test that is twice as long, $(2*r_{xx})/(1+r_{xx})$.

The reliabilities of the indices are presented in the last column in Table 6. For the self-indices 1-4, the reliabilities were excellent, ranging from .82 to .92. The perceptions of others, the indices 6-9 showed excellent reliability as well, ranging from .85 to .92. Like in Study 1, the reliabilities of the correlations were lower than those for the means and standard deviations. Indices 5, 10, and 11 showed good reliabilities (.76, .63, and .62, respectively). However, surprisingly the reliability of index 12 fell far below what is considered an acceptable level (.25).[9] The reliabilities for proportions of variance indices for self-dominance and self-friendliness were .58 and .52, respectively. The proportion of variance for other-dominance and other-friendliness showed slightly higher reliabilities, .70 and .60. Overall, the reliabilities ranged from a little below acceptable to good.

The mean, standard deviation, maximum, and minimums of each index are presented in the first four columns of Table 6. As in Study 1, we examined the skew of each index. According to Kline (2005) the skews of the indices were all acceptable, as they all fell below 3. Like in Study 1, the column of standard deviations around the mean for

each index, as well as the maximum and minimum values, suggest that there are substantial individual differences.

Consistent with Study 1, the overall average for perceived reciprocity (Index 11) was approximately zero. In line with the results from Study 1, the average self-friendliness and other-friendliness correlation (Index 12) was positive, $M = .57$. About one third of the variability in people's perceptions of others' dominance and friendliness behaviors was accounted for by with whom they were interacting.

Once again, we did not have any specific predictions about gender differences and individual differences on the indices. However, we conducted t-tests to check if there were any differences between men and women (see Table 7). None of the tests revealed any statistically significant differences due to gender influences.

Relationship between Study 1 Indices and Study 2 Indices. We correlated the 12 indices from Study 1 with those of Study 2 to examine both discriminant and convergent validity. The self indices (1-4) correlated quite well across both studies. Self mean dominance had a correlation of $r\ (35) = .69, p < .001$. Mean friendliness in Study 1 correlated $r\ (35) = .66, p < .001$ with mean friendliness in Study 2. Both dominance and friendliness standard deviations also correlated positively, $r\ (35) = .56$ and .60 respectively, $p < .001$.

The perceptions of others-indices (6-9) from Study 1 also showed strong relationships with the other-indices from Study 2. Other-dominance mean for Study 1 and Study 2 showed a strong positive relationship, $r\ (35) = .64, p < .001$. Other-mean friendliness had a correlation of $r\ (35) = .65, p < .001$. Surprisingly, Study 1 other-dominance standard deviation correlated positively, albeit not at a statistically significant

level, with Study 2 other-dominance standard deviation, r (35) = .25, p = .16. Other-friendliness standard deviation in Study 1 correlated moderately well with other-dominance standard deviation in Study 2, r (35) = .37, p = .03. Therefore, although the standard deviations for the self indices correlated very highly across the two studies, the standard deviations for assessments of others were somewhat more modest.

Three of the four correlation indices (5, 10, and 12) did not correlate significantly between Study 1 and Study 2 with respective correlations. However, perceived reciprocity (Index 11) did show a positive relationship across Study 1 and Study 2, r (35) = .39, p = .02. Therefore, although participants' dominance and friendliness, their perceptions of others' dominance and friendliness behaviors, and their perceived correspondence correlated poorly across the two studies, their perceived reciprocity showed a stronger relationship.

Relationship between Study 2 Indices and Proportion of Variance. We correlated the 12 indices from Study 2 with the four new indices (13-16). Most importantly, we wanted to correlate the self-dominance and friendliness proportions of variance with the self-dominance and friendliness standard deviations and the other-dominance and friendliness proportions of variance with the other-dominance and friendliness standard deviations. We were interested in whether the proportions of variance correlated positively with the standard deviations because this would indicate that these indices were all measuring something similar. However, if the correlations were zero, this would indicate that the proportions of variance were measuring something different than the standard deviations.

Proportion of variance for self-dominance correlated positively with self-dominance standard deviation, although not significantly, r (35) = .27, p = .11. Similarly, proportion of variance for self-friendliness correlated positively with self-friendliness standard deviation, r (35) = .28, p = .10. For the other indices, proportion of variance for other-dominance correlated positively with other-dominance standard deviation, r (35) = .24, p = .16, while the correlation between the proportion of variance for other-friendliness and other-dominance standard deviation was slightly negative, r (35) = -.13, p = .45.

In sum, three of the four proportions of variance indices were modestly positively related to their similar standard deviations. This suggests that although there is some small component that may be shared between the standard deviations and proportions of variance for self-dominance, self-friendliness, and other-dominance, the proportion of variance is likely also tapping something unique. On the other hand, the slightly negative correlation for other-friendliness may suggest that the proportion of variance variable shares little, if any, component that is similar to other-friendliness standard deviation.

Reliabilities of the Predictor Variables. The reliabilities for the IIP-C, CSIV, SBI, and CSIE are presented in Table 8. The ipsatized reliabilities for these scales are also presented in the table. Because the majority of the subsequent analyses utilize the ipsatized scores, we only comment on those reliabilities here. The ipsatized IIP-C reliabilities were acceptable to good, ranging from .51 to .82. With the exception of ipsatized PA subscale, which fell well below an acceptable level, the reliabilities of the ipsatized CSIV subscales were acceptable to good, ranging from.54 to .74. The reliabilities for the ipsatized SBI ranged from below acceptable to good (.46 to .70). The reliabilities for five of the ipsatized

CSIE subscales fell far below an acceptable level; they ranged from .29 to .43[10]. The remaining reliabilities for the three subscales were acceptable, ranging from .55 to .67.

The reliabilities of the Ryff's well-being scale and Diener's Satisfaction with Life Scale were both very good (.79 and .74, respectively).

Relationship between the Predictor Variables and Indices

This section examines our hypotheses regarding the relationship between the indices and predictor variables—IIP-C, CSIE, well-being, SWLS. Additionally, brief summaries of the relationship between the indices and two additional predictor variables (interpersonal values and trait behavior style) are also given.

Inventory of Interpersonal Problems-Circumplex. We correlated our 16 indices with the ipsatized octant subscales of the IIP-C. Figure 7 contains the plots for each of the indices. The relevant structural summary information is presented in Table 9.

Patterns with IIP-C Means. The plots of problems with self-mean dominance and self-mean friendliness are shown in Figures 7.1 and 7.2. The high R^2 values for these plots suggests that people's interpersonal problems in each of the 8 octants correlated in the expected sinusoidal way for both mean dominance and friendliness. People's interpersonal problems also correlated in the expected sinusoidal way with their reports of other-mean friendliness. Consistent with expectations, the angle of displacement for self-mean dominance was only 12 degrees away from what could be expected. For both reports of self- and other-friendliness mean, however, the peak angle was more characteristic of friendly-submissiveness (JK) rather than straight friendliness (LM). This suggests that, for example, people who are high in friendly behaviors across the 21 days indicate that they tend to be high not only in friendliness problems, but also friendly-submissive (JK) and

submissive (HI) problems. Likewise, they tend to be low not only in hostility problems but also low in competitiveness (BC) and dominance (PA) problems (see plots 7.2 and 7.7). Somewhat consistent with Study 1, people's interpersonal problems only showed a hint of sinusoidal form with their reports of others' mean dominance behaviors, as shown by a low R^2 value.

Patterns with IIP-C Variabitilies. As in Study 1, the correlations between interpersonal problems and the self- and other-standard deviations were not consistent with our hypotheses (see plots 7.3, 7.4, 7.8, and 7.9). For participants' own behavior, any trends were in directions opposite to what one might think (e.g., for self-dominance standard deviation, the largest positive correlation was with submissiveness problems and the largest negative correlation was with competitiveness problems). For perceptions of others' behavior, the two vital correlations were of opposite signs in both cases (for dominance and friendliness), rather than of the same sign. Recall in Study 1, there was some evidence for sinusoidal patterns for three of the four standard deviations. Interestingly, in Study 2 we found similar results. More specifically, self-dominance, other-dominance, and other-friendliness standard deviations showed even stronger sinusoidal patterns. Once again, self-friendliness standard deviation showed no sinusoidal evidence. Other-friendliness standard deviation had a displacement angle that was only five degrees away from the expected angle. However, self-dominance standard deviation was closer to what could be expected for submissiveness (HI) and other-dominance standard deviation was closer to friendly-submissive problems (JK).

The proportions of variance were compared to the expected patterns for *high predictability* (or *too much varibility*) and *low predictability* (or *too much consistency*).

The relevant plots are shown in 7.13, 7.14, 7.15, and 7.16. None of the patterns of correlations between participants' interpersonal problems and their proportions of variance supported the hypotheses. In addition, none of the four proportions of variance showed hints of a sinusoidal shape. The angles of displacement for all four proportions of variance were consistent with a hostile variable on the Y-axis.

Patterns with Perceived Reciprocity and Perceived Correspondence. Although we did not advance any specific hypotheses regarding interpersonal problems and perceived reciprocity and correspondence, we plotted these relationships which are shown in Figures 7.11 and 7.12. Inconsistent with Study 1, both perceived reciprocity and correspondence did not show any sinusoidal patterns. Furthermore, the angle of displacement for reciprocity was closer to hostile-submissive problems. Completely in the opposite direction of the angle in Study 1, the angle for perceived correspondence showed the most positive relationship with dominance problems.

Relationships with Overall IIP-C Means. As was previously mentioned, we plotted the relationship between the overall mean for interpersonal problems and these 16 indices. Consistent with the findings in Study 1, people who reported more interpersonal problems were lower in dominance and friendliness behaviors over the 21 days, and they perceived their interaction partners to be lower in dominance and friendliness behaviors, too. They also reported more variability in their own dominance and friendliness behavior, as well as in others' dominance and friendliness behavior. Three of these "variability" results are in the same direction as those in Study 1, although not all of the comparison correlations in Study 1 were significant. Surprisingly, the finding for variability in others'-dominance was exactly opposite to that found in Study 1 ($r(35) = -.22$ in Study 1, $r(35) = .54$ in Study 2).

People who reported more interpersonal problems overall also perceived lower correspondence between their own and their partners' friendliness behaviors.

Circumplex Scale of Interpersonal Values. We plotted the relationship between the iCSIV subscales and the 16 indices. Figure 8 contains the plots for these relationships. We present the relevant structural summary information for the iCSIV in Table 9. Consistent with the findings for self- and other-friendliness mean in Study 1, the high R^2 values in Study 2 indicate that people's octant values and mean friendliness showed good sinusoidal shapes with approximately the expected displacement angles (see plots 8.2 and 8.7). However, the findings for self- and other-dominance mean in Study 1 were not replicated in Study 2 (see plots 8.1 and 8.6). Specifically, people's octant values generally did not show strong sinusoidal shapes with the mean behaviors for self and for perceptions of others.

More importantly for this investigation, no significant relationships were found for both self- and other-standard deviation (for both dominance and friendliness). Furthermore, no sinusoidal shapes were found for the relationships between octant values and standard deviations over 21 days for self behaviors and for perceptions of others' behaviors. This finding was somewhat consistent with that in Study 1.

Interestingly, very strong sinusoidal shapes were found for the patterns of correlations for three of the four proportion of variance indices in Study 2 (with the weakest support for a sinusoidal shape found for proportion of variance in predicting others' dominance); however, all of the displacement angles indicated that the strongest positive correlations were with hostile or distant values and strongest negative correlations were with friendliness values (see plots 8.13-8.16). What does this surprising finding

mean? Consider the relationships predicting proportion of variance due to interaction partner in one's own behavior. In comparison to those whose behavior is less predictable over 21 days, those whose behavior is highly predictable based on interaction partner value distance or hostility (iDE) significantly *more*; and they value friendliness (iLM) significantly *less*. Those whose perceptions of others' friendliness behaviors were more predictable based on interaction partner showed a very similar pattern of correlations.

The pattern of correlations between perceived correspondence and octant values was sinusoidal at an appropriate displacement angle (see Figure 8.12). This finding suggests that, for example, people who value friendliness more tend to see more correspondence between their own and others' behavior, whereas those who value distance more tend to see less such correspondence. However, no such sinusoidal pattern of relationships was found for perceived reciprocity (see Figure 8.11).

The ninth correlation for all Figure 8 plots tells us how well people's overall scores on the values scale correlates with each of the indices. Considering interpersonal values over all octants, in comparison to those who held fewer interpersonal values overall, people who held more interpersonal values tended to report higher variability (according to the SD) in their own dominance and friendliness and in their interaction partners' dominance and friendliness behaviors. Their reports of others' friendliness also tended to be less predictable based on interaction partner.

Social Behavior Inventory. The relationship between the 12 indices and the iSBI subscales are plotted in Figure 9. The relevant structural summary information for the iSBI is presented in Table 9. For the relationships of the SBI subscales to the friendliness means (see plots 9.2 and 9.7) the R^2 values were excellent and the displacement angles were

consistent with what could be expected for friendliness. In particular, people's trait interpersonal behavior correlated in the expected sinusoidal way with their mean friendliness behaviors and their perceptions of others' friendliness behaviors. However, people's trait interpersonal behavior did not correlate in the expected sinusoidal way with their reports of dominance behaviors (for reports of both self and other). Furthermore, for self-dominance behavior, the displacement angle was more typical of hostile-dominant behavior, and for the perceptions of others'-dominance, it was more typical of hostile behavior.

For the relationships of the SBI subscales to the standard deviations (see Figures 9.3, 9.4, 9.8, and 9.9), as in Study 1, the R^2 values were excellent. In three of the four cases, the displacement angles were exactly opposite to those expected: For self- and other-dominance variability, the displacement angle was closest to the submissiveness octant, and for self-friendliness variability, the displacement angle was closest to the hostility octant. For example, the latter result indicates that the more variable in friendliness over 21 days a person said they were, the *more* trait hostile and the *less* trait friendly (according to the SBI) they were.

The relevant plots showing the relationship between the SBI subscales and proportions of variance are Figures 9.13-9.16. Interestingly, reasonably strong sinusoidal shapes were found for the patterns of correlations for three of the four proportions of variance indices in Study 2 (with the weakest support for a sinusoidal shape found for proportion of variance in predicting others' dominance); however, all three of the displacement angles indicated that the strongest positive correlations were with hostility. This finding is similar to that obtained for the relationships of proportion of variance and

interpersonal values. For example, consider the relationships predicting proportion of variance due to interaction partner in one's own friendliness behavior. In comparison to those whose behavior is less predictable over 21 days, those whose behavior is highly predictable based on interaction partner tended to be *more* trait hostile and *less* trait friendly.

The sinusoidal curve showing the relationship of trait interpersonal behavior to perceived correspondence had approximately the expected displacement angle (see plot 9.12). The curve depicting the relationship of trait interpersonal behavior to perceived reciprocity was not strongly sinusoidal and the displacement angle was closer to the friendliness octant than expected (see plot 9.11).

Looking at the ninth correlation on all the plots in Figure 9, in contrast to Study 1, in Study 2, participant's who were high in overall trait behaviors tended to report more variability in their own dominance and friendliness behavior over 21 days, and they reported more variability in their partners' behaviors during the 21 days. Also their own dominance and friendliness behaviors tended to be more correlated, as did their reports of others' dominance and friendliness behaviors.

Circumplex Scale of Interpersonal Efficacy. We plotted the relationships between the iCSIE subscales and the 16 indices in Study 2. We present the relevant structural summary information for the iCSIE in Table 10. The plots showing the relationships between interpersonal efficacies with self- and other-means are shown in plots 10.1, 10.2, 10.6, and 10.7. People's octant efficacy ratings showed very good sinusoidal shapes for their reports of friendliness behavior, both for reports of self and others over 21 days; however, the displacement angle in both cases was about 50 degrees less than expected,

which is more consistent with friendly submissiveness. People's octant efficacy ratings showed a very good sinusoidal shape with self mean dominance behavior; however, other mean dominance had a rather weaker sinusoidal in shape. However, both displacement angles were consistent with what could be expected.

More importantly for this investigation, the patterns of relationships between octant efficacies and standard deviations over 21 days for self behavior and perceptions of others were not consistent with the expectations (see Figures 10.3, 10.4, 10.8, and 10.9). In three of the four cases, the important correlations were in opposite directions (rather than in the same directions), and in the fourth case, although the vital correlations were both in the same direction, they were both very close to zero. Self and other-dominance showed good sinusoidal form as indicated by the R^2 values in Table 10. Furthermore, the displacement angles were consistent with a submissiveness variable on the Y-axis rather than dominance. Although other-friendliness showed a hint of a sinusoidal pattern, self-friendliness standard deviation showed no such evidence.

The patterns of relationships between octant efficacies and the proportions of variance for both self behavior and perceptions of others' behavior are shown in plots 10.13-10.16. None of the patterns of correlations were consistent with expectations. Interestingly, the patterns of correlations between the proportions of variances accounted for by interaction partner and the CSIE octants were similar in form to the patterns reported for the correlations with the CSIV octants, although overall there was only weak support for sinusoidal shapes. Again, of the four curves, the proportion of variance in predicting others'. dominance yielded the least support for a sinusoidal shape. Indeed, in this case none of the correlations were significantly different from zero. Similar to the

findings with the correlations with the CSIV octants, the displacement angles for the remaining three patterns were closest to hostility. Consider what this finding may mean for the relationships predicting proportion of variance due to interaction partner in one's own behavior, for example. In comparison to those whose behavior is less predictable over 21 days, those whose behavior is highly predictable based on interaction partner tended to be more efficacious at distance or hostility (iDE); and they tended to be less efficacious at friendliness (iLM). Those whose perceptions of others' friendliness behaviors were more predictable based on interaction partner showed a very similar pattern of correlations.

In an exploratory manner, we plotted the relationships between interpersonal efficacies and perceived reciprocity and perceived correspondence, which are shown in Figures 10.11 and 10.12. According to the R^2 values, no sinusoidal patterns of correlations were found for the relationships between octant efficacies and perceived correspondence, nor between octant efficacies and perceived reciprocity.

Looking at the ninth correlation in Figure 10, people who held more interpersonal efficacies tended to see their own dominance and friendliness to be less related, and they tended to see others' dominance and friendliness as less related, although this effect was rather weak. Their dominance over 21 days also tended to be more predictable based on interaction partner and they tended to see their own and their interaction partners' dominance levels to be more positively correlated.

Relationship between 16 Indices and Well-being and Satisfaction with Life. We examined whether the 16 indices were related to people's well-being and satisfaction with life. A summary of these correlations is shown in Table 11. Unfortunately, almost no significant relationships between well-being, life satisfaction and the 16 indices were

found. However, there were some interesting trends. The means for friendliness behavior and perceptions showed a positive relationship with both well-being and life satisfaction. That is, people who were friendlier and perceived others' as being more friendly had higher well-being and life satisfaction. Interestingly, people who varied more in their dominance and perceived others as varying more in their dominance had lower well-being ratings. Higher perceived correspondence was positively related to higher well-being and life satisfaction. The proportions of variance showed quite an interesting relationship with well-being and life satisfaction. In particular, the more predictable self behavior or perceptions of others' behavior (for both dominance and friendliness) was based on interaction partner, the lower the well-being and life satisfaction scores.

Relationship between Predictor Variables. We did not advance any specific hypotheses regarding relationships between the predictor variables. However, because we ipsatized the predictor variables, we thought it would be interesting to examine how the overall means for each predictor variable correlated with each other, as well as with well-being and life satisfaction. These relationships are presented in Table 12. The overall means for the IIP-C, CSIV, and SBI all correlated positively with each other. This suggests that, if a person has a lot of problems overall, they also indicate having a lot of values and engaging in many trait behaviors. Interestingly, well-being was negatively correlated with IIP-C mean. Thus, the more problems a person had overall (without reference to a specific octant) the lower their well-being.

Study 2 Discussion

In Study 2 we answered three main questions: whether there were reliable individual differences in our 12 indices, whether there are reliable individual differences in

how predictable people's dominance and friendliness behaviors are based on with whom they are interacting, and whether certain types of variability may be more adaptive or maladaptive.

The means and standard deviations of the 12 indices showed reliabilities that were generally very good. Moreover, the means and standard deviations across the 21 days were generally more reliable (in the very good to excellent range) than the four correlations (which tended to be below acceptable to good). Furthermore, each mean index and each standard deviation index in Study 1 showed a strong positive correlation with the respective index in Study 2.

The results comparing the predictor variables to the mean indices (for both self and other) showed many similar results to those found in Study 1. For example, in Study 1 and Study 2 self-mean dominance and interpersonal problems showed good sinusoidal form. However other-mean dominance showed no sinusoidal pattern in Study 1 and only a hint in Study 2. For the relationship between interpersonal values and the mean indices, participants' self and others' friendliness showed the expected sinusoidal pattern. Self-dominance and other-dominance means and interpersonal values showed a sinusoidal pattern in Study 1. However, in Study 2 self-dominance and other-dominance means did not show this relationship. In Study 1, trait behaviors and self-means (for both dominance and friendliness) showed good sinusoidal form, however only other-friendliness mean showed the expected pattern. In Study 2, self- and other-dominance means did not show the expected sinusoidal pattern with trait behaviors. Self- and other-friendliness means and efficacy ratings showed very good sinusoidal shapes. This relationship was also found for

self-mean dominance but not for other-mean dominance had a rather weaker sinusoidal in shape.

As in Study 1, we did not find support for our too much variability or too much consistency hypotheses. However, interestingly, participants' standard deviations showed reasonably strong sinusoidal curves (for self dominance, other dominance, and other friendliness standard deviations). The patterns of relationships between octant efficacies and standard deviations over 21 days for both self and other reports were not consistent with the hypotheses. In three of the four cases, the important correlations were in opposite directions. This could imply that we should analyze the variability indices in a similar way as the means, looking for a sinusoidal curve. Thus, we would expect that the most important correlations would be in the opposite directions (i.e., positive-negative or negative-positive) rather than in the same direction as our current hypotheses suggest. Although we used dimension scores for dominance and friendliness, we correlated them with octant scores. Because we are correlating our indices with octant subscale scores, if person is high in dominance problems they maybe *too consistently dominant* (negative correlation with PA) but they may not be necessarily too consistently submissive because the octant subscales are scored separately. Regarding the relationship between our other variability indices, the proportions of variance, we did not find support for our hypotheses.

General Discussion

The purpose of the current research was to understand how people vary in their social worlds. More specifically, we focused on the assessment of three types of variability. First, we looked at assessment of variability in interpersonal behavior and perceptions of others' behavior over 45 different interaction partners using a one-time

measure completed in the lab. That is, this approach assessed how much a person perceives their own dominance behavior (for example) changing as they interact with different partners. The second type of variability included people's variability over multiple occasions with both single-occasion and multiple occasion interaction partners. This type of variability was obtained by assessing interpersonal behavior and perceptions of others' behavior over many interaction partners during a 21-day period. Third, we captured one type of within-person variability which is the degree of predictability in a person's interpersonal behaviors that could be accounted for by his or her interaction partner.

We also considered how individual differences (both in terms of means and variabilities of behaviors over 45 interaction partners and 21 days) may be related to people's interpersonal problems. This investigation questioned whether self-reported interpersonal problems reflect variability difficulties. We investigated two possibilities in this regard: too much variability and too little variability. In Study 2, we also related self behaviors to measures of people's personality styles and psychological adjustment. We questioned whether people who felt more efficacious in enacting particular interpersonal behaviors showed patterns of variation in their interactions across 21 days that suggest *skillful variability* or *skillful consistency*. This study investigated whether the second and third type of variability (standard deviation and proportion of variance in interactions across 21 days) was related to people's interpersonal problems and personality variables (such as neuroticism), as well as people's interpersonal efficacy. Furthermore, for the second and third types of variability we examined whether more interpersonally variable or consistent people tend to report higher well being and life satisfaction.

Comparisons across Study 1 Indices and Study 2 Indices

On average, across both studies, the self- and other-indices showed acceptable to excellent reliabilities. These reliabilities indicate that our newly devised method of collecting information regarding people's means and variability in their interpersonal behaviors and perceptions of others' interpersonal behavior is consistently being measured across Study 1 and Study 2. The reliabilities of the four new indices in Study 2 were somewhat lower than the standard deviations. The proportions of variance are calculated using multiple occasion interaction partners. Perhaps increasing the number of interactions per partner would help the reliabilities of these indices.

We also examined the correlations between the 12 indices in Study 1 and the 16 indices in Study 2. We expected the same indices in Study 1 and Study 2 to correlate strongly and positively. Generally the 12 indices in Study 1 and Study 2 correlated quite well. Correlations were very high for all self- and other-dominance and friendliness means. The self-standard deviation for dominance and friendliness also showed strong positive correlations. Surprisingly, the other-dominance and friendliness standard deviations did not correlate very strongly, although the correlation was positive. These mostly strong positive correlations provide good support for the validity of the methodologies we used to collect people's perceptions of their interpersonal behaviors.

Comparing the means in Tables 1 and 6 for other-dominance standard deviation, they were about the same (around 2.5) in Study 1 and Study 2. Interestingly, if you look at the maximums and minimums, there is quite a different story. In Study 1, people perceived the range at which other-dominance varied as quite large. Their minimum and maximum values ranged from about -3 to 12 (the scale which people used to rate the average

behavior of their interaction partner ranged from 1 to 8). Thus, some people perceived others as quite variable in their dominance behaviors and some others as highly consistent in their dominance behaviors. In contrast, in Study 2, people perceived others' dominance to be less variable (the range was approximately 1 to 4) across 21 days. This suggests that perhaps when people are imagining how others behave they may bring to mind more specific examples or "average" examples of how an interaction partner behaves. Furthermore, the list of 45 people may include a number of people with whom the participant interacts more rarely. Thus, over the 21 days the participant may not have interacted with particular people listed in the 45 interaction partner part of Study 1.

Relationships between Predictor Variables and Mean Indices (1, 2, 6, and 7)

Inventory of Interpersonal Problems. Across both Study 1 and Study 2 the R^2, for self- and other- dominance and friendliness indices were consistent with expected sinusoidal patterns. However, there was less evidence for a sinusoidal pattern with other-dominance mean. That is, people's interpersonal problems did not seem to affect their perceptions of others' dominance. The angles of displacement were somewhat inconsistent across the two studies. In Study 1, the angles for self-dominance, self-friendliness, and other-friendliness were all close to what could be expected. However, in Study 2 only the angle for self-dominance was close to the expect angle for a dominance variable on the Y-axis. In contrast to Study 1, self-friendliness and other-friendliness in Study 2 showed angles that were more consistent with friendly-submission. The obtained pattern for these two means (see plots 7.2 and 7.7) suggests that people who are high in friendliness tend to be higher in three types of problems (friendly, friendly-submissive, and submissive) and low in three types of problems (hostile, hostile-dominance, dominance). Friendly

behaviors can come from struggles with revealing too much friendliness, but also with being too trusting (e.g., I am too gullible) and too submissive (e.g., It is hard for me to be firm when I need to). Thus, it seems that people who are high in friendly behaviors may experience several sources of problems.

Circumplex Scale of Interpersonal Values. In Study 1, the R^2 for self- and other-reports (for both dominance and friendliness) were consistent with the expected sinusoidal curves. Study 2 showed somewhat less consistent evidence for the expected pattern. In particular, the R^2 values for self-friendliness and other-friendliness were strong; however self-dominance and other-dominance showed less evidence for a sinusoidal pattern. That is, people's interpersonal values did not seem to affect their own and perceptions of others' dominance.

Social Behavior Inventory. Consistent in Study 1 and Study 2, self- and other-friendliness showed the expected sinusoidal patterns. Furthermore, the angles for friendliness were also consistent with displacements for friendly behaviors on the Y-axis. However, self- and other- dominance showed less consistency across the two studies. Self-dominance showed the expected sinusoidal curve in Study 1, however in Study 2 this evidence was less clear. Other-dominance showed only a hint of sinusoidal pattern in Study 1 but this pattern was quite weak in Study 2.

Interestingly, somewhat consistent across all three predictor variables in Study 1 and Study 2, other-dominance mean showed the least adherence to the expected sinusoidal pattern. What might this finding suggest? Perhaps the way in which people view their own dominance problems, values, and traits do not affect their perceptions of others' dominance. For example, if a person experiences many problems in dominance, these

problems affect the their own dominance behavior but not how they see others' dominance.

Circumplex Scale of Interpersonal Efficacy. Consistent with the findings for the other predictor variables, the R^2 for self-dominance, self-friendliness, and other-friendliness were sinusoidal. For example, people who reported being efficacious in dominance reported that they were more dominant across 21 days and people who were efficacious in submissiveness reported that they were less dominant across 21 days. Once again, other-dominance showed the least adherence to the expected pattern. Although the angles for dominance were close to what could be expected, the angles of displacement for friendliness were closer to what could be expected for friendly-submission. This suggests that people who are high in friendliness tend to be more efficacious in friendly-submissive and less efficacious in hostile-dominance. Somewhat consistent with the results from interpersonal problems, friendliness behaviors are reflecting a conflated relationship between being friendly across 21 days and be efficacious in trusting behaviors.

In sum, across the predictor variables, the means generally showed the expected sinusoidal pattern. These strong correlations provide support not only for our hypotheses but also for our newly devised methodologies. Our four mean indices correlated quite well with established interpersonal scales.

Relationships between Predictor Variables and Variability Indices (3, 4, 8, 9, and 13-16)

Inventory of Interpersonal Problems. In both Study 1 and Study 2, there was no clear evidence for patterns of correlations which indicate a too much or too little variability problem. Any pattern that was revealed appears to be sinusoidal for three of the four standard deviations. Consistent across both studies, self-friendliness showed no evidence

of a sinusoidal pattern. In contrast, the R^2 for other-dominance showed a strong sinusoidal pattern. Although the R^2 was strong in both studies, the angle of displacement for other-dominance was inconsistent. Interestingly, in Study 1 the angle was more consistent with hostile-dominance (or competitiveness; BC); whereas, in Study 2 the angle of displacement was more consistent with friendly-submission (JK), which is in the opposite direction (on the interpersonal circumplex) of the finding in Study 1. This finding is interesting because it may suggest that there may be some kind of bias when people report on others' dominance variability in the lab versus when they report on others' behaviors immediately after an interaction occurs.

Similar to the findings for the standard deviations, there was no clear evidence for patterns of correlations which indicate a too much or too little variability problem for the proportions of variance. However, the relationship between the proportions of variance displacement angles and interpersonal difficulties were quite interesting. In particular, the displacement angles for all four proportions of variance were consistent with what would be expected of a "DE" variable on the Y-axis. That is, all the angles were consistent with hostility. In comparison to those whose behavior was less predictable over 21 days, those whose behavior was highly predictable based on interaction partner had more hostility problems; and they had fewer friendliness problems.

Why it is that none of the results were consistent with the hypotheses for the variability indices in Study 1 or Study 2? It is possible that people's self-reported problems do not capture what sorts of problems people are actually experiencing. For example, Hill, Zrull, and McIntire (1998) found that people tended to report more interpersonal problems that were related to overly-pleasing and overly-nurturing behaviors. In contrast, their peers

reported more domineering and vindictive types of problems. Thus, this research suggests that people do not see their own problems in the same way as their peers see them. Social desirability for people to appear more normal and problem free may have affected their responses. Recall, when participants completed the questionnaire they did so on a computer in a private room, where only the experimenter could go in and out of.

Circumplex Scale of Interpersonal Values. There was somewhat inconsistent evidence for sinusoidal curves for people's standard deviations, for the self or other across Study 1 and Study 2. The R^2 were strong for self- and other-mean dominance and friendliness in Study 1 and for self-friendliness and other-friendliness in Study 2. However, self- and other-mean dominance did not show a sinusoidal pattern in Study 2.

Interestingly, very strong sinusoidal shapes were found for the patterns of correlations for three of the four proportions of variance indices in Study 2 (with the weakest support for a sinusoidal shape found for proportion of variance in predicting others' dominance). Similar to the results obtained with interpersonal problems, all of the displacement angles indicated that the strongest positive correlations were with hostility. What does this surprising finding mean? For example, people whose behavior is highly predictable based on interaction partner value distance or hostility significantly more.

Social Behavior Inventory. In both Study 1 and Study 2 all four standard deviation curves were strongly sinusoidal. However, the displacement angles in Study 1 were more consistent with hostility for octant behaviors and competitiveness octants for perceptions of others. In Study 2, the displacement angles were somewhat opposite to what could be expected. For example, the angles for self- and other-dominance variability were closest to the friendly-submissive and submissiveness octants, and for self friendliness the

displacement angle was closest to the hostility octant. These results suggest that for dominance, the more variable a person is in their dominance behaviors over 21 days, the *more* trait submissive (according to the SBI) they were.

In accordance with both the results from the IIP-C and CSIV, reasonably strong sinusoidal shapes were found for the patterns of correlations for three of the four proportion of variance indices in Study 2 (with the weakest support for a sinusoidal shape found for proportion of variance in predicting others' dominance). Furthermore, all three of the displacement angles were closest to what could be expected for hostility. For example, consider the relationships predicting proportion of variance due to interaction partner in one's own friendliness behavior. In comparison to those whose behavior is less predictable over 21 days, those whose behavior is highly predictable based on interaction partner tended to be *more* trait hostile.

Circumplex Scale of Interpersonal Efficacy. We predicted that being interpersonally efficacious would reflect either a more flexibly skillful person or a more consistently skillful person. There was no clear evidence to support either one of these hypotheses. Interestingly, sinusoidal curves were found for both self-dominance and other-dominance. However, the displacement angles for these two variabilities were closer to the submissiveness octant. This suggests that people who indicated that both they and others varied more in their dominance behaviors were more efficacious in submissive behaviors. This finding is interesting because it suggests that people who are highly efficacious in dominance behaviors tend to be more consistently dominant, whereas people who are not tend to be less variable in their dominance.

Perhaps we should expect more of a cosine pattern between the standard deviations and CSIE subscales as we predicted with the means. For example, if a person is flexibly skillful in dominance they would report being more variable in their dominance behaviors. Thus, we would expect a positive relationship between the ipsatized PA octant for efficacy and dominance standard deviation. In addition, we would expect a negative relation between iHI and dominance standard deviation. In contrast, if a person is consistently skillful in dominance, they would report being less variable in their dominance behaviors. Thus, we would expect a negative relationship between the ipsatized PA octant for efficacy and dominance standard deviation. Additionally, there would be a positive relationship between iHI and dominance standard deviation. Because Interpersonal theory suggests that dominance and submissiveness behaviors are opposite to each other on the circumplex, we could expect to see correlations with the two most important octants in the opposite directions. We could make the same types of predictions for friendly behaviors.

The hypotheses regarding *skillful consistency* and *skillful flexibility* were also used to examine the relationships between the CSIE subscales and proportions of variance. However, there was no evidence to support neither of the hypotheses. Three of the four curves for proportions of variance showed sinusoidal patterns. Again, of the four curves, the proportion of variance in predicting others' dominance yielded the least support for a sinusoidal shape. Similar to the findings with the correlations with the other predictor variables, the displacement angles for the remaining three patterns were closest to hostility.

Relationships between the Indices, Well-Being, and Life Satisfaction

Examining people's mean behaviors and variability and well-being, although almost none of the relationships were significant, there were some interesting trends. In

particular, the more predictable people's and their perceptions of other's dominance and friendliness behaviors were based on interaction partner, the lower the well-being and satisfaction with life a person reported having.

Interpersonal Complementarity

Almost all of the R^2 values were quite high for perceived reciprocity and perceived correspondence in Study 1 (IIP-C, CSIV, and SBI). In Study 2, perceived reciprocity showed less adherence to a sinusoidal pattern with all four predictor variables, however perceived correspondence showed sinusoidal patterns with the CSIV and SBI. In Study 1, for perceived correspondence the three displacement angles were consistent with friendly-submissive and submissive octants. However, in Study 2 the angle of displacement for perceived correspondence with three of the predictor variables was close to friendliness. Despite some good sinusoidal properties, the two crucial correlations were always not significant. This issue would be picked up by amplitude, something that this thesis did not address.

Comparing our results for perceived reciprocity and perceived correspondence to two previous studies (Hodara, 2007; Mainland, 2007) we see a pattern in the properties of these indices across the three studies. Interestingly, all of the means for perceived reciprocity were around zero, $M_{Hodara} = .01$ and $M_{Mainland} = .02$. Furthermore, the maximums and minimums were all similar. Perceived reciprocity values ranged from -.49 to .52 (Hodara, 2007), -.42 to .54 (Mainland, 2007). The ranges in Study 1 and Study 2 are very similar to the previous two; in particular they range from about -.5 to .6. In all four studies, people perceived their own and others' friendliness to be highly related. All of the means were around .57. The maximums and minimums were also similar. Generally the

maximums and minimums ranged from 0 to .90. These results are very interesting because across four different studies we get the same central tendencies, similar standard deviations, and ranges.

One possible explanation for these results may be that there are individual differences in people's adherence (i.e., the extent to which individuals view interpersonal behavior in a manner similar to the interpersonal circle) to the interpersonal circle which affects how they see the relationship between theirs and others complementary behaviors. Tracey (2007) found that individuals who showed stronger adherence to an interpersonal circle had a greater relation between rigidity and complementarity. Those individuals who were more rigid were less able to engage in complementary behaviors, and those individuals who were less rigid were more able to engage in complementary behaviors.

Further Possible Analyses

There are several additional analyses that we would like to complete on the Study 1 and Study 2 datasets. We presented the descriptives regarding the types of relationships for the palm pilot data, however it would be interesting to examine the proportion of people listed in each participant's 45 interaction partners that were friends, family members, co-workers/boss, and the like. We could also do further analyses examining each subset of relationships and our 16 indices. For example, we could do Mischel type "if…then" profiles by categorizing interaction partners and seeing how consistent a person is for each category.

In Study 2, we asked participants how rewarding, conflictual, stressful, and harmonious their interactions were. We could examine how these variables relate to our 16 indices, interpersonal problems, interpersonal flexibility, neuroticism, and well-being. For

example, we could examine whether there is a non-linear relationship between flexibility, well-being, and rewardingness of the interaction. For example, there may be an optimal degree of flexibility that makes a person highly satisfied with their interactions, but very low or very high flexibility would be associated with lower well-being. This particular non-linear relationship would be a quadratic.

We did not have any specific hypotheses regarding gender differences but it would be interesting to examine same-sex versus opposite-sex interactions. Hodara (2007) found that in mixed-sex interactions, people focused on how friendly they and others were acting. It would be interesting to examine if our data replicated such findings.

We describe three types of variability in the current document, however for further analysis we could examine another type of variability that is within interpersonal partner. This variability would be characterized by a standard deviation for every interaction partner. This index would provide us with more information regarding how variable a person is with particular interaction partners in addition to our predictability indices (i.e., proportions of variance).

We described four main correlations in the current document: the correlation between self-dominance and self-friendliness, other-dominance and other-friendliness, perceived reciprocity and perceived correspondence (Indices 5, 10, 11, and 12, respectively). However, it is also possible to correlate self-dominance with other-friendliness, and correlate self-friendliness with other-dominance. It would be interesting to look at these relationships, specifically to examine the possibility that some people may have high correlations on these two new correlations as well as indices 11 and 12, whereas others may have low correlations. Some possible questions that we may ask are do people

who see their self-friendliness and self-dominance behaviors as highly entrained with others' dominance and others' friendliness behaviors experience more or less interpersonal problems? Are these highly entrained individuals more or less neurotic and do they have a low or high well-being?

Limitations and Future Directions

There are two potential reasons for why the current analyses may not have shown significant relations between particular variables, small sample size and inherent difficulty in monitoring students' adherence to study criteria. Ideally, we would like to have run approximately 50 participants. This sample size would have increased the power of our statistical analyses, potentially producing larger correlations. We attempted to monitor participants' adherence to the study protocol by having multiple downloading sessions where participants came into the lab and we checked their data. However, there was still the possibility that students were not accurately reporting on their behaviors.

It would be interesting to have people who know each other participate in a palm pilot study. For example, having roommates or people in an established group (e.g., a fraternity) complete the study may give us a better understanding of people's variability. In addition to the one's own behavior and their perceptions of other's behaviors, we would also be able to examine the perspectives of some the "others" a participant rates throughout the study period. We could compare the perceptions across participants. In other words, if five people rate the behaviors of their roommate Sally, we can compare each person's perceptions of Sally.

Having people who know each other participate in the study may also help address the issue of whether our results reflect actual behavior or perceptual biases in reporting

one's own and others' behaviors. For the current studies, we treated self-reported behavior as actual behavior rather than perceptions or biases. We would assume that what people report about their behaviors reflect what behaviors they are actually engaging in during their social interactions. However, these self-reported may be influenced by certain personality styles, emotions, or other idiosyncratic characteristics. For example, people with neurotic tendencies may perceive their social behavior and the behavior of their interaction partner quite differently than someone who is not neurotic. We included a Big Five measure in Study 2 which would allow us to test whether any of the Big Five personality traits influence people's mean behaviors or variability. Furthermore, we could examine if these traits also influence their perceptions of others' interpersonal behaviors.

An interesting study that adopts a somewhat similar approach to measuring people's perceptions of their own and others' variability is Erickson, Newman, and Pincus (2007). Although these researchers have investigated people's variability, they examined whether vector length on particular interpersonal measures (Inventory of Interpersonal Problems-Circumplex, Interpersonal Adjective Scales, Battery of Interpersonal Capabilities), and elevation (interpersonal distress measured by the IIP-C) were predictors of variability of social behavior and perceptions in two studies. Variability was examined across imagined (one-time online measure) and actual (online diary across 7 days) social interactions. We used a similar methodology in our two studies in that we asked participants to complete a one-time in lab measure of variability (Study 1) and across time measures of variability (Study 2). However, the ways in which we collected variability behaviors and perceptions about variability are quite different.

In their Study 1, participants were asked to imagine only two different people—a friend and an authority figure—rather than 45 different people in our Study 1. Their participants then read 16 different scenarios for each of the imagined interaction partner (i.e., 32 scenarios in total). The participant then had to rate how they would respond to the interaction partner in each scenario. Participants also filled out the Interpersonal Grid (Moskowitz & Zuroff, 2005a) for their perceptions of the imagined interaction partner in each scenario. Upon completion of Study 1, participants received an opportunity to participate in a one-week online diary study of their social interactions. Participants had to complete at least five interaction forms at consistent daily times (e.g., before going to sleep). The SBI (Moskowitz, 1994) was included to gather self perceptions during the interactions and the Interpersonal Grid to gather other perceptions.

The results of this study indicate IIP-C elevation predicted high variability of self perceptions in the lab and self and other perceptions across the 7 days. IIP-C Elevation also predicted low variability of perceptions of others in the lab. The analyses Erickson, Newman, and Pincus (2007) used were different from the ones we conducted. In Study 1 and Study 2, the researchers conducted flux scores for both behavior and perceptions of others. They focused particularly on using elevation and amplitude to predict participants' variability. Recall that elevation and amplitude are the two variables in the structural summary information that we did not examine. It would be interesting in further analyses of our results to include an examination of these two variables, in particular to see if our findings would be similar to theirs.

The current studies help advance research in interpersonal variability and Interpersonal Theory. In Study 1, the development of an innovative method of measuring

variability, specifically across a person's chosen interaction partners, and the resulting indices provide a new technique for measuring the social world of any given individual. Study 2 examined and tested the ideas that an optimal level of predictable variability and consistency are preferred for ensuring successful and rewarding interpersonal interactions. We developed new indices which measure the proportion of variance that could be accounted for by interaction partner, specifically giving researchers a way to measure this predictable variability and consistency.

References

Alden, L. E., Wiggins, J. S., & Pincus, A. L. (1990). Construction of circumplex scales for the Inventory of Interpersonal Problems. *Journal of Personality Assessment, 55,* 521-536.

Carson, R. C. (1969). *Interaction concepts of personality.* Chicago: Aline.

Carson, R. C. (1982). Self-fulfilling prophecy, maladaptive behavior, and psychotherapy. In J.C. Achin, & D. J. Kielser (Eds.), Handbook of Interpersonal Theory (pp. 64-77). Elmsford, N.Y.: Pergamon.

Ciarrochi, J., Said, T., & Deane, F. P. (2005). When simplifying life is not so bad: The link between rigidity, stressful life events, and mental health in an undergraduate population. *British Journal of Guidance & Counselling, 33,* 185-197.

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment, 49,* 71-75.

Dryer, D. C., & Horowitz, L. M. (1997). When do opposites attract? Interpersonal complementarity versus similarity. *Journal of Personality and Social Psychology, 72,* 592-603.

Erickson, T. M., Newman, M. G., & Pincus, A. L. (in progress). Predictors of unpredictability and covariates of invariability. Unpublished manuscript. Pennsylvania State University.

Fleeson, W. (2001). Toward a structure- and process-integrated view of personality: Traits as density distributions of states. *Journal of Personality & Social Psychology, 80,* 1011-1027.

Foltz, C., Morse, J. Q., & Barber, J. P. (1999). Self and observer reports of interpersonal

problems in couples. *Journal of Clinical Psychology, 55*, 27-37.

Gurtman, M. B., & Pincus, A. L. (2000). Interpersonal adjective scales: Confirmation of circumplex structure from multiple perspectives. *Personality and Social Psychology Bulletin, 26*, 374- 384.

Gurtman, M.B., & Balakrishnan, J. D., (1998). Circular measurement redux: The analysis and interpretation of interpersonal circle profiles. *American Psychology Association, 5*, 344-360.

Hill, R. W., Zrull, M. C., & McIntire, K. (1998). Differences between self- and peer-ratings of interpersonal problems. *Assessment, 5*, 67-83.

Hodara, O. A. (2007). Narrowed interpersonal worlds: Gender differences in affiliation-focus and dominance-focus. Unpublished Master's Thesis. Wilfrid Laurier University.

Horowitz, L. M. (2004). *Interpersonal foundations of psychopathology*. Washington: American Psychological Association.

John, O. P., & Srivastava, S. (1999). The big five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), Handbook of personality (pp. 102-138). New York: The Guildford Press.

Kenny, D.A., Albright, L., Malloy, T. E., & Kashy, D.A. (1994). Consensus in interpersonal perception: Acquaintance and the Big Five. *Psychological Bulletin, 116*, 245-258.

Kiesler, D. J. (1983). The 1982 Interpersonal Circle: A taxonomy for complementarity in human transactions. *Psychological Review, 127*, 128-141.

Kiesler, D. J. (1996). *Contemporary interpersonal theory and research*. New York: John

Wiley.

Locke, K. D. (2000). Circumplex Scales of Interpersonal Values: Reliability, validity, and applicability to interpersonal problems and personality disorders. *Journal of Personality Assessment, 75,* 249-267.

Locke, K., & Sadler, P. (2007). Self-efficacy, values, and complementarity in dyadic interactions: Integrating interpersonal and social-cognitive theory. *Personality and Social Psychology Bulletin, 33*, 94-109.

Mainland, B. (2007). Is variability in interpersonal behaviour related to a person's sense of well-being?: A ten-day palm pilot study. Unpublished undergraduate thesis. Wilfrid Laurier University.

Mischel, W., & Shoda, Y. (1995). A cognitive-affective system theory of personality: Reconceptualizing situations, dispositions, dynamics, and invariance in personality structure. *Psychological Review, 102*, 246-268.

Moskowitz, D. S. (1994). Cross-situational generality and the interpersonal circumplex. *Journal of Personality & Social Psychology, 66*, 921-933.

Moskowitz, D.S., & Zuroff, D.C. (2004). Flux, pulse, and spin: Dynamic additions to personality lexicon. *Journal of Personality and Social Psychology, 86*, 880-893.

Moskowitz, D. S., & Zuroff, D. C. (2005a). Assessing interpersonal perceptions using the interpersonal grid. *Psychological Assessment, 17,*218-230.

Moskowitz, D.S., & Zuroff, D. C. (2005b). Robust predictors of flux, pulse, and spin. *Journal of Research in Personality, 39*, 130-147.

Orobio de Castro, B., Veerman, J. W., Koops, W., Bosch, J. D., & Monshouwer, H. J.

(2002). Hostile attribution of intent and aggressive behavior: A meta-analysis. *Child Development, 73*, 916-934.

Paulhus, D. L., & Martin, C. L. (1987). The structure of personality capabilities. *Journal of Personality and Social* Psychology, 52, 354-365.

Paulhus, D. L., & Martin, C. L. (1988). Functional flexibility: A new approach to Interpersonal flexibility. *Journal of Personality and Social Psychology, 55*, 88-101.

Ryff, C. D. (1989). Happiness is everything, or is it? Exlporations on the meaning of psychological well-being. *Journal of Personality and Social Psychology, 57,* 1069-1081.

Sadler, P., & Woody, E. (2003). Is who you are who you're talking to? Interpersonal style and complementarity in mixed-sex interactions. *Journal of Personality and Social Psychology, 84*, 80-96.

Suh, E.M. (2002). Culture, identity consistency, and subjective well-being. *Journal of Personality and Social Psychology, 83*, 1378-1391.

Tracey, J. G. T. (2005). Interpersonal rigidity and complementarity. *Journal of Research in Personality, 39,* 592-614.

Tracey, J. G. T. (in progress). An idiothetic examination of adherence to the interpersonal circle: A new moderator of the interpersonal rigidity-psychological functioning relation. Unpublished manuscript. Arizona State University.

Wiggins, J. S. (1982). Circumplex models of interpersonal behavior in clinical psychology. In P. C. Kendall & J. N. Butcher (Eds.), *Handbook of research methods in clinical psychology* (pp. 183-221). New York: Wiley.

Wiggins, J. S. (2003). Paradigms of personality assessment: An interpersonal odyssey. *Journal of Personality Assessment, 80,* 11-18.

Footnotes

[1] In fact, when considering the relationships between the standard deviation of dominance dimension behavior over 45 people and each of the octants for interpersonal problems, we *also* expect zero correlations with friendliness problems and hostility problems. Furthermore, we expect correlations with problems located in octants on the diagonals of the circumplex to be somewhere in between zero and the maximum correlations for dominance and submissiveness problems. The expectation for this pattern of correlations is derived from circumplex properties, which we describe in detail shortly. However, this fuller explanation is omitted from the present discussion in order to better highlight the differences between predictions for *too much variability* and *too little variability*

[2] While the majority of the participants completed the study on a computer, 23 Psychology 100 students who participated in the study for course credit completed the study on paper. Age was not collected for these participants. Therefore the reported age range and mean are for the 93 participants who completed the study on a computer.

[3] We removed four participants because they did not complete the list of 45 interactions which subsequently affected the completion of the questionnaires. The last participant who was removed from the analysis withdrew from the study after the initial lab session.

[4] Ideally all participants would have completed the study on the computer; however, during April 2006 the computer program was being changed to manage counterbalancing orders of administration, and so participants were run using paper versions of the questionnaires.

[5] The participants who completed the study on computer (N=93) completed the IIP-C before CSIV; whereas the remaining participants (N=23) who did the study on paper filled out these questionnaires in the reverse order (CSIV before the IIP-C).

[6] We did not expect that the reliabilities of the ipsatized CSIV would be so low. We compared these values to reliabilities of other ipsatized CSIV scores (personal communication with Kenneth Locke, July 18, 2006), and although our values were still lower, they followed the same pattern. We also checked the internal consistency of the ipsatized scores. They correlated in the same manner as ipsatized CSIV scores presented in published papers (Locke, 2001). Our ipsatized CSIV scores also showed excellent circumplex properties internally, exhibiting a cosine wave that is typical. Lastly, the ipsatized CSIV correlated quite well with indices in the current study.

[7] The one possible exception is that the curves expected for the variability indices (shown as the bottom two graphs in Figure 3) would have a smaller amplitude than the expected curves for the mean indices (shown as the top two graphs in Figure 3). However, the overall pattern of predictions and displacement capture the main features for the present investigations.

[8] Thirty-seven participants took part in Study 2. However, we removed two of the participants because of incomplete data. One participant removed himself/herself from the study, and thus did not complete any of the required components. The other participant also had incomplete data and there was a concern regarding their completed data. At times they were not completing the daily palm records and missed a couple downloading sessions.

[9] We did not expect that the reliability of perceived correspondence (Index 12) would be so low in Study 2. This finding was quite surprising given that the overall mean for perceived correspondence was about the same as in Study 1. Furthermore, the maximum and minimums were also very similar for Study 1 and 2. Given that the properties of perceived correspondence in Study 1 and 2 are so similar, there is the possibility that the low reliability may be due to an error in the reliability computation for this index.

[10] The CSIE is a new measure, and to our knowledge has only been used in one published study. The scale has 4 items per octant. Although this is beneficial in terms of time for participants to complete the scale, this may be affecting the reliabilities. The lower reliabilities of these five subscales may affect the relation between these subscales and external variables, given that the maximum correlation of two items is limited by the reliability of both variables.

Table 1

Study 1 Descriptives for 12 Indices

Index	Mean	Standard Deviation	Max	Min	Reliability
Self Indices					
1. Mean Dom	2.09	2.78	12.99	-5.43	.99
2. Mean Fri	7.48	2.95	13.51	.35	.97
3. SD Dom	2.46	1.05	5.84	.25	.92
4. SD Fri	3.76	1.81	9.93	.24	.91
5. Corr $_{DomFri}$	.05	.35	.86	-.82	.73
Other Indices					
6. Mean Dom	1.87	2.25	12.16	-4.11	.96
7. Mean Fri	6.90	2.71	13.27	.26	.95
8. SD Dom	2.88	2.05	12.16	-3.23	.89
9. SD Fri	4.15	1.47	7.87	.82	.83
10. Corr $_{DomFri}$	-.01	.32	.75	-.64	.73
Interpersonal Correlations					
11. Perceived Reciprocity	-.06	.27	.73	-.63	.55
12. Perceived Correspondence	.59	.21	.93	-.11	.68

Note. Dom= Dominance, Fri= Friendliness, SD= Standard Deviation, Corr= Correlation

Table 2

Study 1 Gender Differences in Indices

	Mean	
Index	Female	Male
Self Indices		
1. Mean Dom	2.34	1.80
2. Mean Fri	8.05*	6.81
3. SD Dom	2.50	2.42
4. SD Fri	3.78	3.74
5. Corr $_{DomFri}$	.06	.04
Other Indices		
6. Mean Dom	2.28*	1.38
7. Mean Fri	7.25	6.50
8. SD Dom	3.40**	2.26
9. SD Fri	4.28	4.00
10. Corr $_{DomFri}$	.02	.00
Interpersonal Correlations		
11. Perceived Reciprocity	-.08	-.04
12. Perceived Correspondence	.61	.57

Note. * $p < .05$, ** $p < .01$

Table 3

Study 1 Predictor Variable Reliability

Octant	IIP-C	iIIP-C	CSIV	iCSIV	SBI	iSBI
PA	.75	.65	.68	.33	.79	.58
BC	.77	.70	.77	.63		
DE	.81	.68	.81	.64	.72	.53
FG	.82	.65	.80	.44		
HI	.88	.79	.84	.59	.77	.70
JK	.81	.61	.84	.59		
LM	.79	.60	.84	.72	.77	.59
NO	.78	.62	.75	.49		

Note. IIP-C = Inventory of Interpersonal Problems Circumplex, CSIV = Circumplex Scale of Interpersonal Values, SBI = Social Behavior Inventory. Columns labeled iIIP-C, iCSIV, and iSBI contain the reliabilities of the subscales formed using ipsatized items.

Table 4

Relevant Structural Summary Information for Correlations of Ipsatized IIP-C, CSIV, and SBI Octants with each of the 12 Indices (Study 1)

Index	Name	Ipsatized IIP-C		Ipsatized CSIV		Ipsatized SBI	
		R^2	Angle	R^2	Angle	R^2	Angle
1	Self mean Dom	.91	87	.94	68	.9	197
2	Self mean Fri	.98	351	1.00	16	.98	27
3	Self Dom SD	.70	118	.08	186	.97	178
4	Self Fri SD	.33	147	.85	190	.99	172
5	Self $Corr_{DomFri}$	.40	230	.88	307	.79	334
6	Other mean Dom	.18	80	.93	40	.72	88
7	Other mean Fri	.98	343	1.00	12	.95	21
8	Other Dom SD	.93	131	.73	48	.87	125
9	Other Fri SD	.77	10	.38	67	.89	150
10	Other $Corr_{DomFri}$	.29	348	.43	21	.98	27
11	Perceived Reciprocity	.78	355	.86	233	1.00	37
12	Perceived Correspondence	.82	279	.85	328	.89	324

Note. Dom= Dominance, Fri= Friendliness, SD= Standard Deviation, Corr= Correlation, PropVar= Proportion of Variance

Table 5

Examples of Variability and Interaction Partner Influence

		Dominance Level (1-5)		
Partner	Occasion	Example 1	Example 2	Example 3
Mother	1	3	5	3
	2	2	1	2
	3	2	2	2
	4	3	3	3
Mean		2.75	2.75	2.50
Boyfriend	1	3	2	4
	2	3	1	3
	3	2	2	5
	4	3	5	5
Mean		2.75	2.50	4.25
Boss	1	3	4	1
	2	3	3	1
	3	2	3	2
	4	2	1	1
Mean		2.50	2.75	1.25
Overall Mean		2.67	2.67	2.67
Overall SD		.49	1.44	1.44
PropVar		.06	.01	.80

Note: PropVar = Proportion of Variance

Table 6

Study 2 Descriptives for 16 Indices

Index	Mean	Standard Deviation	Max	Min	Reliability
Self Indices					
1. Mean Dom	2.74	2.01	8.72	-.26	.90
2. Mean Fri	8.64	3.17	13.74	2.79	.92
3. SD Dom	2.47	.79	3.86	.91	.82
4. SD Fri	3.18	1.26	6.54	.75	.84
5. Corr $_{DomFri}$	.27	.29	.69	-.48	.76
Other Indices					
6. Mean Dom	2.73	1.69	7.35	-.26	.86
7. Mean Fri	9.06	3.20	14.71	2.54	.93
8. SD Dom	2.45	.75	3.72	.90	.86
9. SD Fri	3.11	1.12	5.28	1.25	.87
10. Corr $_{DomFri}$	.21	.27	.73	-.36	.63
Interpersonal Correlations					
11. Perceived Reciprocity	.14	.22	.62	-.45	.62
12. Perceived Correspondence	.57	.16	.84	-.02	.25
Proportion of Variance					
13. Self-dominance	28.37	12.44	62.80	7.20	.58
14. Self-friendliness	37.28	15.94	78.30	7.10	.52
15. Other-dominance	33.43	15.54	77.10	7.10	.70
16. Other-friendliness	35.07	16.67	76.00	7.40	.60

Note. Dom= Dominance, Fri= Friendliness, SD= Standard Deviation, Corr= Correlation

Table 7

Study 2 Gender Differences in the 16 Indices

	Mean	
Index	Female	Male
Self Indices		
1. Mean Dom	2.79	2.70
2. Mean Fri	9.29	8.05
3. SD Dom	2.57	2.38
4. SD Fri	3.25	3.14
5. Corr $_{DomFri}$	.34	.22
Other Indices		
6. Mean Dom	3.05	2.40
7. Mean Fri	9.77	8.37
8. SD Dom	2.48	2.42
9. SD Fri	3.10	3.20
10. Corr $_{DomFri}$	.29	.14
Interpersonal Correlations		
11. Perceived Reciprocity	.14	.16
12. Perceived Correspondence	.59	.55
Proportion of Variance		
13. Self-dominance	27.56	29.14
14. Self-friendliness	37.41	37.16
15. Other-dominance	32.09	34.71
16. Other-friendliness	34.29	35.82

Note. None of the above t-tests were statistically different from zero.

Table 8

Reliabilities for the Predictor Variables in Study 2

Octant	IIP	iIIP	CSIV	iCSIV	SBI	iSBI	CSIE	iCSIE
PA	.65	.69	.67	.47	.75	.46	.59	.36
BC	.68	.69	.80	.68			.70	.55
DE	.68	.65	.81	.68	.75	.60	.75	.65
FG	.81	.51	.81	.61			.51	.38
HI	.90	.82	.85	.74	.79	.70	.70	.67
JK	.85	.67	.84	.74			.61	.43
LM	.80	.60	.83	.73	.76	.57	.61	.29
NO	.79	.63	.68	.54			.65	.40

Table 9

Relevant Structural Summary Information for Correlations of Ipsatized IIP-C, CSIV, and SBI Octants with each of the 16 Indices (Study 2)

Index	Name	Ipsatized IIP-C		Ipsatized CSIV		Ipsatized SBI	
		R^2	Angle	R^2	Angle	R^2	Angle
1	Self mean Dom	.87	102	.22	99	.78	132
2	Self mean Fri	.97	316	.86	332	1.00	346
3	Self Dom SD	.85	252	.79	256	1.00	234
4	Self Fri SD	.17	76	.50	252	.99	200
5	Self $Corr_{DomFri}$	.86	287	.74	270	1.00	241
6	Other mean Dom	.70	130	.25	2	.53	172
7	Other mean Fri	.95	318	.82	334	1.00	353
8	Other Dom SD	.96	321	.76	276	1.00	226
9	Other Fri SD	.90	351	.60	318	.90	354
10	Other $Corr_{DomFri}$	.54	305	.75	324	.83	341
11	Perceived Reciprocity	.02	253	.63	300	.74	30
12	Perceived Correspondence	.19	103	.88	4	1.00	24
13	PropVar Self Dom	.57	155	.91	189	.87	186
14	PropVar Self Fri	.40	165	.95	192	.96	191
15	PropVar Other Dom	.68	173	.78	204	.79	144
16	PropVar Other Fri	.39	164	.92	200	.99	203

Note. Dom= Dominance, Fri= Friendliness, SD= Standard Deviation, Corr= Correlation, PropVar= Proportion of Variance

Table 10

Relevant Structural Summary Information for Correlations of Ipsatized CSIE Octants with each of the 16 Indices (Study 2)

Index	Name	Ipsatized CSIE R^2	Ipsatized CSIE Angle
1	Self mean Dom	.90	94
2	Self mean Fri	.94	309
3	Self Dom SD	.83	256
4	Self Fri SD	.37	246
5	Self $Corr_{DomFri}$	.07	337
6	Other mean Dom	.76	94
7	Other mean Fri	.90	308
8	Other Dom SD	.84	278
9	Other Fri SD	.72	322
10	Other $Corr_{DomFri}$	.24	23
11	Perceived Reciprocity	.01	11
12	Perceived Correspondence	.49	10
13	PropVar Self Dom	.65	210
14	PropVar Self Fri	.76	180
15	PropVar Other Dom	.36	202
16	PropVar Other Fri	.71	157

Note. Dom= Dominance, Fri= Friendliness, SD= Standard Deviation, Corr= Correlation, PropVar= Proportion of Variance

Table 11

Relationship between 16 Indices and WB and SWLS

Index	WB	SWLS
Self Indices		
1. Mean Dom	.23	.01
2. Mean Fri	.13	.24
3. SD Dom	-.18	.00
4. SD Fri	.01	.13
5. Corr $_{DomFri}$	-.17	-.15
Other Indices		
6. Mean Dom	.19	-.09
7. Mean Fri	.20	.21
8. SD Dom	-.20	.03
9. SD Fri	-.07	.31
10. Corr $_{DomFri}$	.12	-.21
Interpersonal Correlations		
11. Perceived Reciprocity	.05	-.04
12. Perceived Correspondence	.27	.27
Proportion of Variance		
13. Self-dominance	-.17	-.07
14. Self-friendliness	-.26	-.10
15. Other-dominance	-.19	.08
16. Other-friendliness	-.36*	-.17

Note. Dom= Dominance, Fri= Friendliness, SD= Standard Deviation, Corr= Correlation

Table 12

Relationship between Overall Means on Predictor Variables

	IIP-C	CSIV	SBI	CSIE	WB	SWLS
CSIV	.45**	1.00				
SBI	.44**	.48**	1.00			
CSIE	-.06	.11	.04	1.00		
WB	-.42*	-.22	-.19	.10	1.00	
SWLS	-.18	-.20	-.18	.05	.46**	1.00

Note: * $p < .05$, ** $p < .01$; IIP-C = Inventory of Interpersonal Problems-Circumplex; CSIV = Circumplex Scale of Interpersonal Values; SBI = Social Behavior Inventory; CSIE = Circumplex Scale of Interpersonal Efficacy, WB = Ryff's Well-being Scale, SWLS = Satisfaction with Life Scale,

Figure Captions

Figure 1. Interpersonal Circumplex, Eight Octants-PA, BC, DE, FG, HI, JK, LM, and NO

Figure 2a. Bivariate Distribution Plots for 45 Interaction Partners

Figure 2b. Bivariate Distribution Plots for 21 Days

Figure 3. Expected Cosine Wave pattern- general graphs

Figure 4. Study 1 Inventory of Interpersonal Problems Circumplex Plots (Indices 1-12)

Figure 5. Study 1 Circumplex Scale of Interpersonal Values Plots (Indices 1-12)

Figure 6. Study 1 Social Behavior Inventory Plots (Indices 1-12)

Figure 7. Study 2 Inventory of Interpersonal Problems Circumplex Plots (Indices 1-16)

Figure 8. Study 2 Circumplex Scale of Interpersonal Values Plots (Indices 1-16)

Figure 9. Study 2 Social Behavior Inventory Plots (Indices 1-16)

Figure 10. Study 2 Circumplex of Interpersonal Efficacy Plots (Indices 1-16)

Figure 1

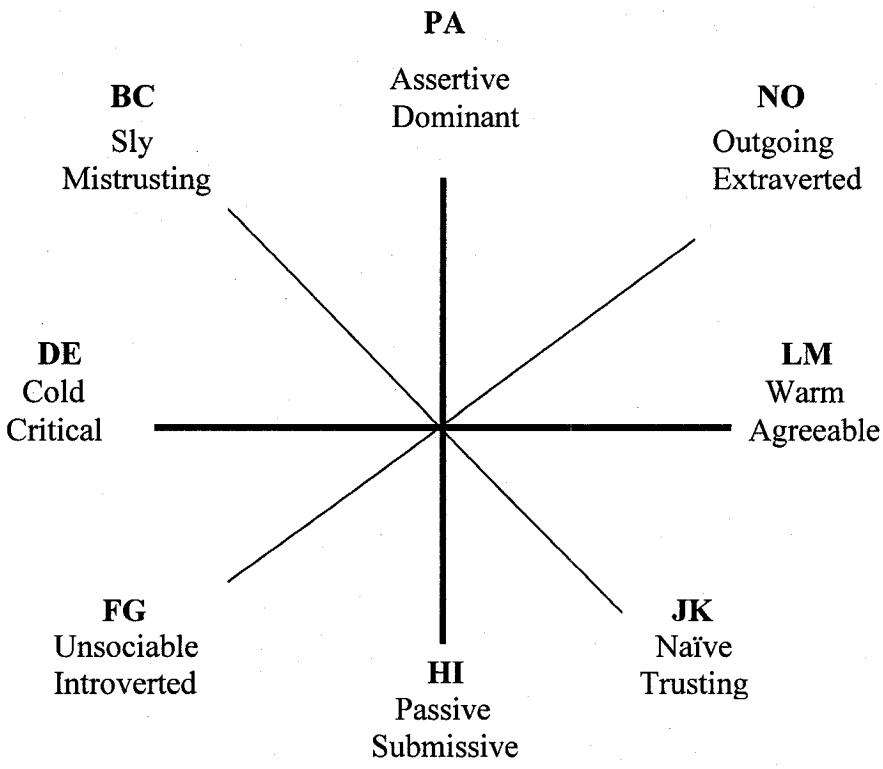
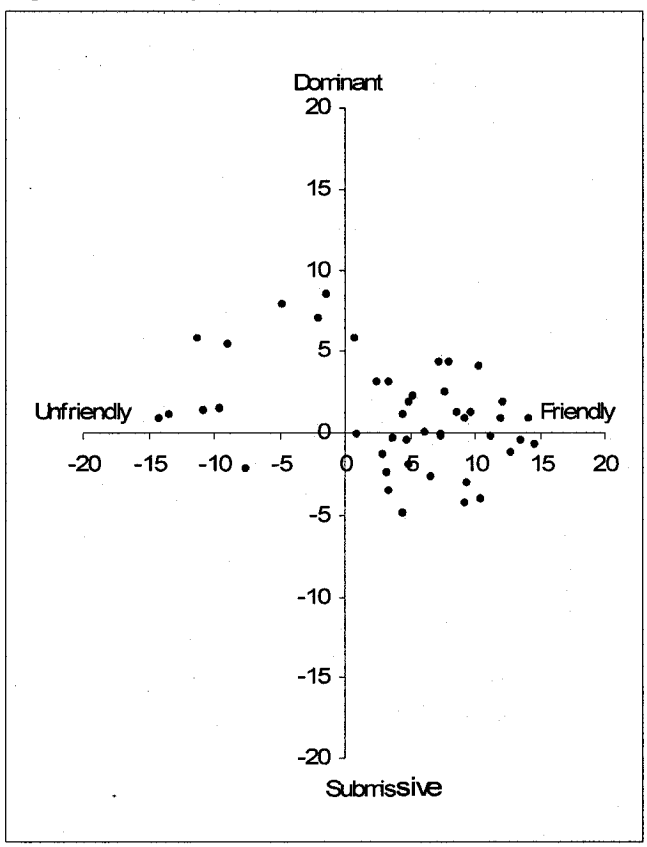

PA
Assertive
Dominant
BC
Sly
Mistrusting
NO
Outgoing
Extraverted
DE
Cold
Critical
LM
Warm
Agreeable
FG
Unsociable
Introverted
HI
Passive
Submissive
JK
Naïve
Trusting

Figure 2a

High Variability



Low Variability

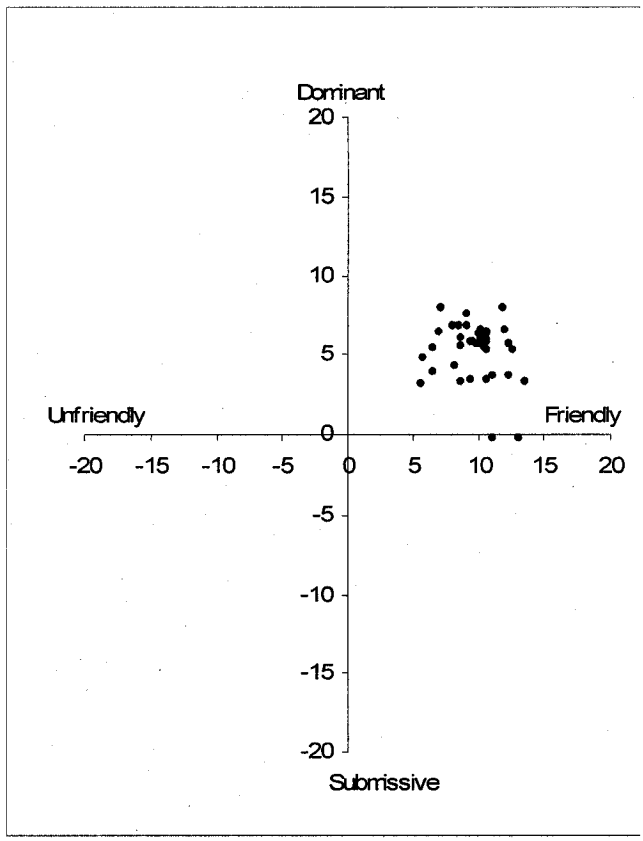
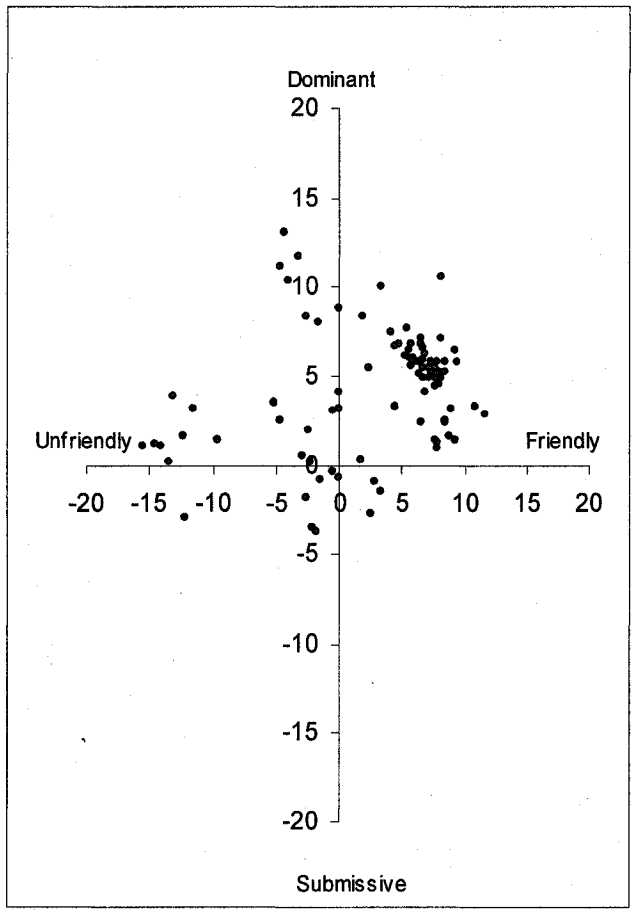


Figure 2b

High Variability



Low Variability

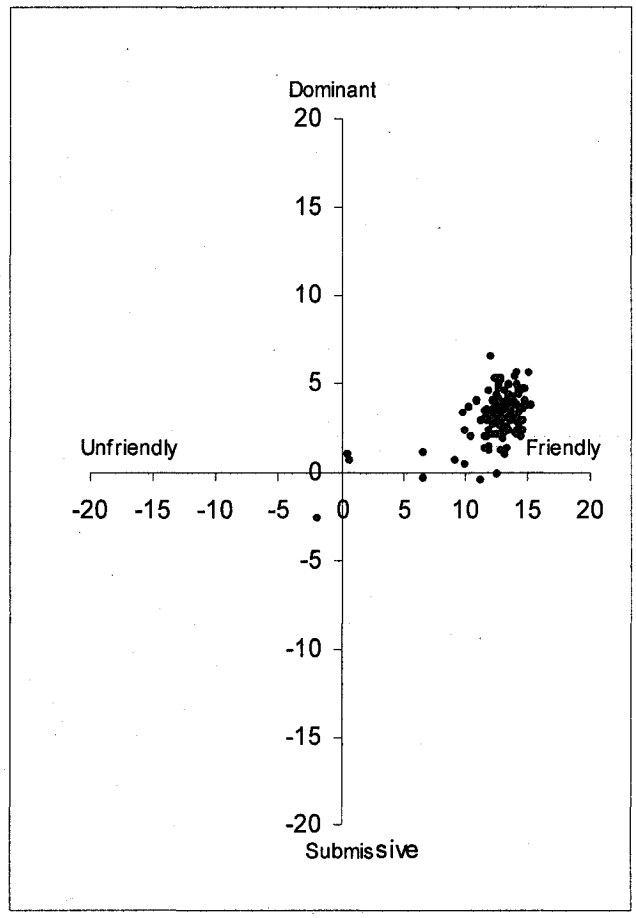
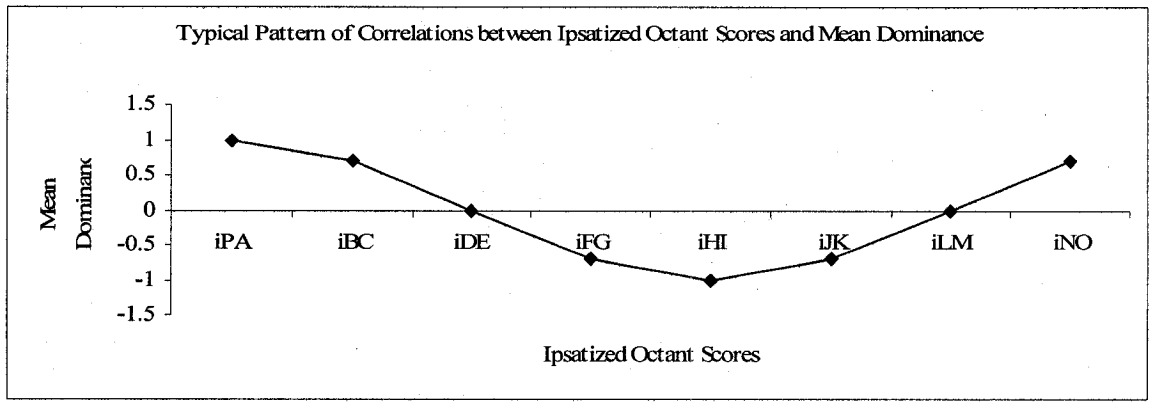
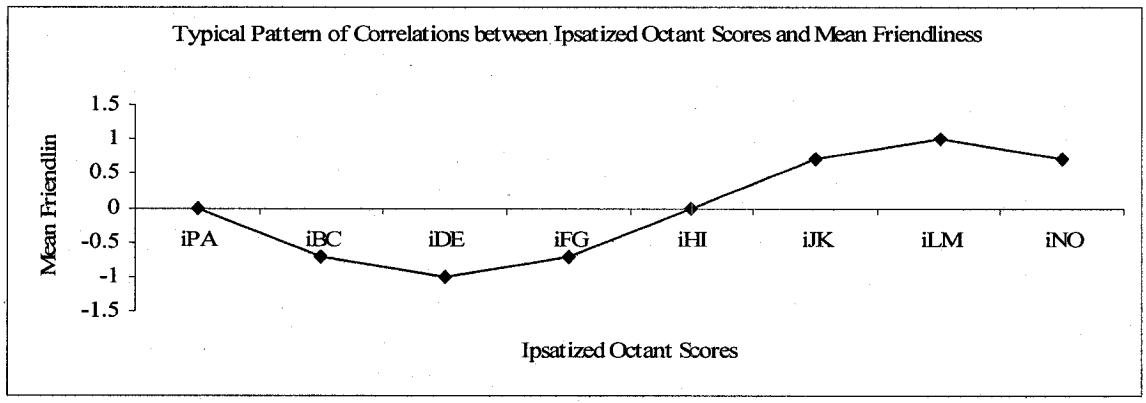
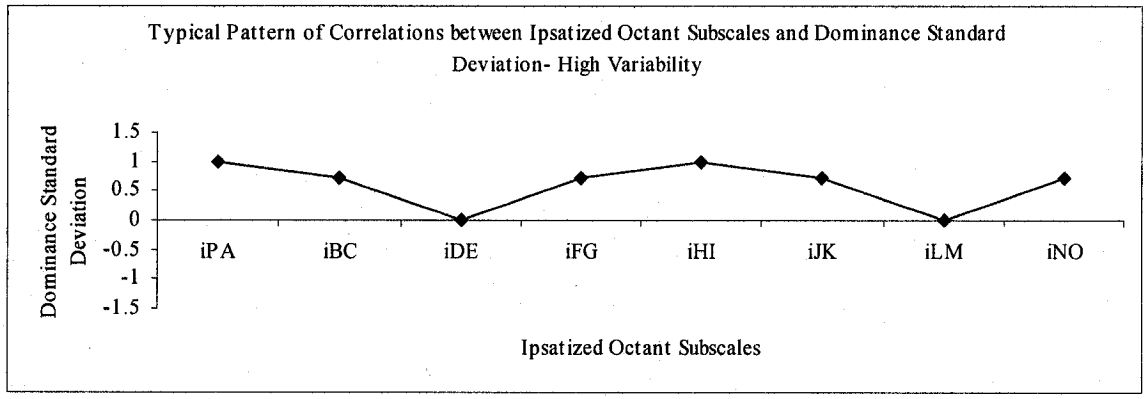


Figure 3


Typical Pattern of Correlations between Ipsatized Octant Scores and Mean Dominance
Mean Dominanc
1.5
1
0.5
0
-0.5
-1
-1.5
iPA
iBC
iDE
iFG
iHI
iJK
iLM
iNO
Ipsatized Octant Scores


Typical Pattern of Correlations between Ipsatized Octant Scores and Mean Friendliness
Mean Friendlin
1.5
1
0.5
0
-0.5
-1
-1.5
iPA
iBC
iDE
iFG
iHI
iJK
iLM
iNO
Ipsatized Octant Scores


Typical Pattern of Correlations between Ipsatized Octant Subscales and Dominance Standard Deviation- High Variability
Dominance Standard Deviation
1.5
1
0.5
0
-0.5
-1
-1.5
iPA
iBC
iDE
iFG
iHI
iJK
iLM
iNO
Ipsatized Octant Subscales

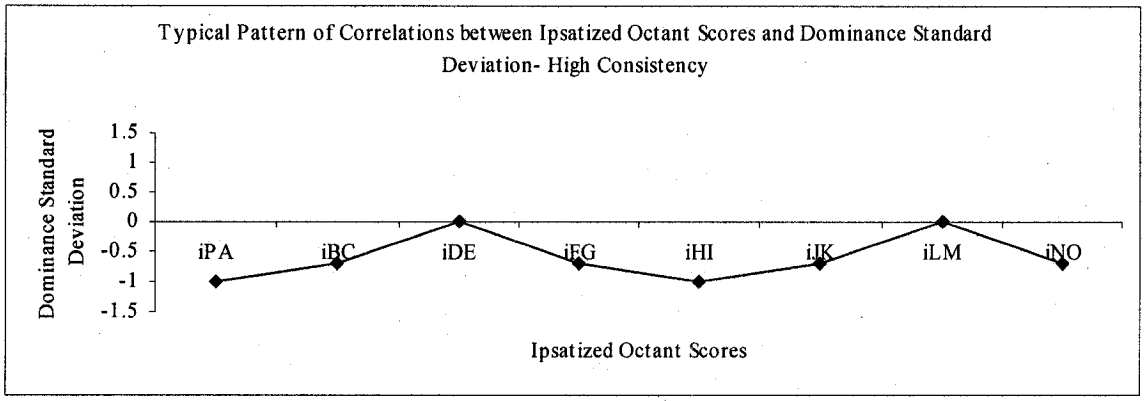
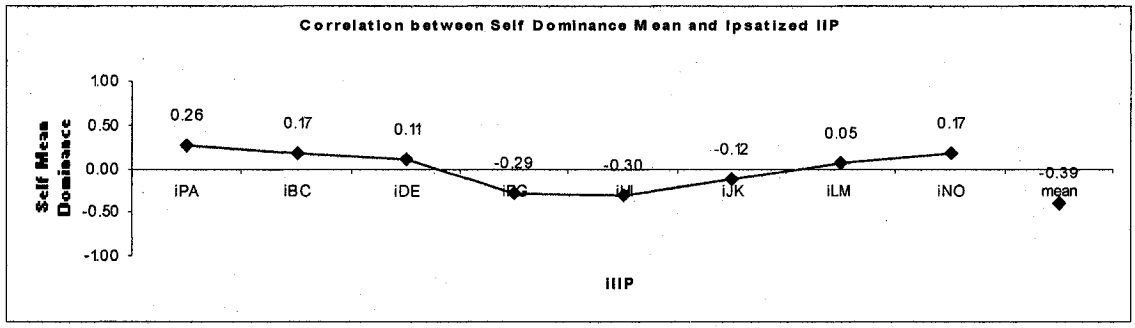
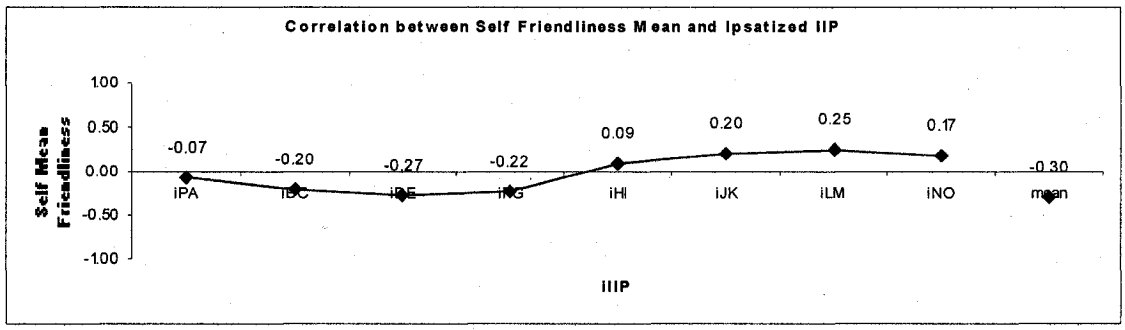

Typical Pattern of Correlations between Ipsatized Octant Scores and Dominance Standard Deviation- High Consistency
Dominance Standard Deviation
1.5
1
0.5
0
-0.5
-1
-1.5
iPA
iBC
iDE
iFG
iHI
iJK
iLM
iNO
Ipsatized Octant Scores

Figure 4 Plots (4.1 to 4.12)

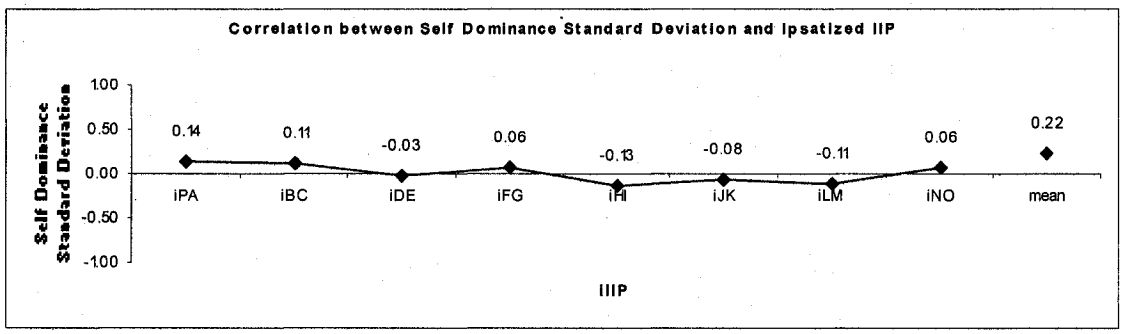
4.1



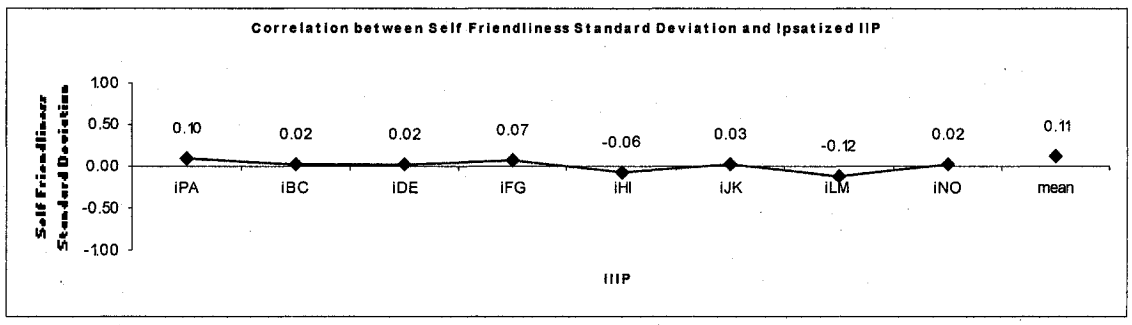
4.2



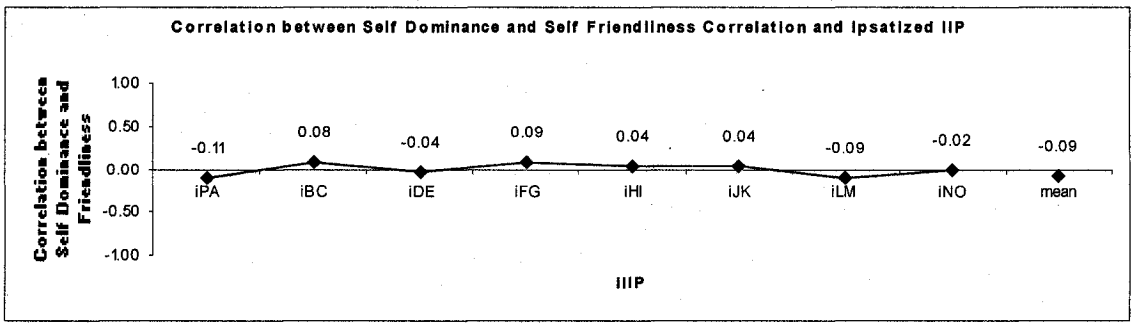
4.3



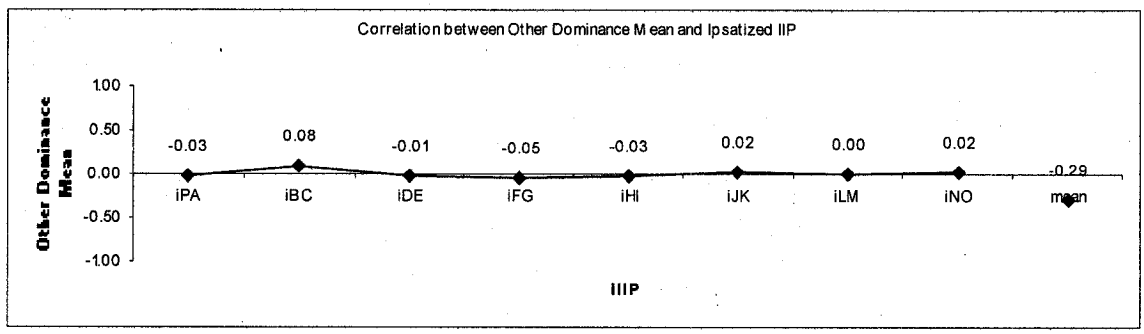
4.4



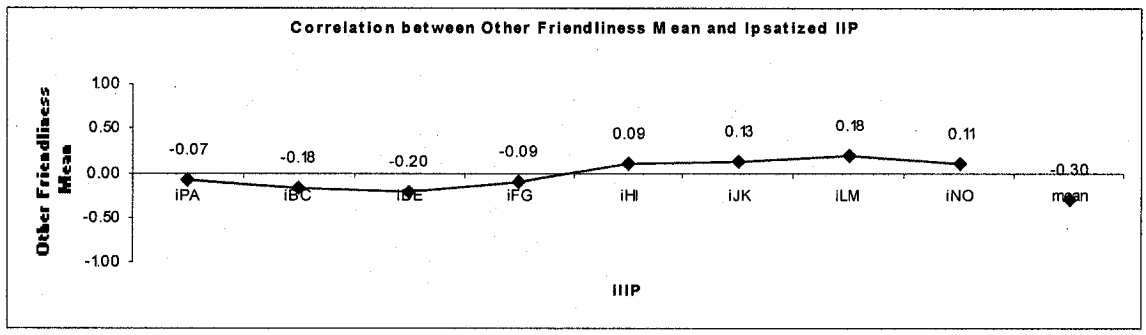
4.5



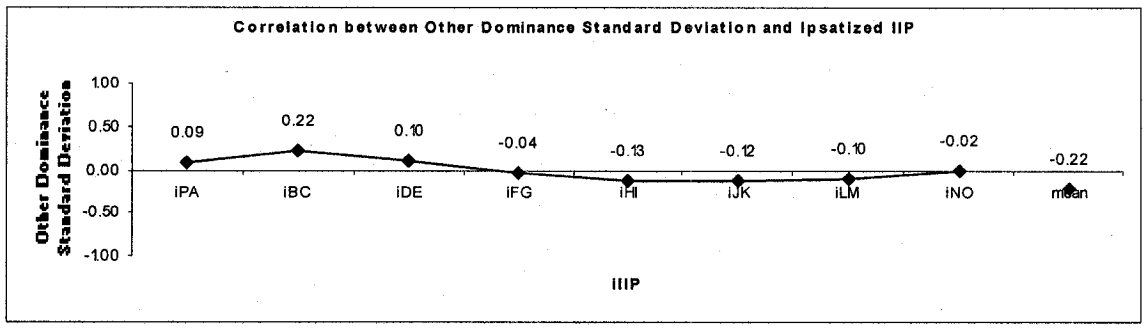
4.6



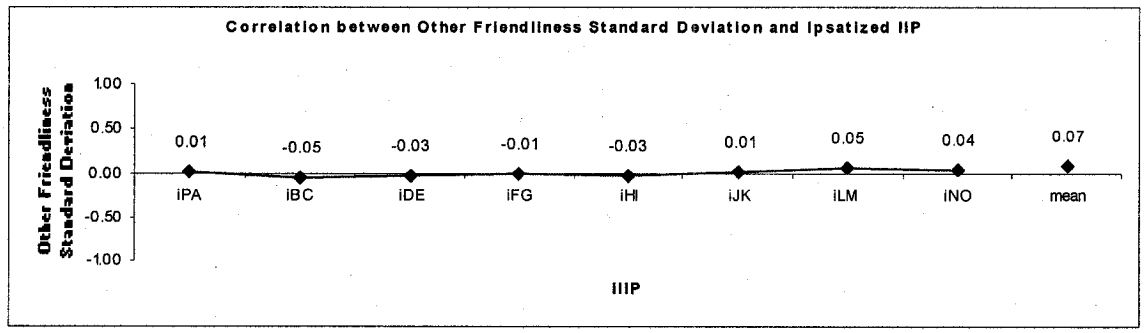
4.7



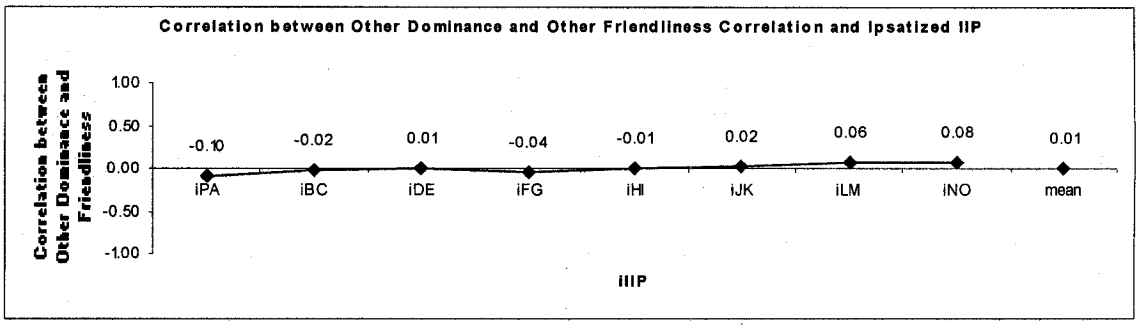
4.8



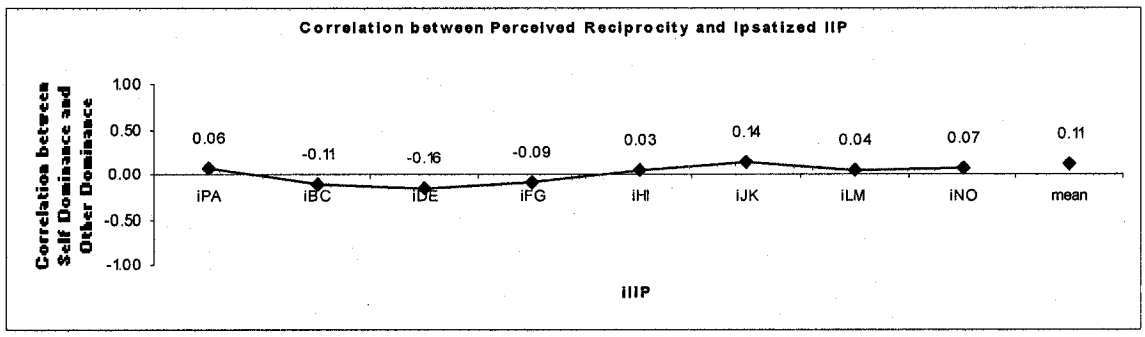
4.9



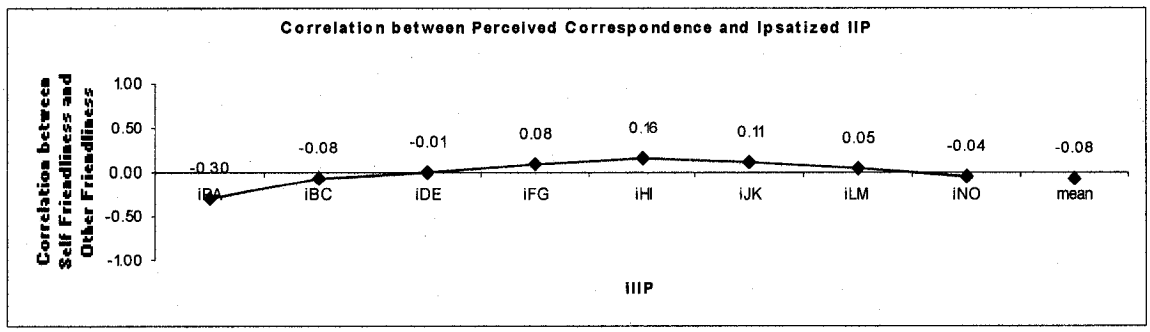
4.10



4.11



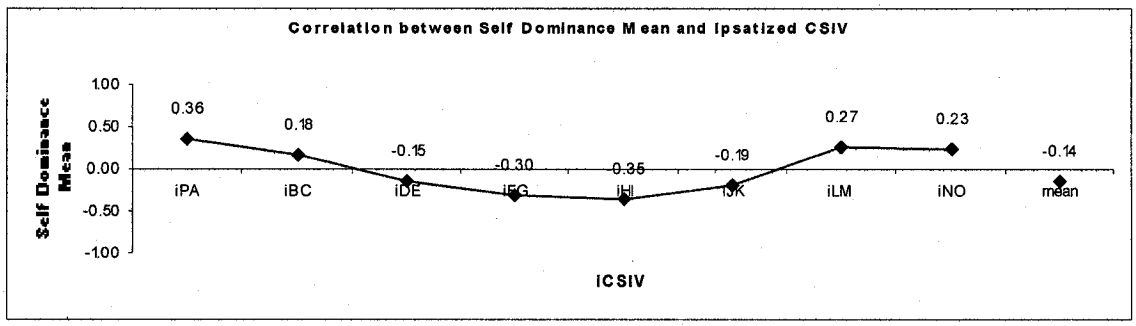
4.12



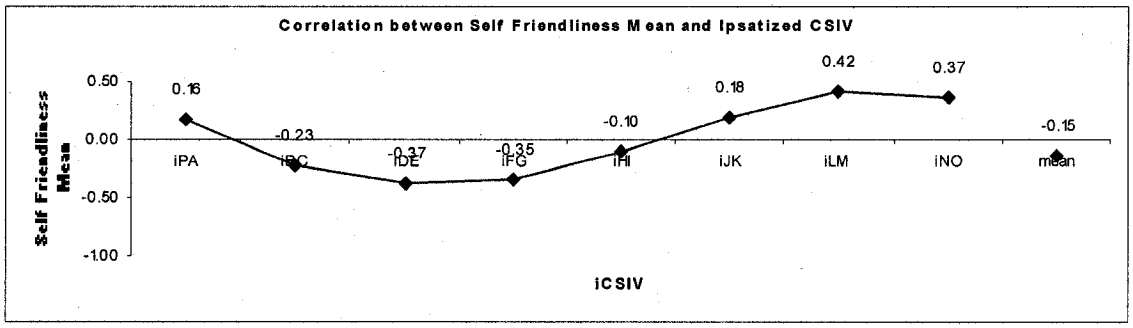
Note. N = 111, Correlations with $r \geq .19$ are significant at $p < .05$; $r \geq .25$ are significant at $p < .01$; $r \geq .37$ are significant at $p < .001$

Figure 5 Plots (5.1 to 5.12)

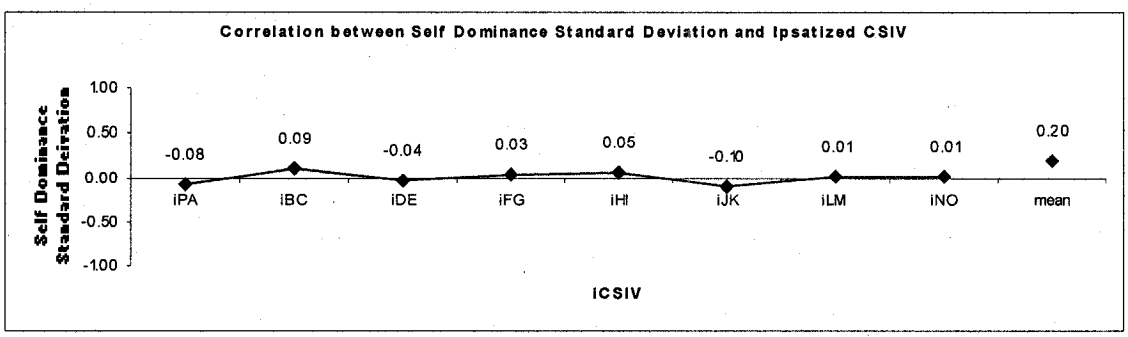
5.1



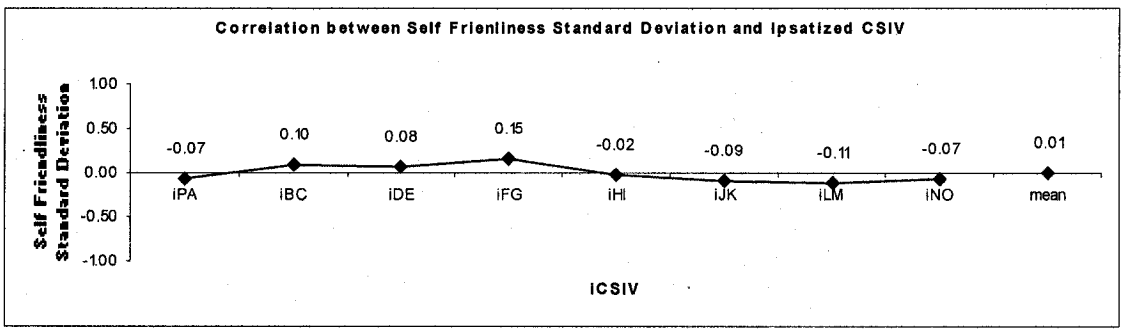
5.2



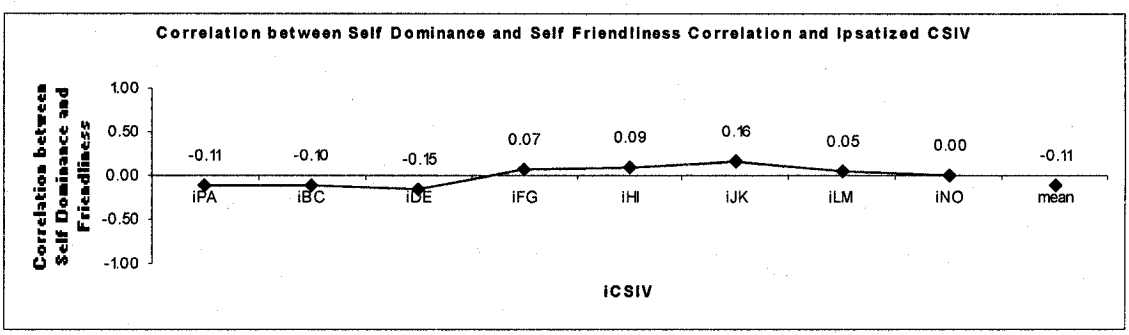
5.3



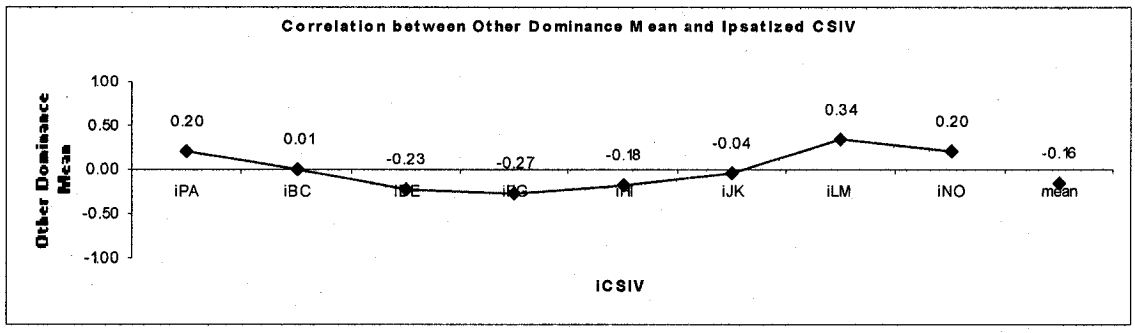
5.4



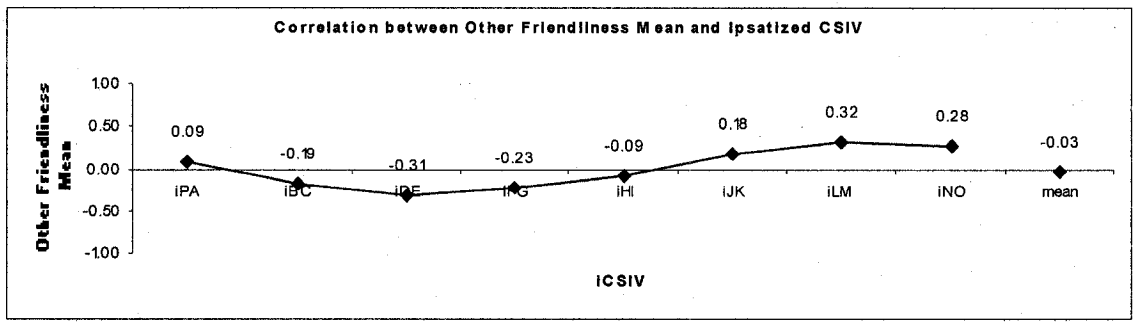
5.5



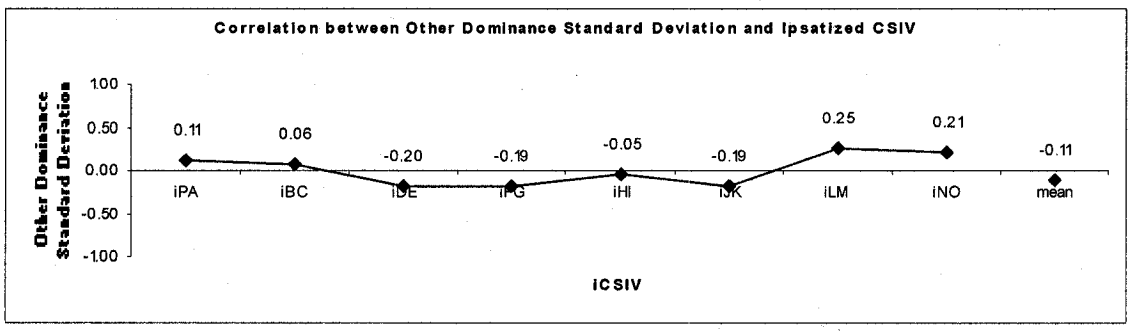
5.6



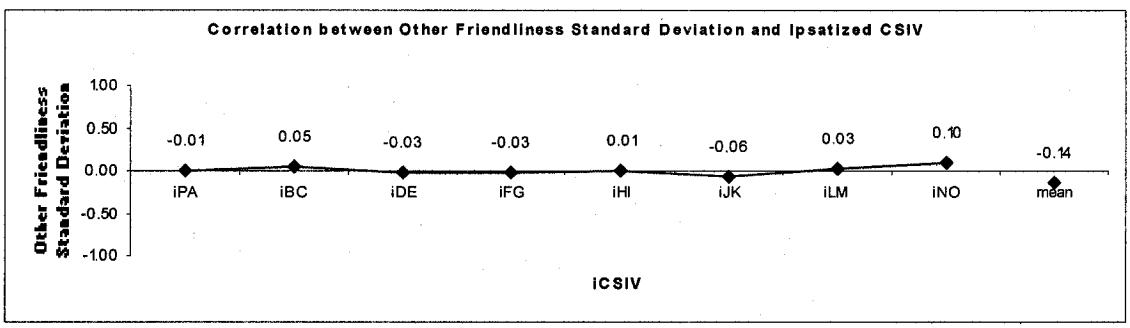
5.7



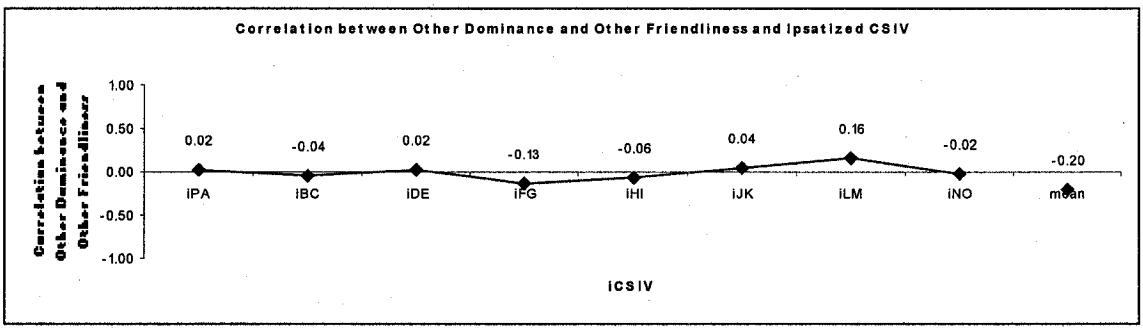
5.8



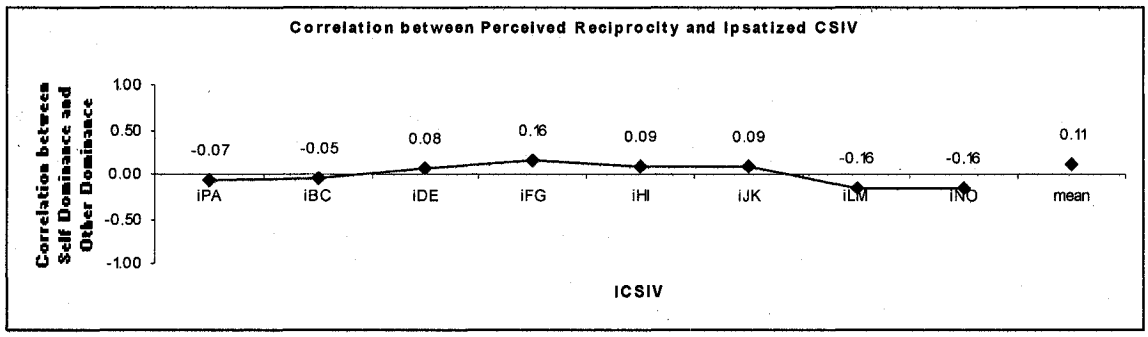
5.9



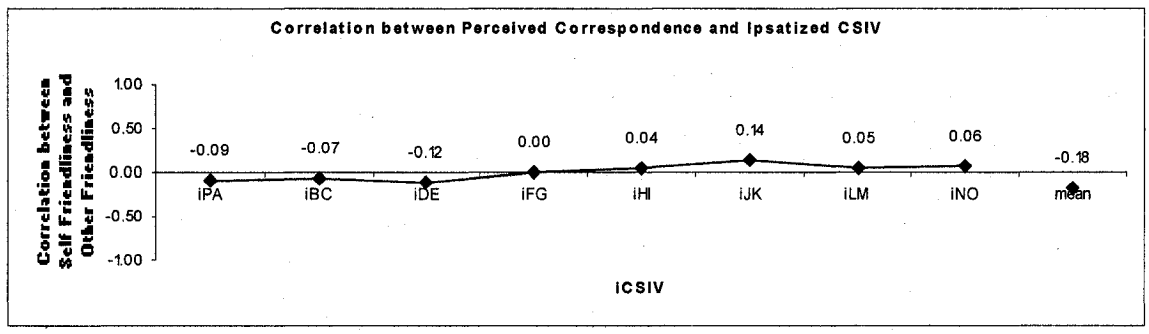
5.10



5.11



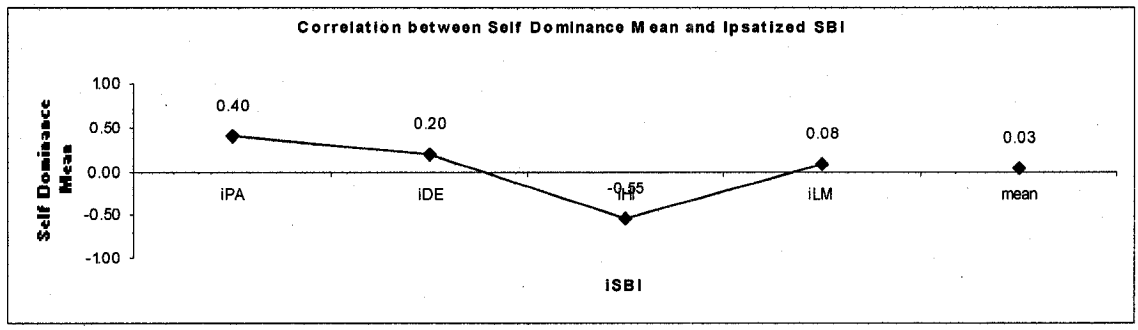
5.12



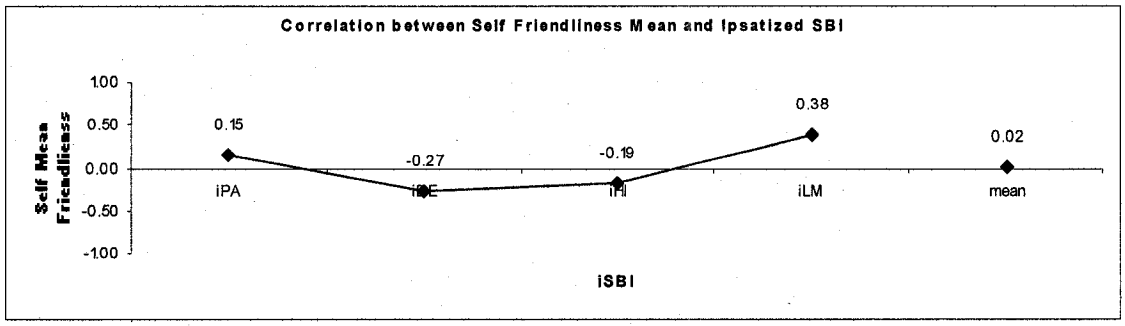
Note. N = 111, Correlations with $r \geq .19$ are significant at $p < .05$; $r \geq .25$ are significant at $p < .01$; $r \geq .37$ are significant at $p < .001$

Figure 6 Plots (6.1 to 6.12)

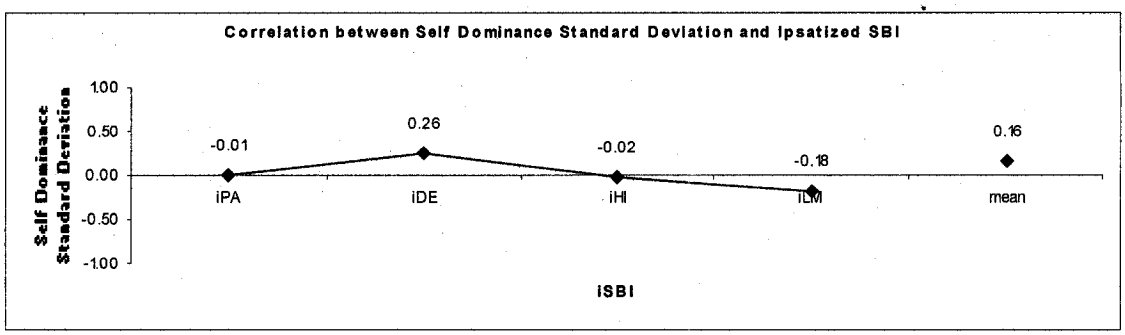
6.1



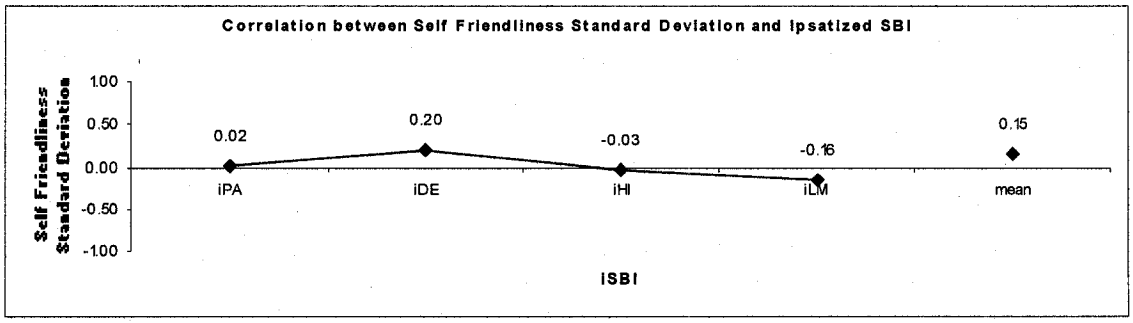
6.2



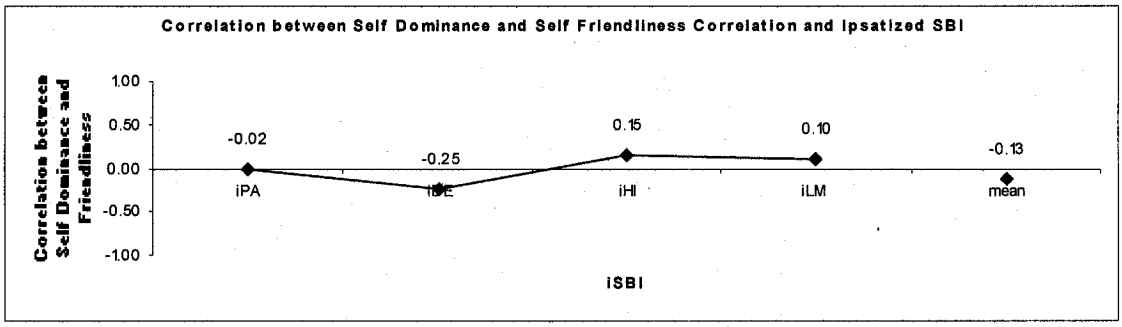
6.3



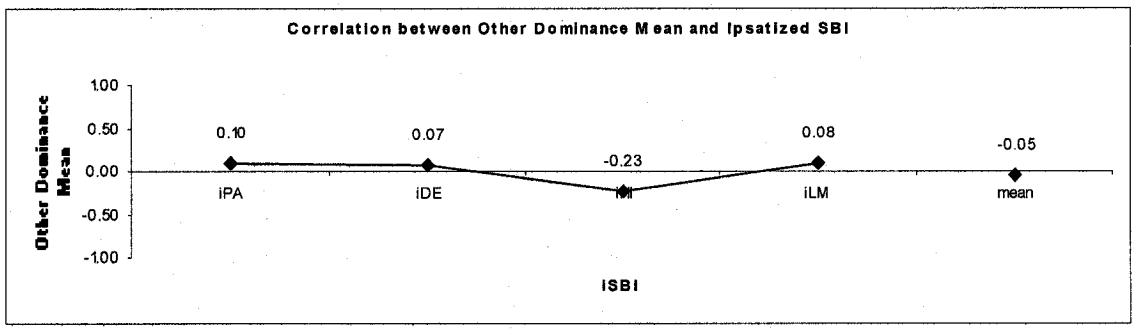
6.4



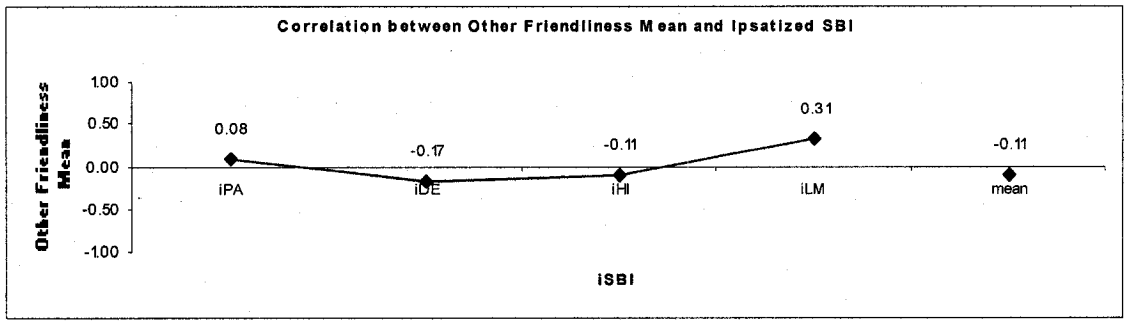
6.5



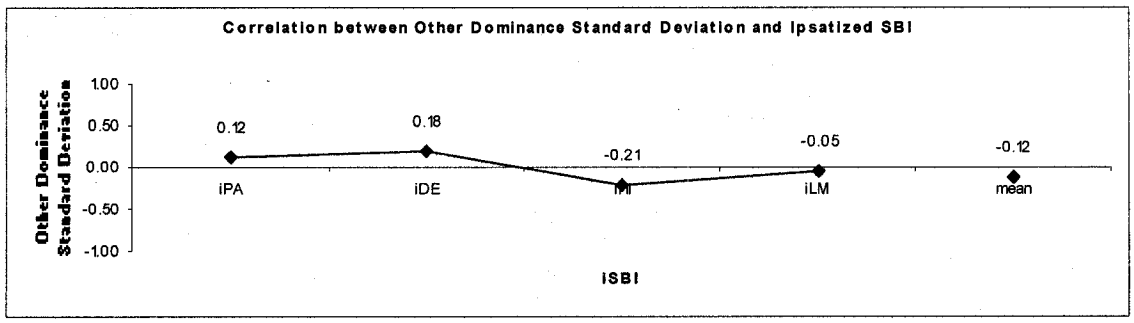
6.6



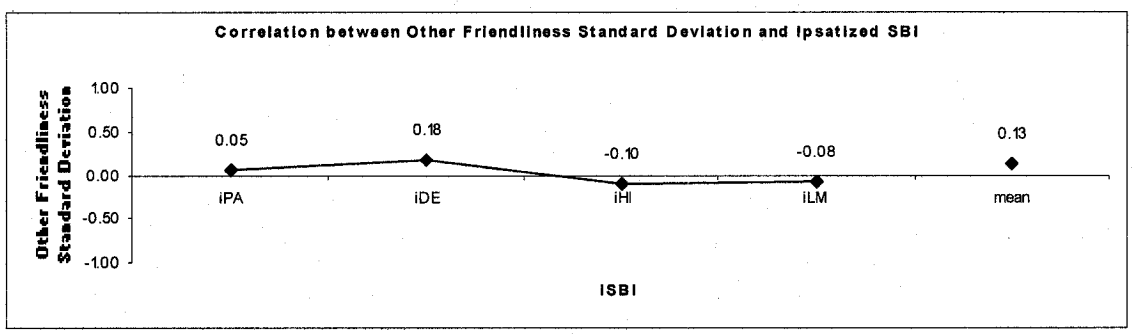
6.7



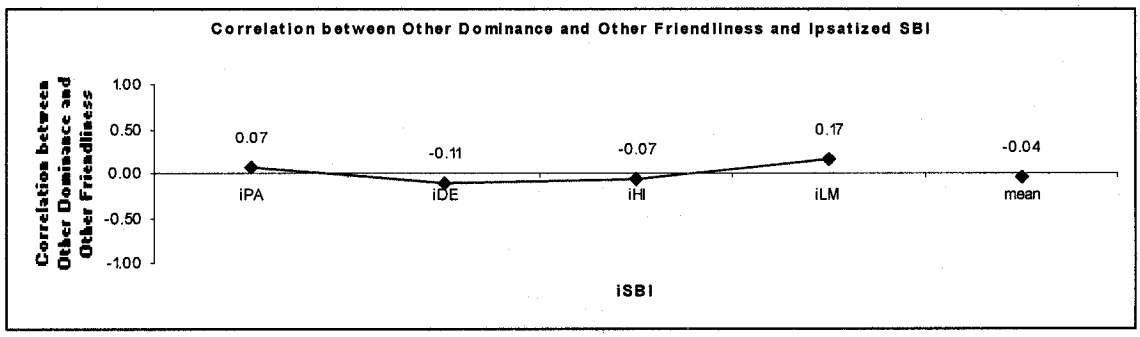
6.8



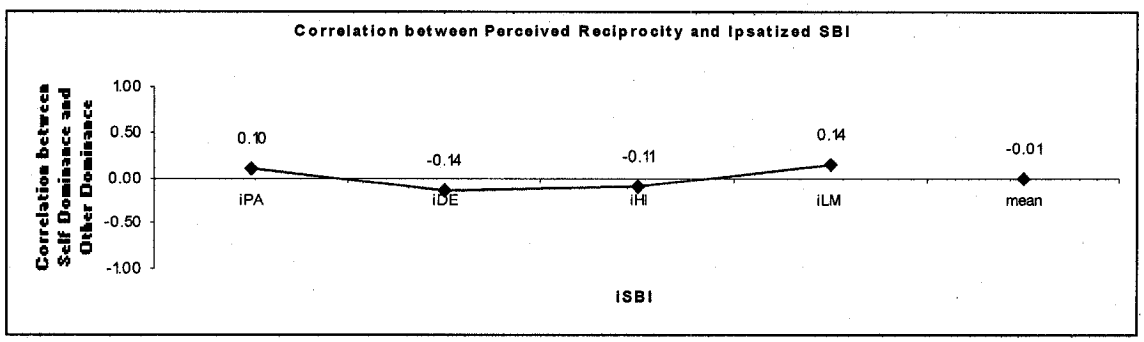
6.9



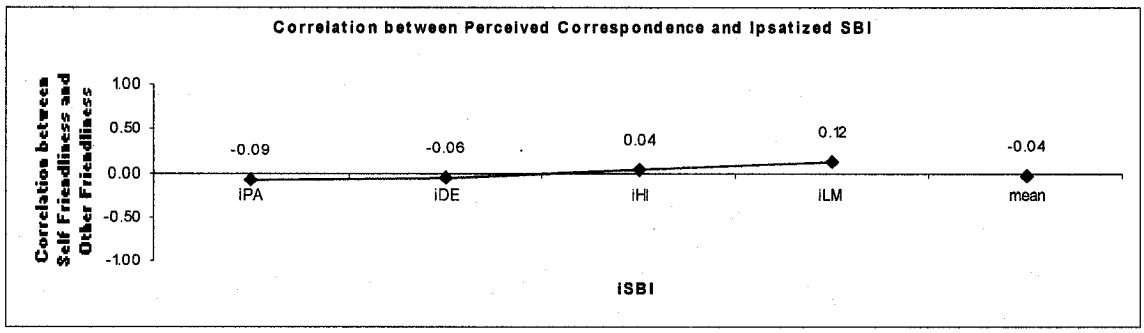
6.10



6.11



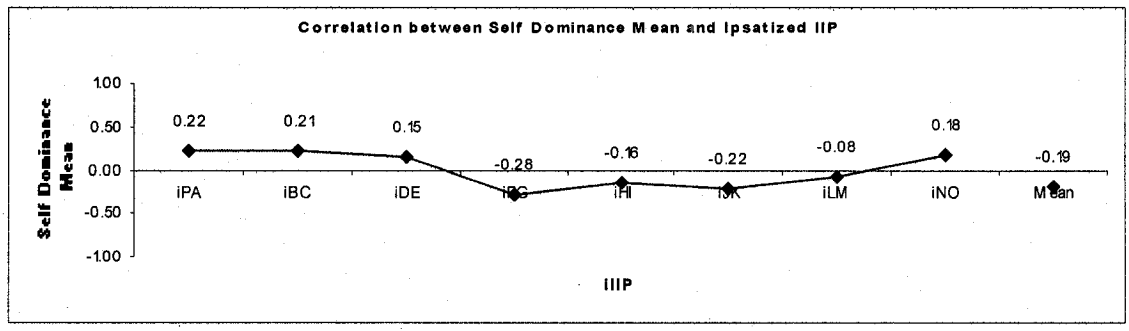
6.12



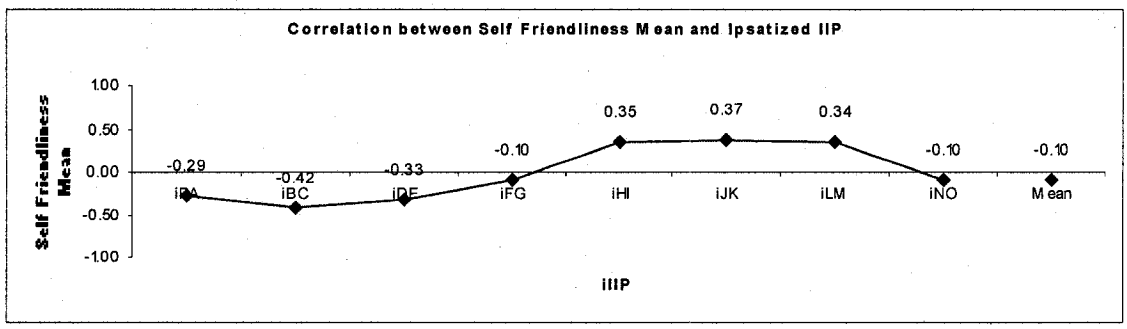
Note. N = 111, Correlations with $r \geq .19$ are significant at $p < .05$; $r \geq .25$ are significant at $p < .01$; $r \geq .37$ are significant at $p < .001$

Figure 7 Plots (7.1 to 7.16)

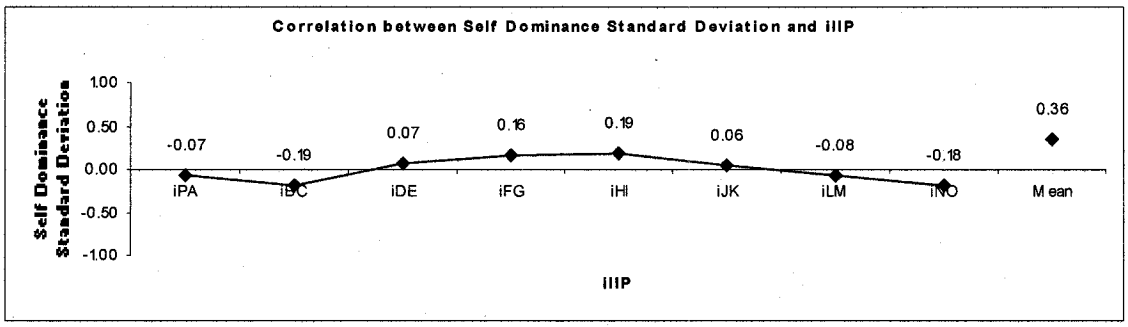
7.1



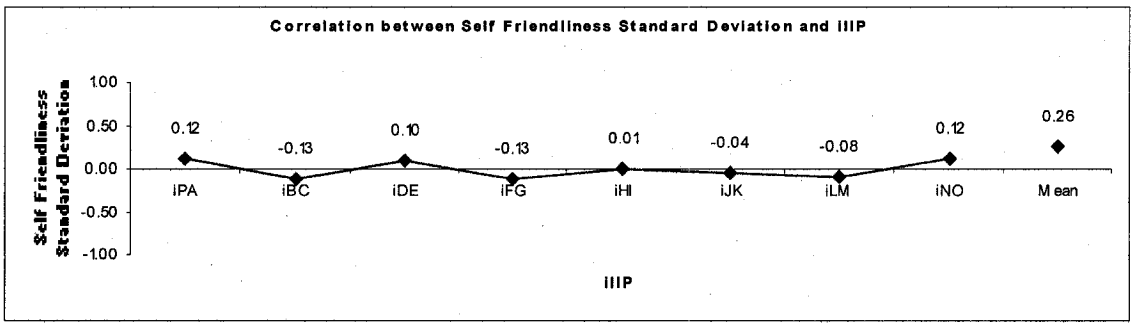
7.2



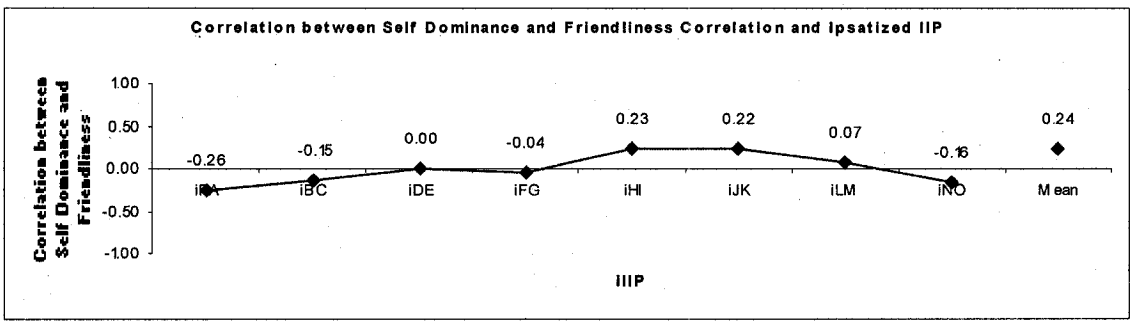
7.3



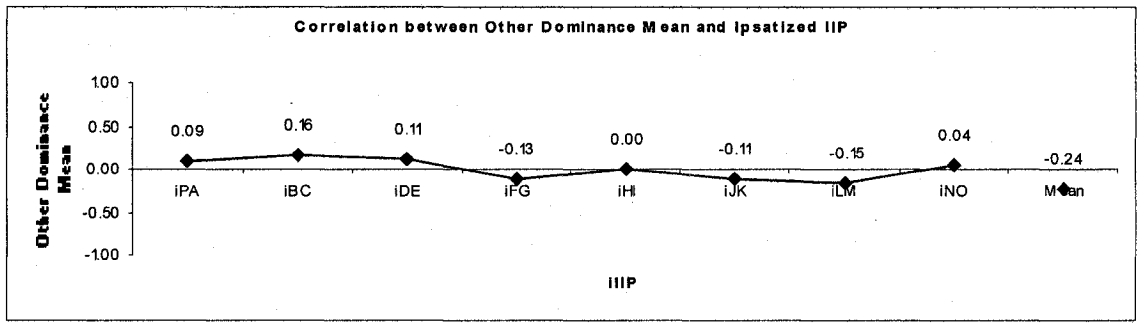
7.4



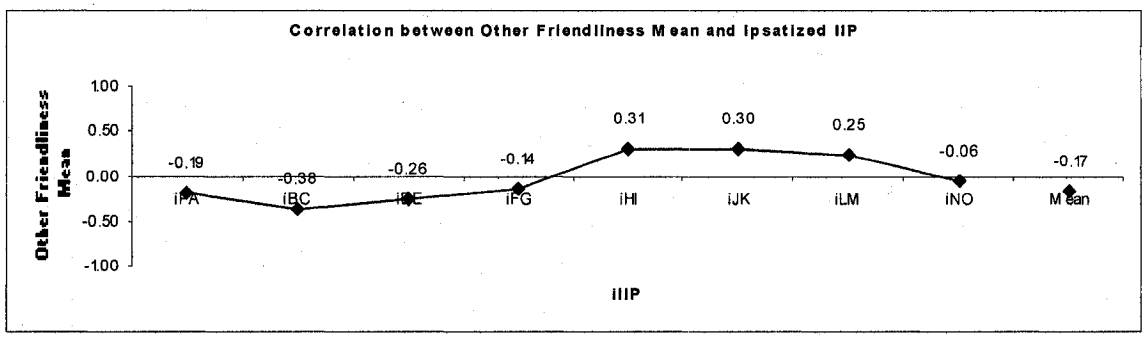
7.5



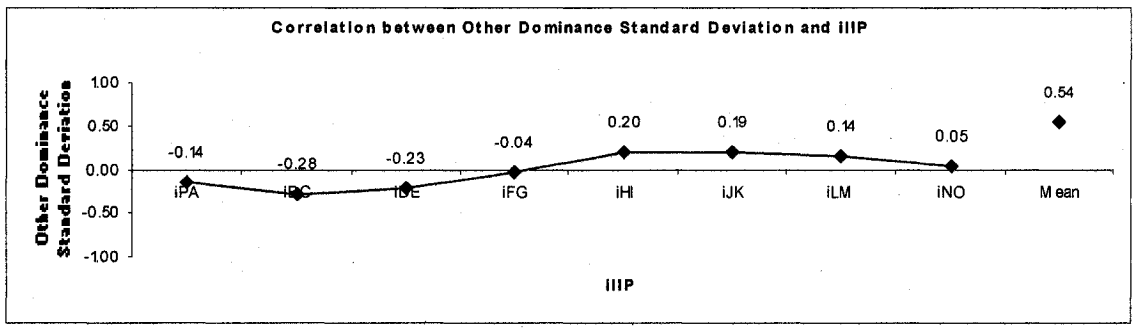
7.6



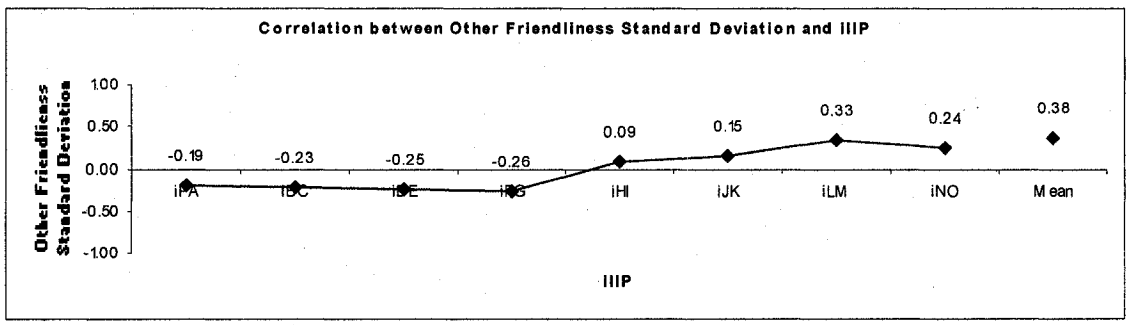
7.7



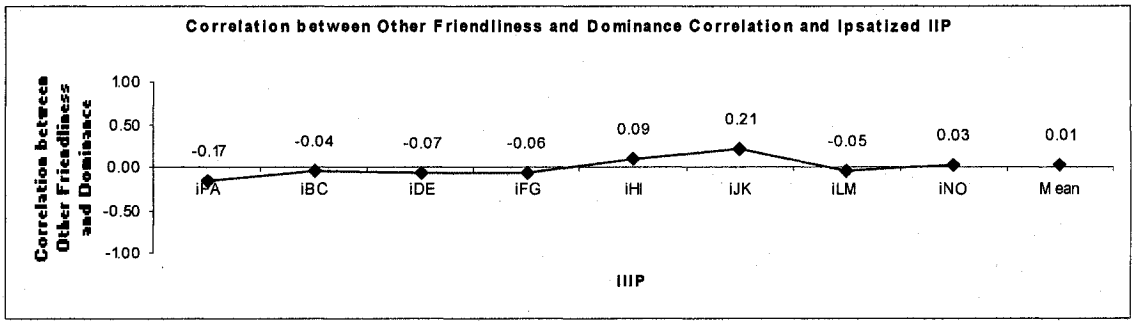
7.8



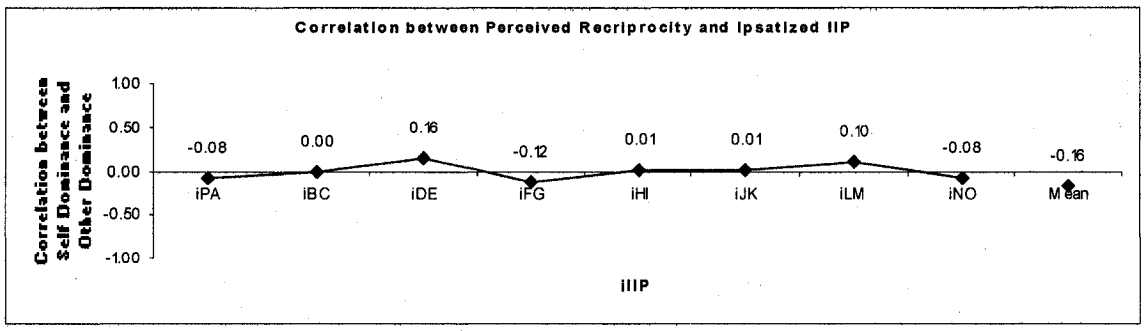
7.9



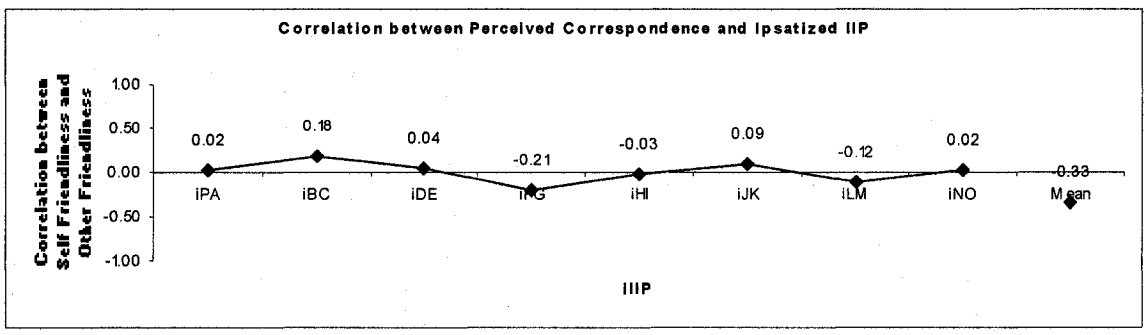
7.10



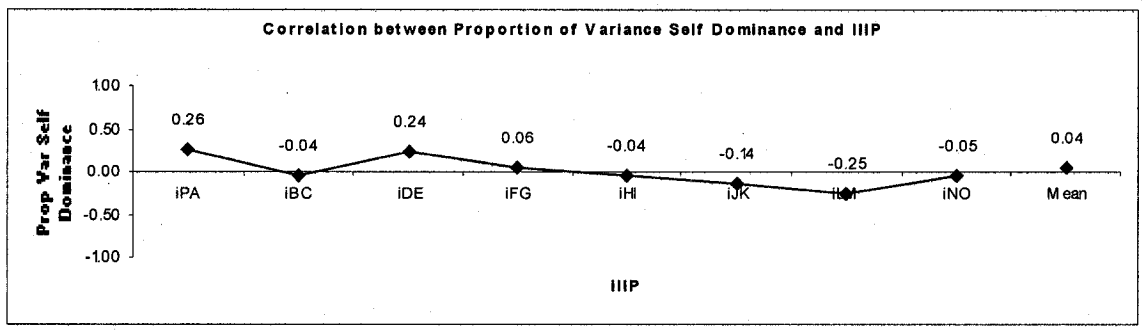
7.11


Correlation between Perceived Reciprocity and Ipsatized IIP
Correlation between Self Dominance and Other Dominance
1.00
0.50
0.00
-0.50
-1.00
-0.08
0.00
0.16
-0.12
0.01
0.01
0.10
-0.08
-0.16
iPA
iBC
iDE
iFG
iHI
iJK
iLM
iNO
Mean
IIIP

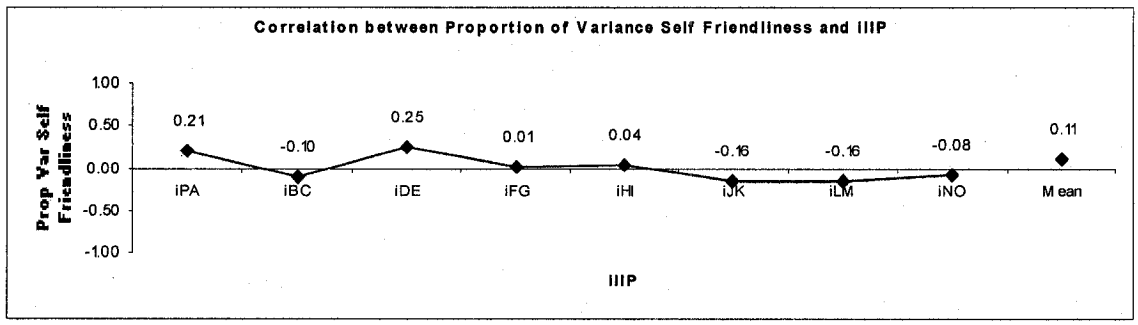
7.12


Correlation between Perceived Correspondence and Ipsatized IIP
Correlation between Self Friendliness and Other Friendliness
1.00
0.50
0.00
-0.50
-1.00
0.02
0.18
0.04
-0.21
-0.03
0.09
-0.12
0.02
-0.33
iPA
iBC
iDE
iFG
iHI
iJK
iLM
iNO
Mean
IIIP

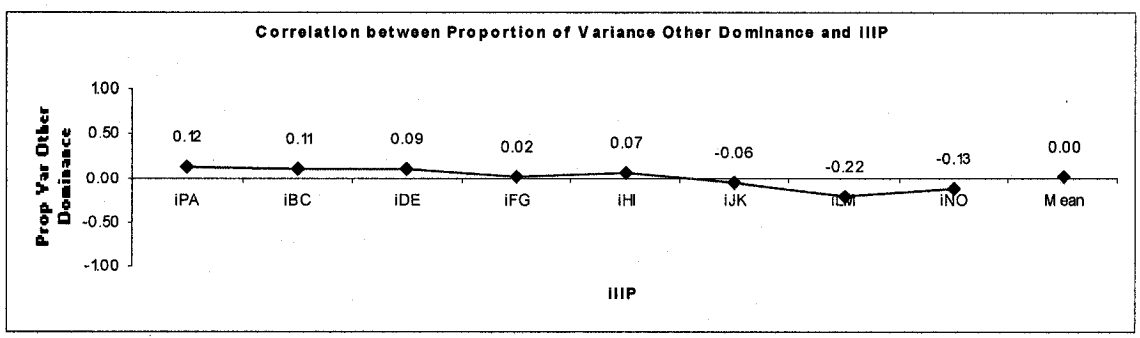
7.13



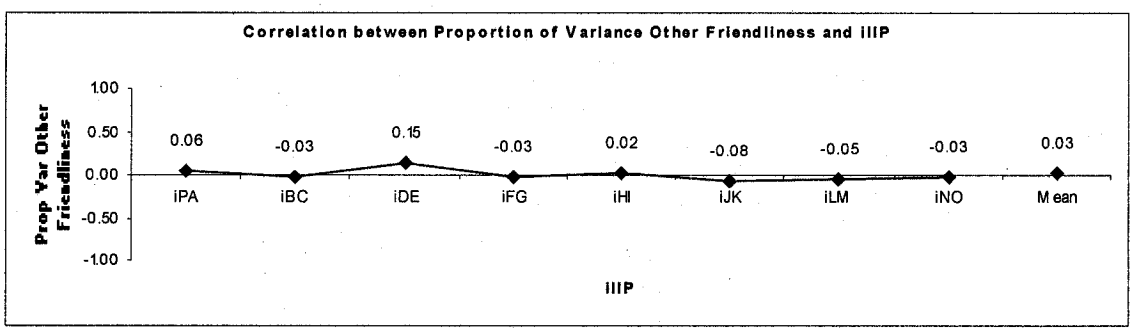
7.14



7.15



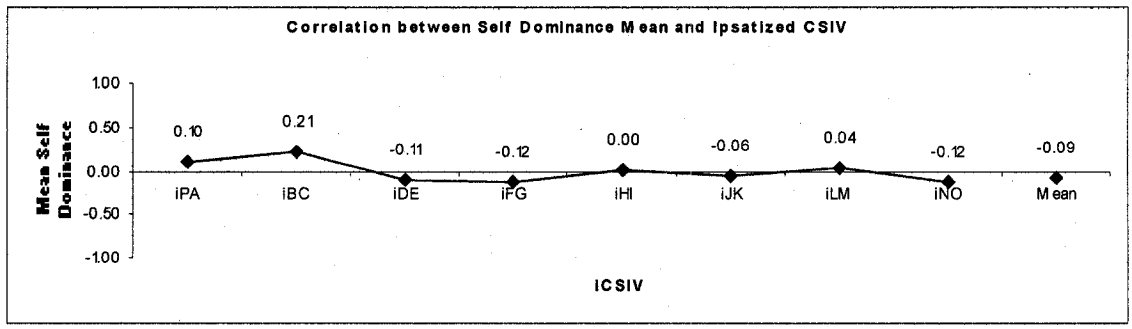
7.16



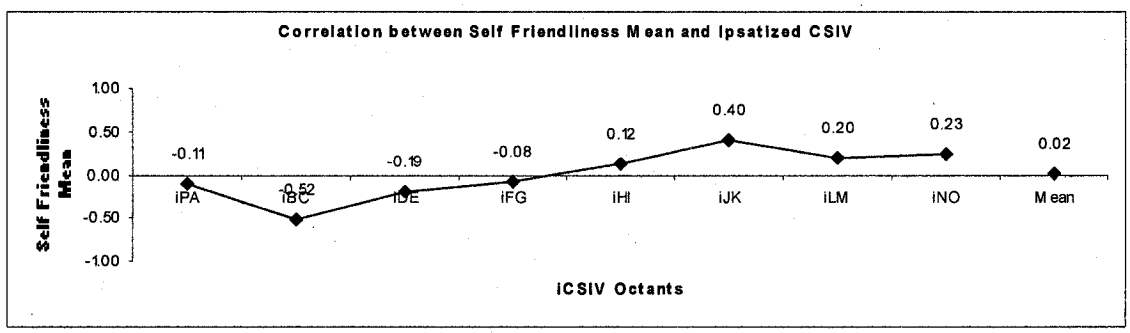
Note. N = 35, Correlations with $r \geq .34$ are significant at $p < .05$; $r \geq .43$ are significant at $p < .01$; $r \geq .54$ are significant at $p < .001$

Figure 8 Plots (8.1 to 8.16)

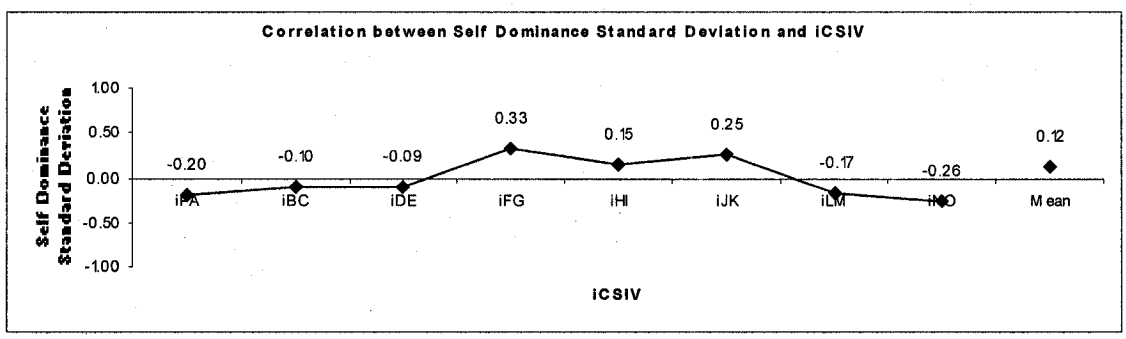
8.1



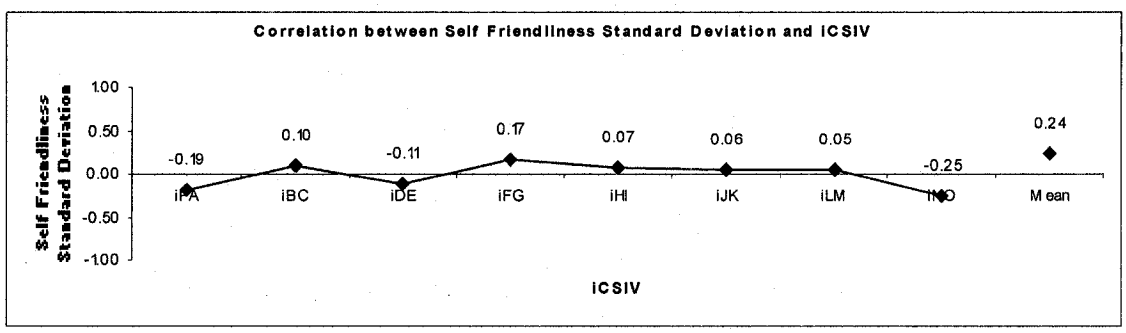
8.2



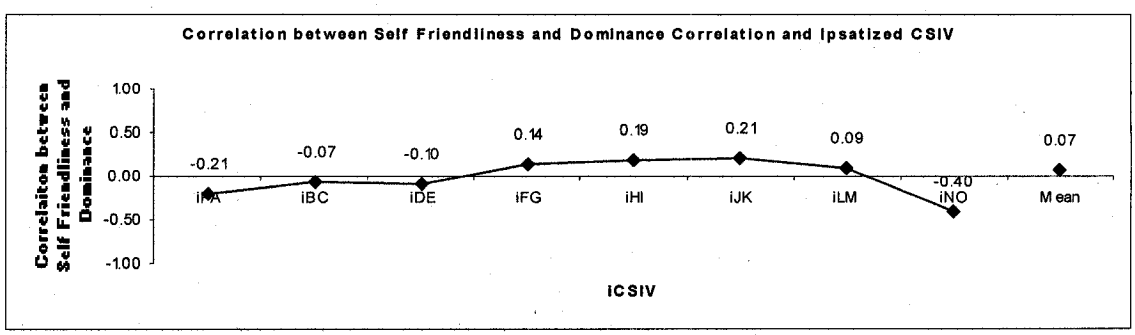
8.3



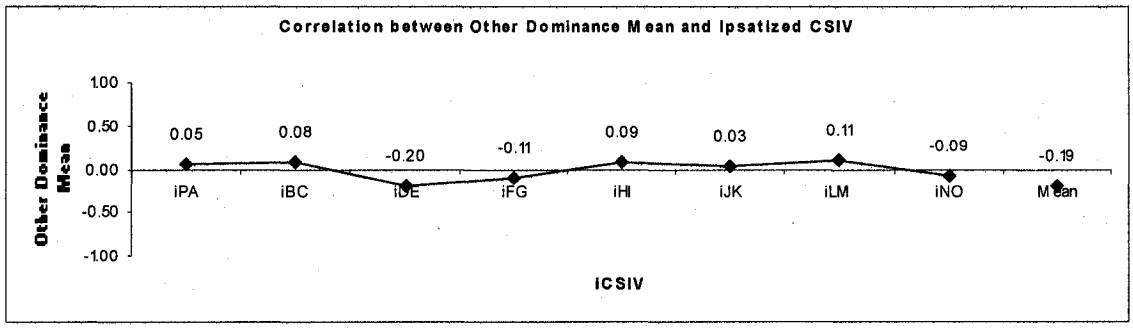
8.4



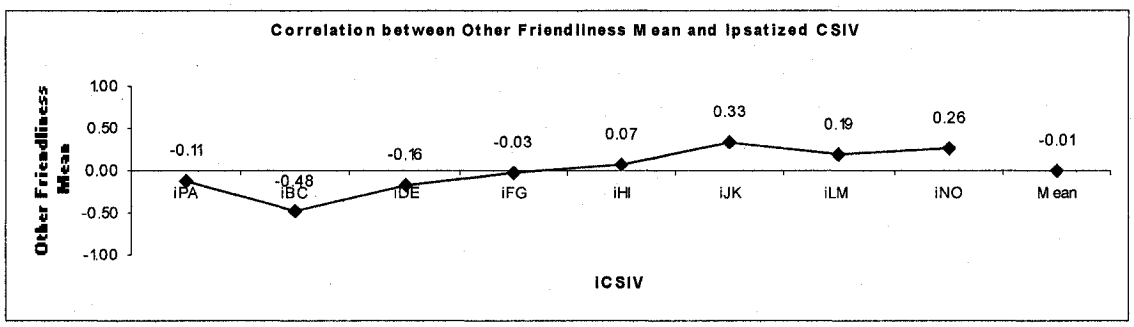
8.5



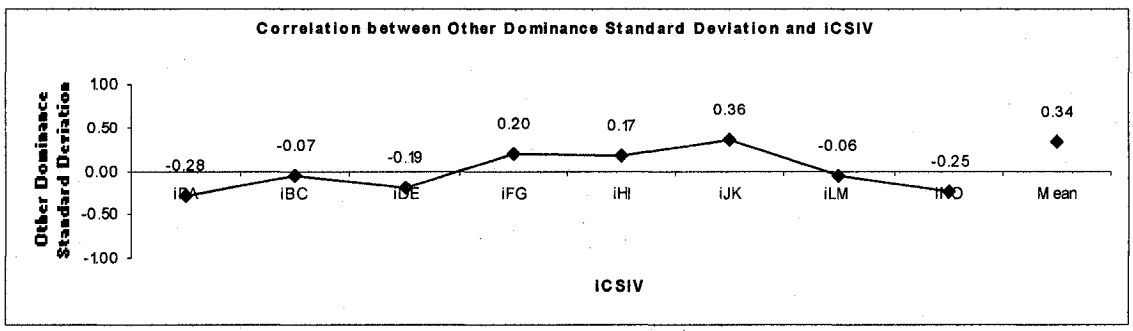
8.6



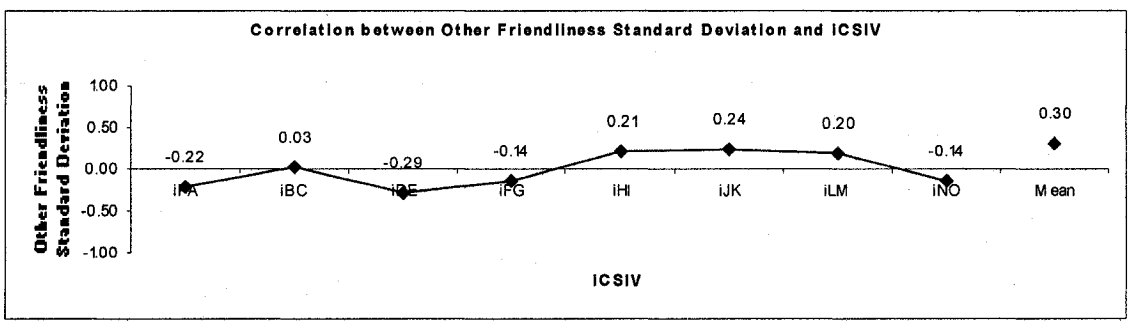
8.7



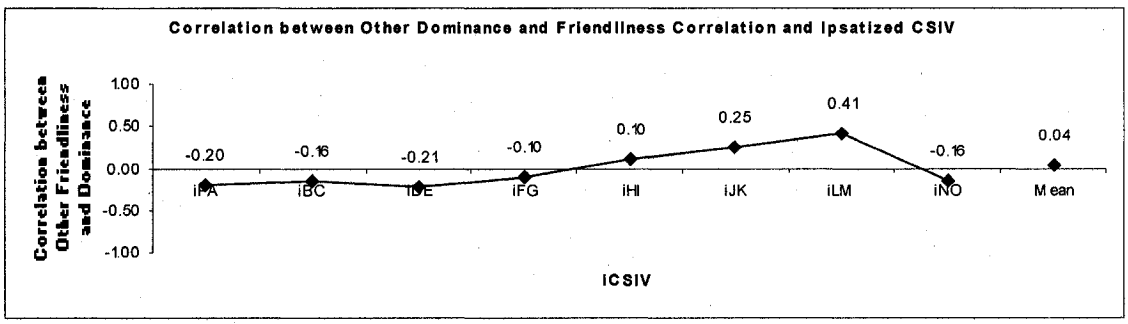
8.8



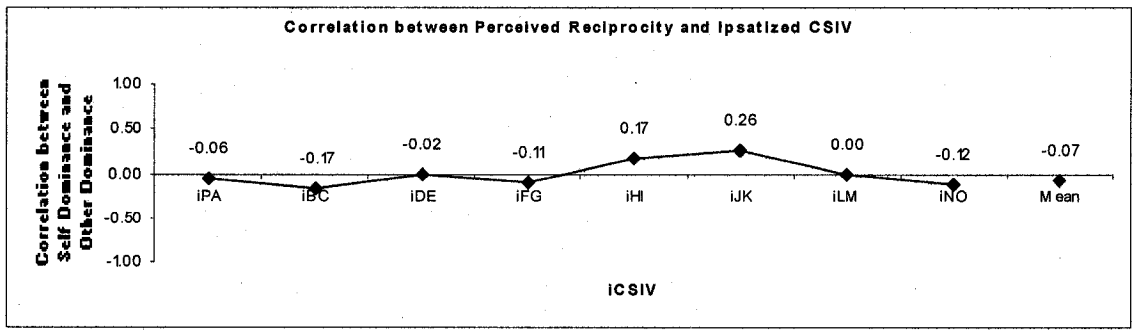
8.9



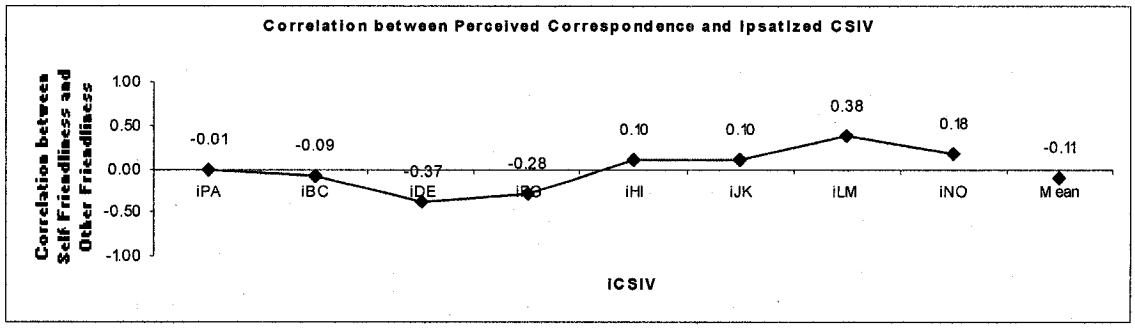
8.10



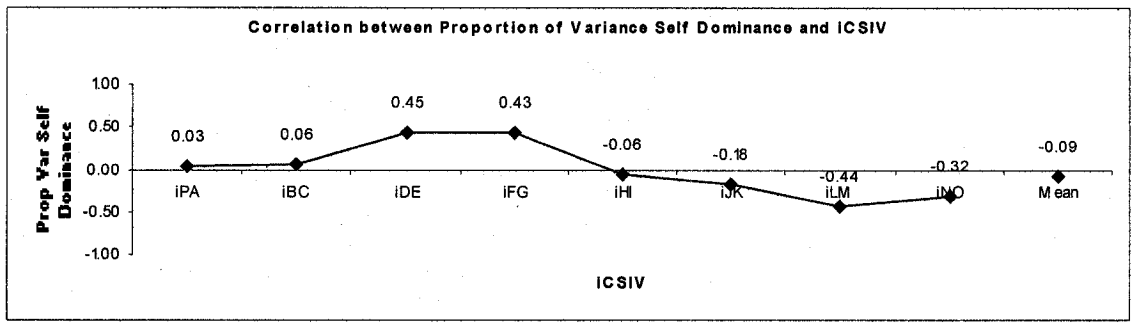
8.11


Correlation between Perceived Reciprocity and Ipsatized CSIV
Correlation between Self Dominance and Other Dominance
1.00
0.50
0.00
-0.50
-1.00
-0.06
-0.17
-0.02
-0.11
0.17
0.26
0.00
-0.12
-0.07
iPA
iBC
iDE
iFG
iHI
iJK
iLM
iNO
Mean
ICSIV

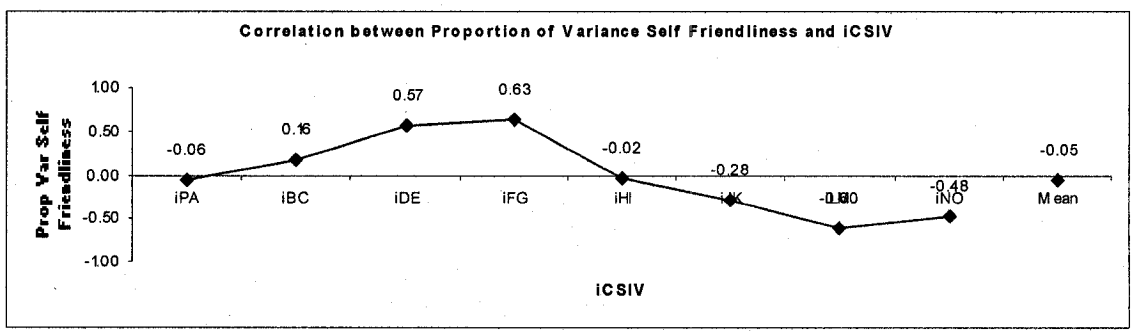
8.12


Correlation between Perceived Correspondence and Ipsatized CSIV
Correlation between Self Friendliness and Other Friendliness
1.00
0.50
0.00
-0.50
-1.00
-0.01
-0.09
-0.37
-0.28
0.10
0.10
0.38
0.18
-0.11
iPA
iBC
iDE
iHI
iJK
iLM
iNO
Mean
ICSIV

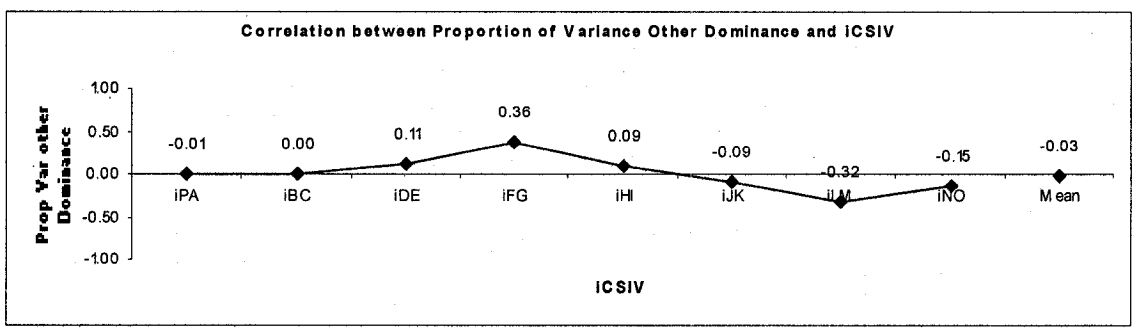
8.13



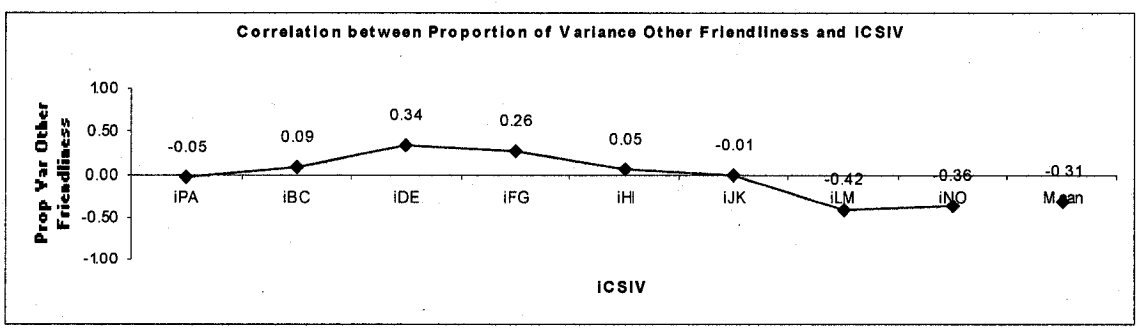
8.14



8.15



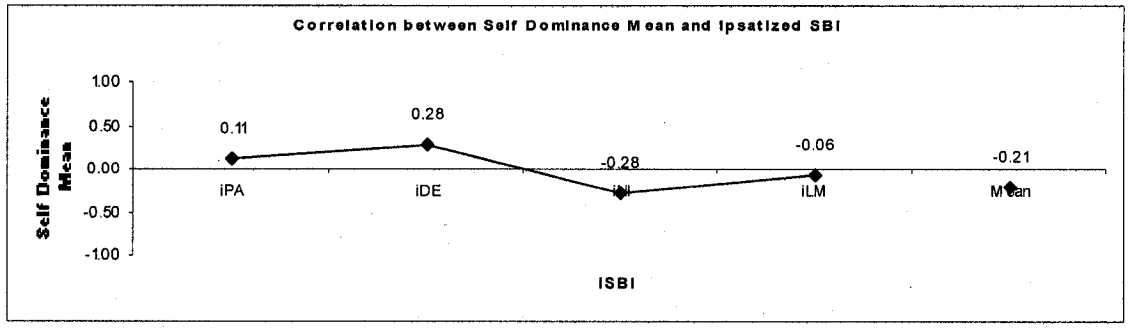
8.16



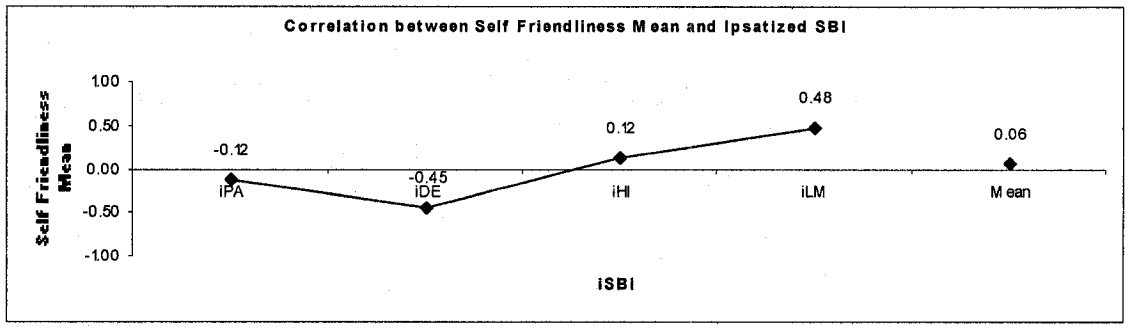
Note. N = 35, Correlations with $r \geq .34$ are significant at $p < .05$; $r \geq .43$ are significant at $p < .01$; $r \geq .54$ are significant at $p < .001$

Figure 9 Plots (9.1 to 9.16)

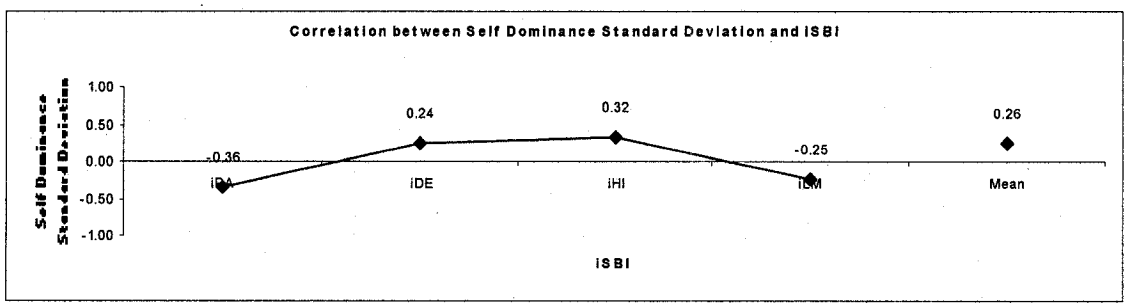
9.1



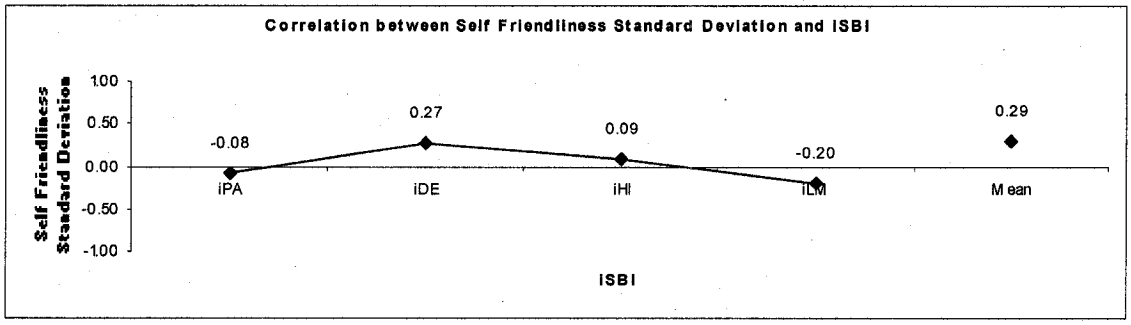
9.2



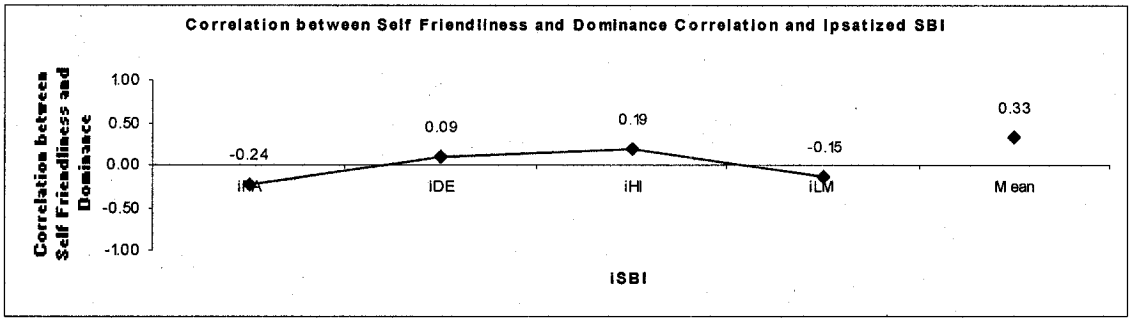
9.3



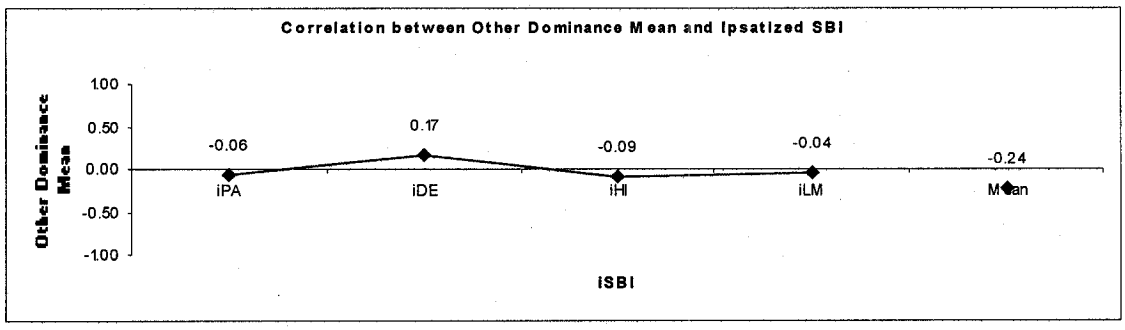
9.4



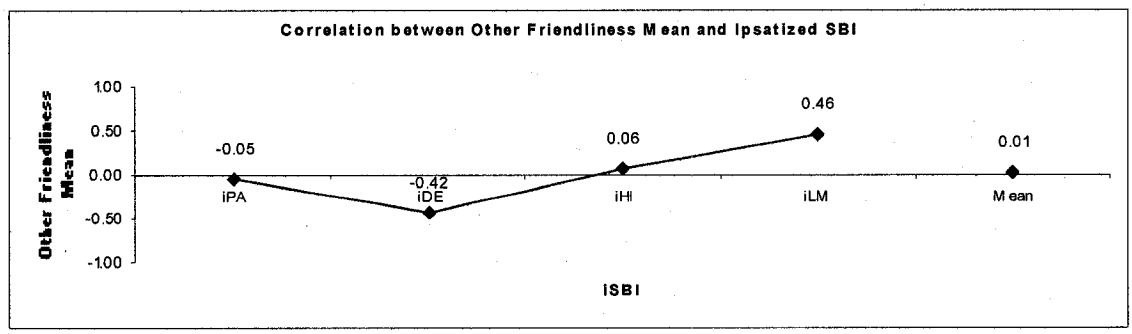
9.5



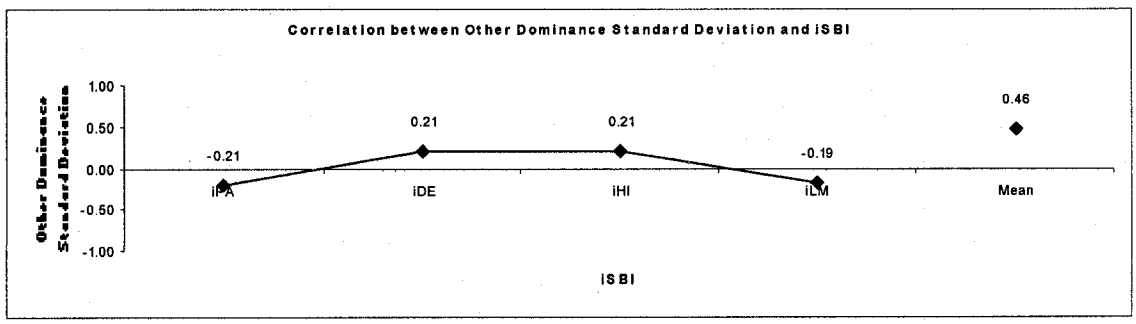
9.6



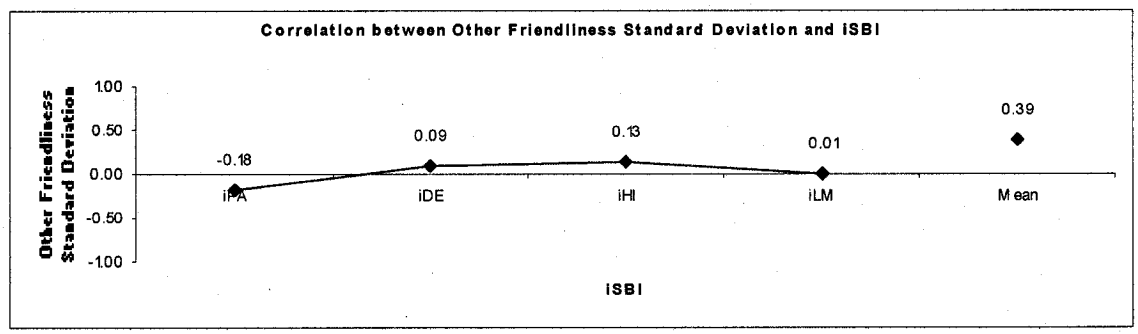
9.7



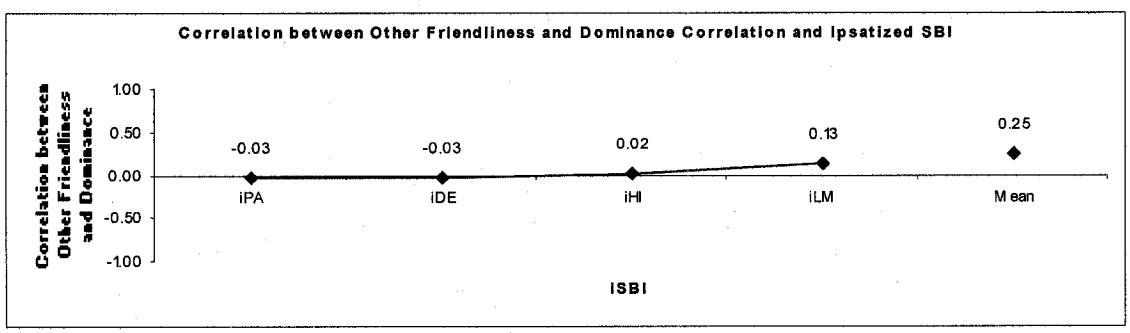
9.8



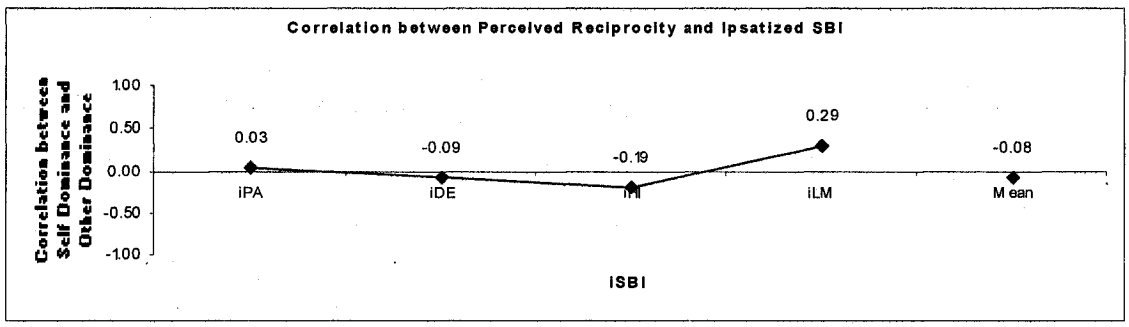
9.9



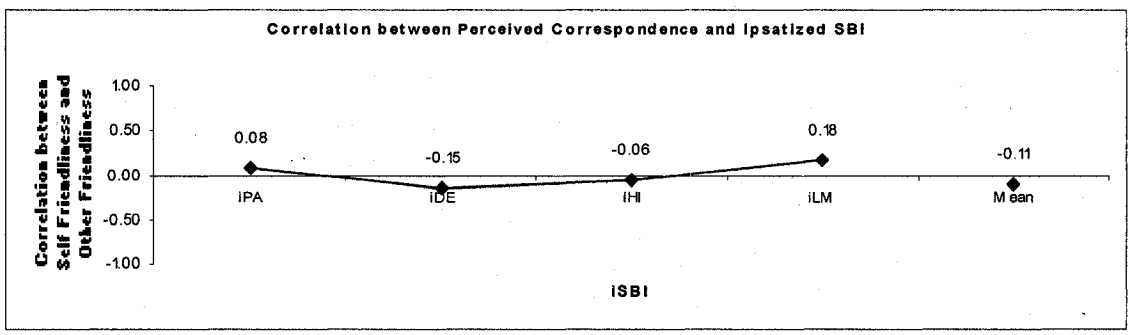
9.10



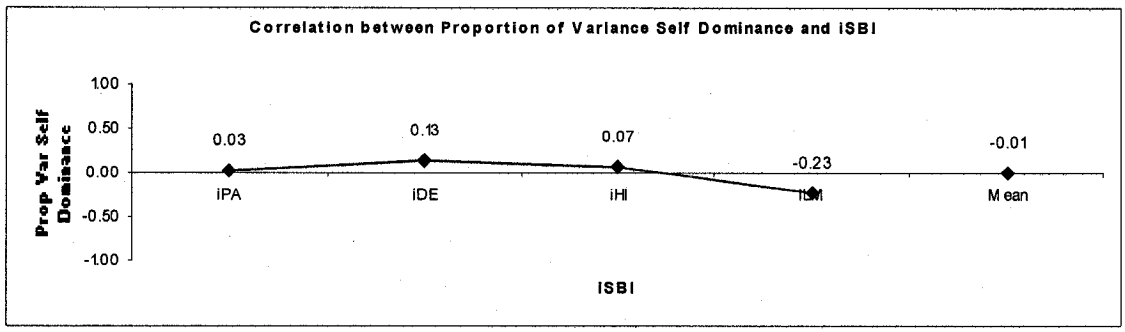
9.11


Correlation between Perceived Reciprocity and Ipsatized SBI
Correlation between Self Dominance and Other Dominance
1.00
0.50
0.00
-0.50
-1.00
0.03
-0.09
-0.19
0.29
-0.08
iPA
iDE
iHI
iLM
Mean
ISBI

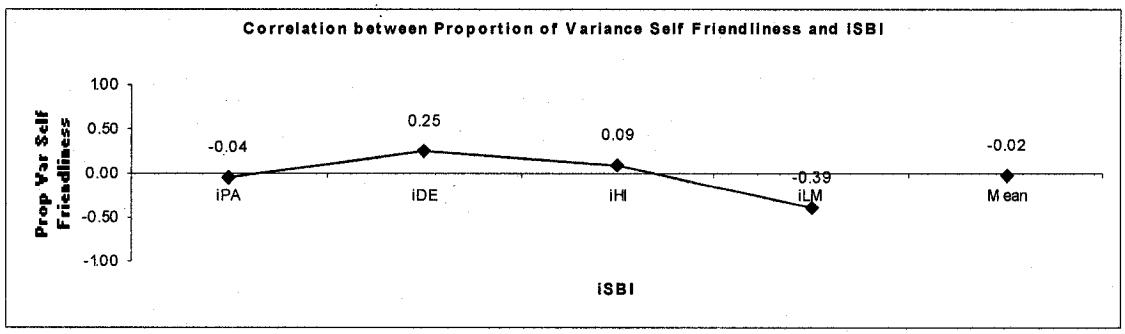
9.12


Correlation between Perceived Correspondence and Ipsatized SBI
Correlation between Self Friendliness and Other Friendliness
1.00
0.50
0.00
-0.50
-1.00
0.08
-0.15
-0.06
0.18
-0.11
iPA
iDE
iHI
iLM
Mean
ISBI

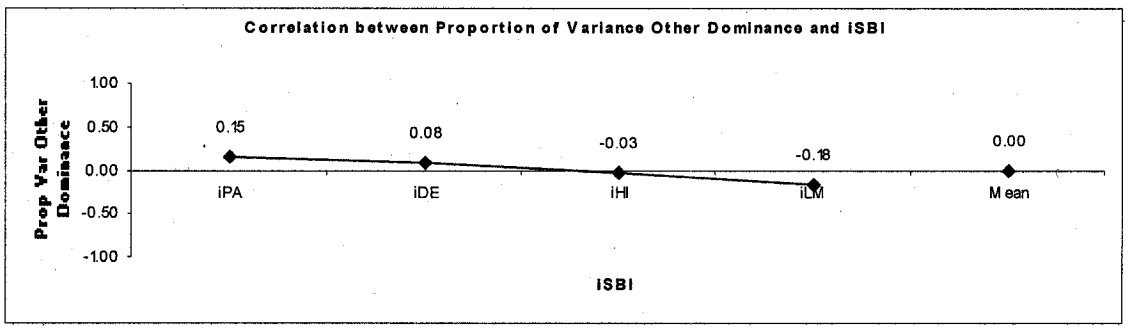
9.13



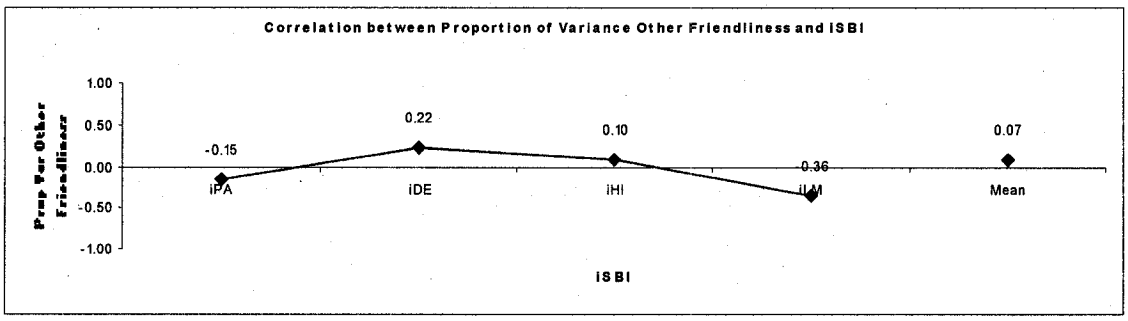
9.14



9.15



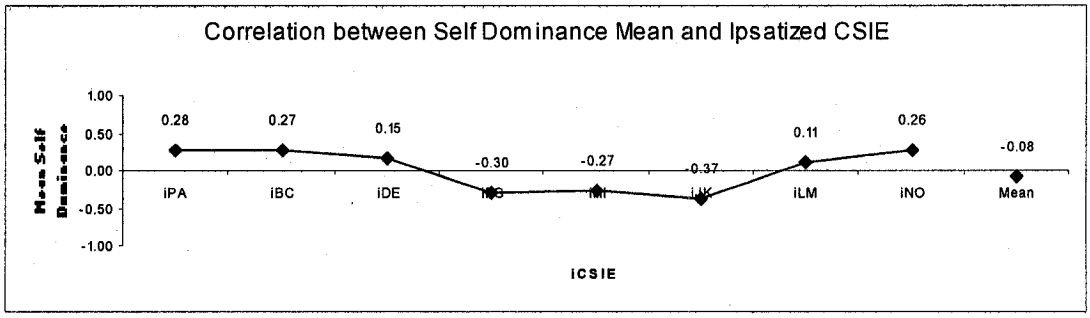
9.16



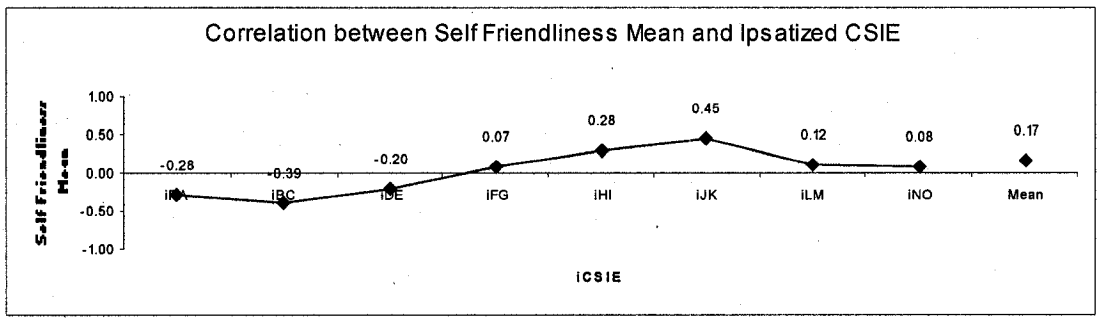
Note. N = 35, Correlations with $r \geq .34$ are significant at $p < .05$; $r \geq .43$ are significant at $p < .01$; $r \geq .54$ are significant at $p < .001$

Figure 10 Plots (10.1 to 10.16)

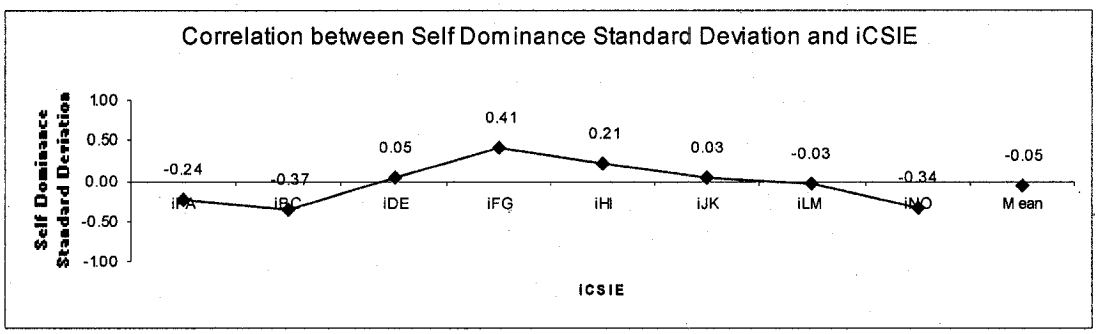
10.1



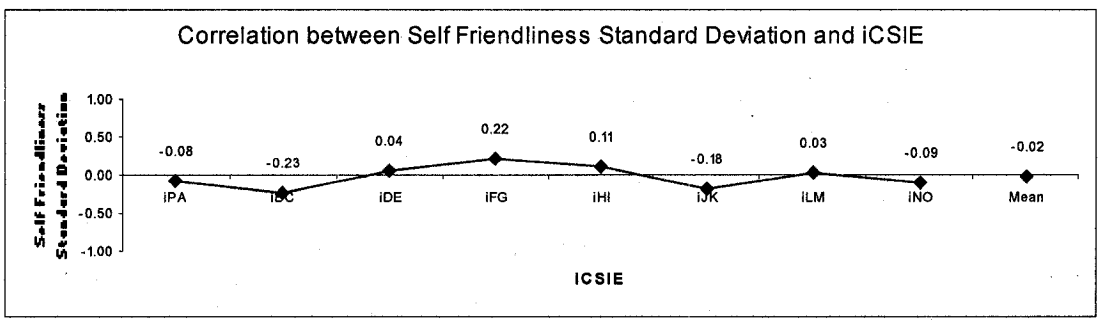
10.2



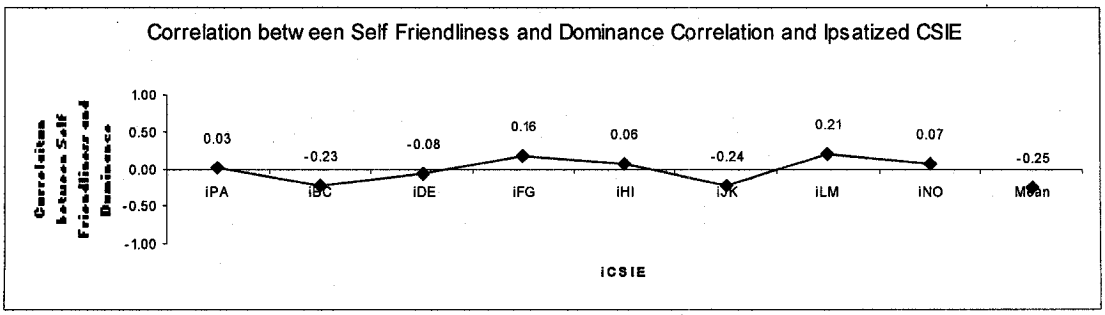
10.3



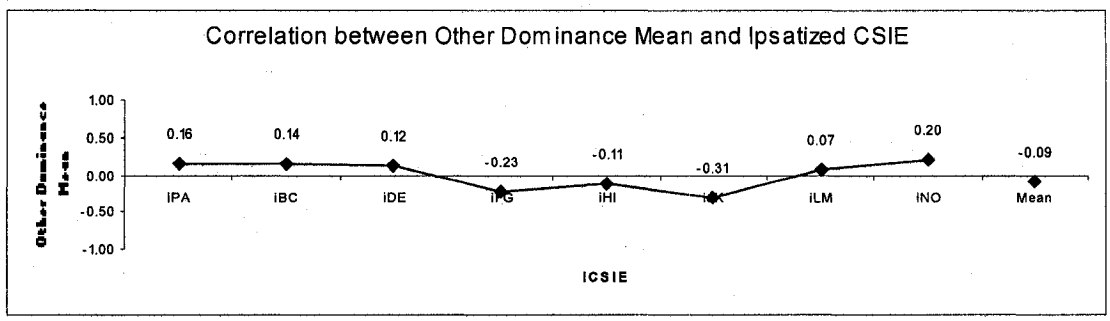
10.4



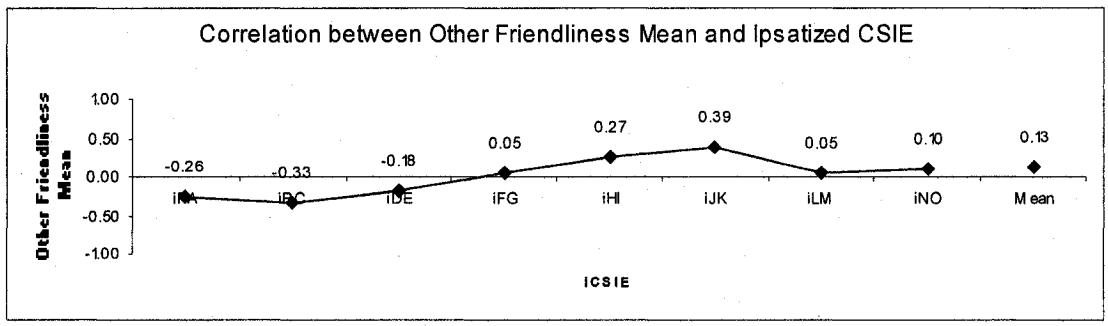
10.5



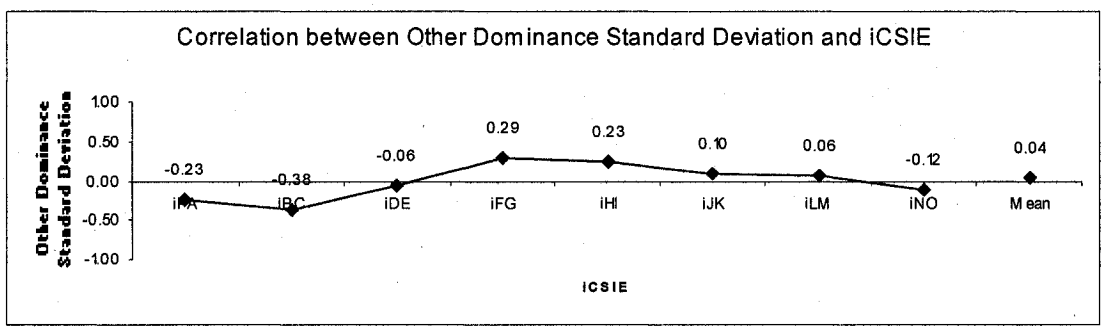
10.6



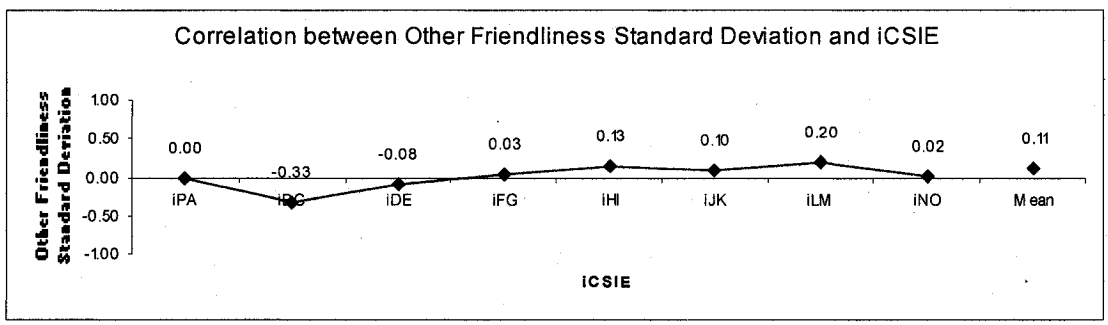
10.7



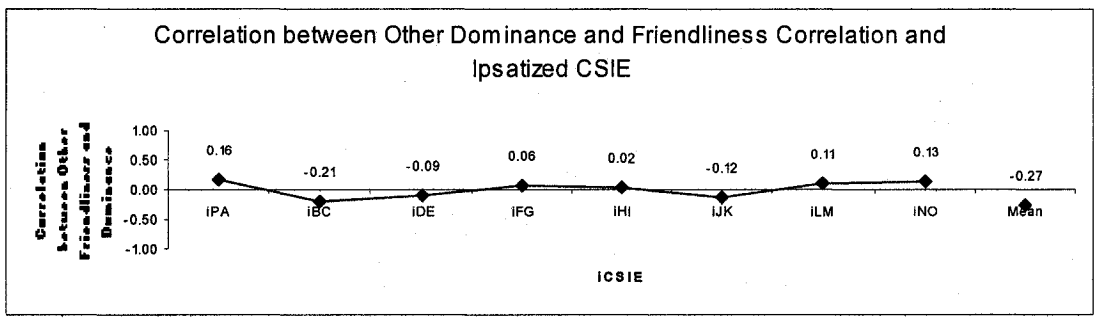
10.8



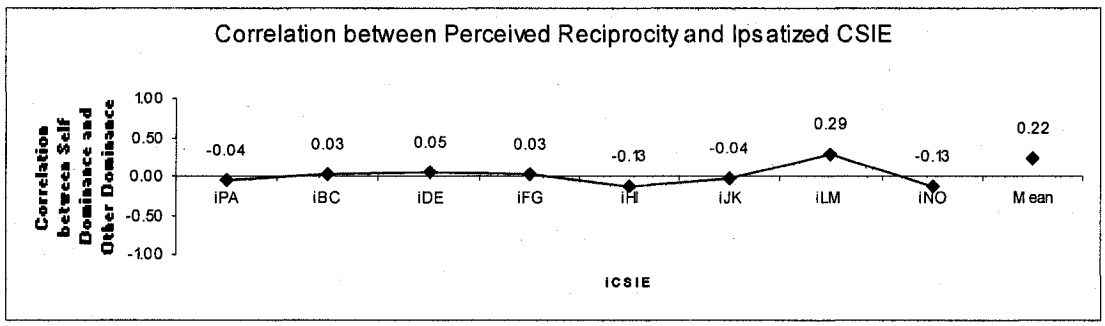
10.9



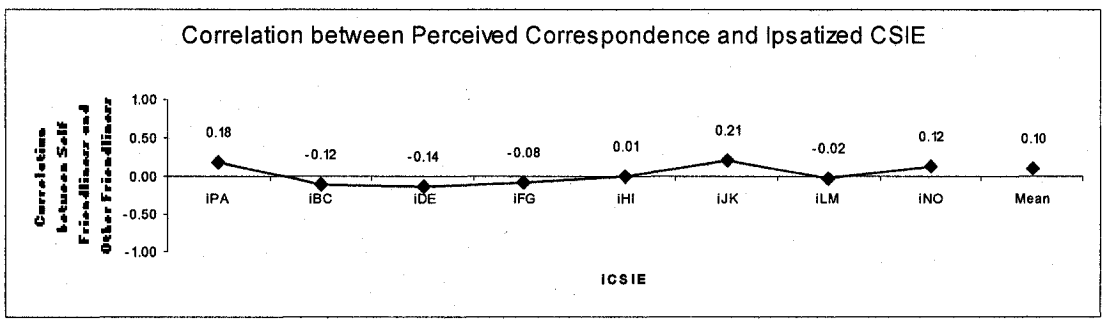
10.10



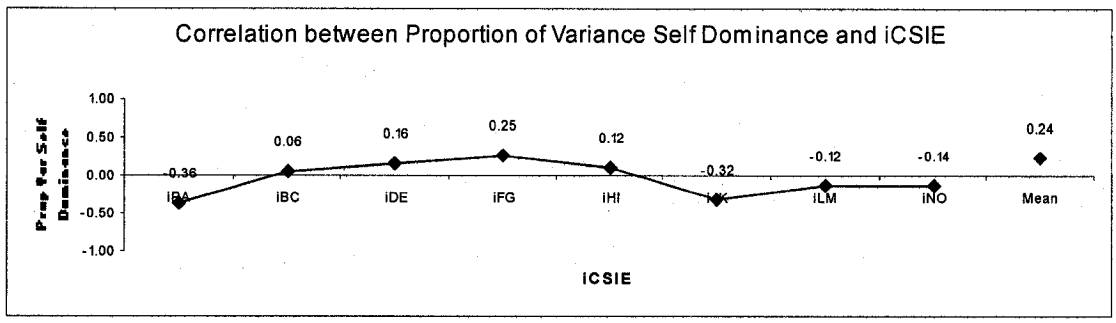
10.11


Correlation between Perceived Reciprocity and Ipsatized CSIE
Correlation between Self Dominance and Other Dominance
1.00
0.50
0.00
-0.50
-1.00
-0.04
0.03
0.05
0.03
-0.13
-0.04
0.29
-0.13
0.22
iPA
iBC
iDE
iFG
iHI
iJK
iLM
iNO
Mean
ICSIE

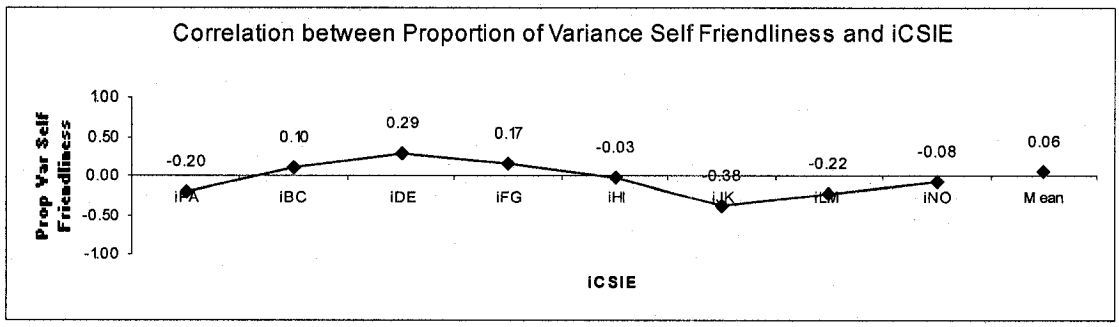
10.12


Correlation between Perceived Correspondence and Ipsatized CSIE
Correlation between Self Friendliness and Other Friendliness
1.00
0.50
0.00
-0.50
-1.00
0.18
-0.12
-0.14
-0.08
0.01
0.21
-0.02
0.12
0.10
iPA
iBC
iDE
iFG
iHI
iJK
iLM
iNO
Mean
ICSIE

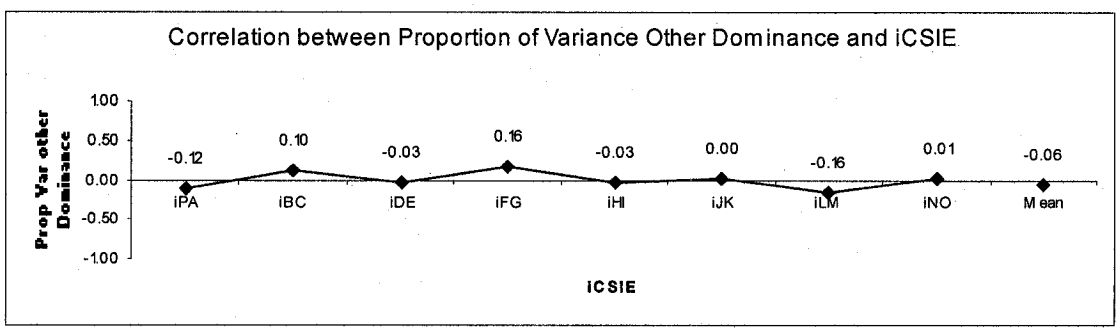
10.13



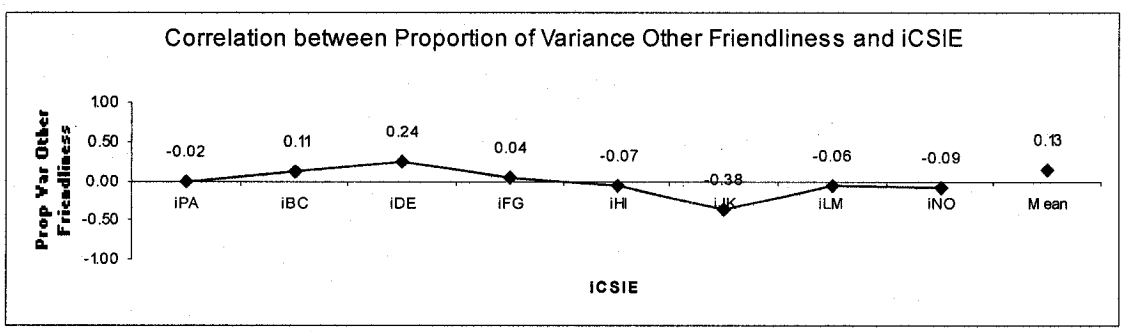
10.14



10.15



10.16



Note. N = 35, Correlations with $r \geq .34$ are significant at $p < .05$; $r \geq .43$ are significant at $p < .01$; $r \geq .54$ are significant at $p < .001$

Appendix A

IIP-C Instructions: Listed below are a variety of common problems that people report in relating to other people. Please read each one and consider whether that problem has been a problem for you with respect to any significant person in your life. Then select the number that describes how distressing that problem has been, and circle that number.

It's hard for me to...	Not at All	A little bit	Moderately	Quite a bit	Extremely
1. trust other people	0	1	2	3	4
2. say "no" to other people	0	1	2	3	4
3. join in on groups	0	1	2	3	4
4. keep things private from other people	0	1	2	3	4
5. let other people know what I want	0	1	2	3	4
6. tell a person to stop bothering me	0	1	2	3	4
7. introduce myself to new people	0	1	2	3	4
8. confront people with problems that come up	0	1	2	3	4
9. be assertive with another person	0	1	2	3	4
10. let other people know when I'm angry	0	1	2	3	4
11. make a long-term commitment to another person	0	1	2	3	4
12. be another person's boss	0	1	2	3	4
13. be aggressive toward someone when the situation calls for it	0	1	2	3	4
14. socialize with other people	0	1	2	3	4
15. show affection to people	0	1	2	3	4
16. get along with people	0	1	2	3	4
17. understand another person's point of view	0	1	2	3	4
18. express my feelings to other people directly	0	1	2	3	4
19. be firm when I need to be	0	1	2	3	4
20. experience a feeling of love for another person	0	1	2	3	4
21. set limits on other people	0	1	2	3	4

It's hard for me to...	Not at All	A little bit	Moderately	Quite a bit	Extremely
22. be supportive of another person's goals in life	0	1	2	3	4
23. feel close to other people	0	1	2	3	4
24. really care about other people's problems	0	1	2	3	4
25. argue with another person	0	1	2	3	4
26. spend time alone	0	1	2	3	4
27. give a gift to another person	0	1	2	3	4
28. let myself feel angry at somebody I like	0	1	2	3	4
29. put somebody else's need before my own	0	1	2	3	4
30. stay out of other people's buisness	0	1	2	3	4
31. take instructions from people who have authority over me	0	1	2	3	4
32. feel good about another person's happiness	0	1	2	3	4
33. ask other people to get together socially with me	0	1	2	3	4
34. feel angry at other people	0	1	2	3	4
35. open up and tell my feelings to another person	0	1	2	3	4
36. forgive another person after I've been angry	0	1	2	3	4
37. attend to my own welfare when somebody else is needy	0	1	2	3	4
38. be assertive without worrying about hurting other's feelings.	0	1	2	3	4
39. be self-confident when I am with other people	0	1	2	3	4

Part II. The following are things that you do too much

	Not at all	A little bit	Moderately	Quite a bit	Extremely
40. I fight with other people too much	0	1	2	3	4
41. I feel too responsible for solving other people's problems	0	1	2	3	4
42. I am too easily persuaded by other people	0	1	2	3	4
43. I open up to people too much	0	1	2	3	4
44. I am too independent	0	1	2	3	4

45. I am too aggressive toward other people	0	1	2	3	4

The following are things that you do too much

	Not at all	A little bit	Moderately	Quite a bit	Extremely
47. I clown around too much	0	1	2	3	4
48. I want to be noticed too much	0	1	2	3	4
49. I trust other people too much	0	1	2	3	4
50. I try to control other people too much	0	1	2	3	4
51. I put other people's needs before my own too much	0	1	2	3	4
52. I try to change other people too much	0	1	2	3	4
53. I am too gullible	0	1	2	3	4
54. I am overly generous to other people	0	1	2	3	4
55. I am too afraid of other people	0	1	2	3	4
56. I am too suspicious of other people	0	1	2	3	4
57. I manipulate other people too much to get what I want	0	1	2	3	4
58. I tell personal things to other people too much	0	1	2	3	4
59. I argue with other people too much	0	1	2	3	4
60. I keep other people at a distance too much	0	1	2	3	4
61. I let other people take advantage of me too much	0	1	2	3	4
62. I feel embarrassed in front of other people too much	0	1	2	3	4
63. I am affected by another person's misery too much	0	1	2	3	4
64. I want to get revenge against people too much	0	1	2	3	4

Appendix B

CSIV instructions: For each item below, answer the following question: "When I am in interpersonal situations (such as with close friends, with strangers, at work, at social gatherings, and so on), in general how important is it to me that I act or appear or am treated tl way?" Please circle the most appropriate response for each question using the following rating scale:

	Not at all	Mildly		Moderately		Very	Extremely
	0	1		2		3	4
When I am with other people, it is important to me that							
1. I appear confident	0	1	2	3	4		
2. I not reveal my positive feelings for them	0	1	2	3	4		
3. I feel connected to them	0	1	2	3	4		
4. I appear forceful	0	1	2	3	4		
5. I conform to their expectations	0	1	2	3	4		
6. I am unique	0	1	2	3	4		
7. I keep my guard up	0	1	2	3	4		
8. I put their needs before mine	0	1	2	3	4		
9. they acknowledge when I am right	0	1	2	3	4		
10. I not make a social blunder	0	1	2	3	4		
11. they show interest in what I have to say	0	1	2	3	4		
12. I attack back when I am attacked	0	1	2	3	4		
13. I not get into an argument	0	1	2	3	4		
14. that they not deceive me	0	1	2	3	4		
15. they not know what I am thinking or feeling	0	1	2	3	4		
16. they not see me as getting in their way	0	1	2	3	4		
17. I get the chance to voice my views	0	1	2	3	4		
18. I appear aloof	0	1	2	3	4		
19. they support me when I am having problems	0	1	2	3	4		
20. I keep the upper hand	0	1	2	3	4		

21. I do what they want me to do	0 1 2 3 4
22. I express myself openly	0 1 2 3 4
23. I not show I care about them	0 1 2 3 4
24. I get along with them	0 1 2 3 4
25. they respect my privacy	0 1 2 3 4
26. I not make mistakes in front of them	0 1 2 3 4
27. they understand me	0 1 2 3 4
28. I put my needs first	0 1 2 3 4
29. I live up to their expectations	0 1 2 3 4
30. they respect what I have to say	0 1 2 3 4
31. they keep their distance from me	0 1 2 3 4
32. they not reject me	0 1 2 3 4
33. I not back down when disagreements arise	0 1 2 3 4
34. I not say something stupid	0 1 2 3 4
35. they come to me with their problems	0 1 2 3 4
36. I am the one in charge	0 1 2 3 4
37. I not make them angry	0 1 2 3 4
38. I have an impact on them	0 1 2 3 4
39. I do better than them	0 1 2 3 4
40. I make them feel happy	0 1 2 3 4
41. they not tell me what to do	0 1 2 3 4
42. I not expose myself to the possibility of rejection	0 1 2 3 4
43. they are considerate	0 1 2 3 4
44. I avenge insults and injustices against me	0 1 2 3 4
45. I go along with what they want to do	0 1 2 3 4

46. they show me respect	0 1 2 3 4
47. they see me as cool and unemotional	0 1 2 3 4
48. they approve of me	0 1 2 3 4
49. I am obeyed when I am in authority	0 1 2 3 4
50. I not expose myself to ridicule	0 1 2 3 4
51. they stay with me when things aren't going well	0 1 2 3 4
52. I win if there is an argument	0 1 2 3 4
53. I not embarrass myself	0 1 2 3 4
54. they see me as responsible	0 1 2 3 4
55. I appear detached	0 1 2 3 4
56. they think I am a nice person	0 1 2 3 4
57. they admit it when they are wrong	0 1 2 3 4
58. I keep my thoughts or feelings to myself	0 1 2 3 4
59. they show concern for how I am feeling	0 1 2 3 4
60. they mind their own business	0 1 2 3 4
61. they not get angry with me	0 1 2 3 4
62. they listen to what I have to say	0 1 2 3 4
63. I not reveal what I am really like	0 1 2 3 4
64. they not get their feelings hurt	0 1 2 3 4

Appendix C

SBI Instructions: Over the last 1 month, please indicate how often you engaged in the behaviors described by using the scale below.

	Never	Rarely	Occasion-ally	Often	Very Often	Almost Always
1. I set goals for others.	1	2	3	4	5	6
2. I waited for another person to act or talk first.	1	2	3	4	5	6
3. I listened attentively to others.	1	2	3	4	5	6
4. I did not respond to another's questions or comments.	1	2	3	4	5	6
5. I gave information.	1	2	3	4	5	6
6. I went along with the views or wishes of another person.	1	2	3	4	5	6
7. I criticized others.	1	2	3	4	5	6
8. I expressed an opinion.	1	2	3	4	5	6
9. I did not express disagreement when I thought it.	1	2	3	4	5	6
10. I spoke favourably of someone who was not present.	1	2	3	4	5	6
11. I raised my voice.	1	2	3	4	5	6
12. I spoke softly.	1	2	3	4	5	6
13. I compromised about a decision.	1	2	3	4	5	6
14. I made a sarcastic comment.	1	2	3	4	5	6
15. I took the lead in planning/organizing a project or activity.	1	2	3	4	5	6
16. I let others make plans or decisions.	1	2	3	4	5	6
17. I complimented or praised others.	1	2	3	4	5	6
18. I demanded that others do what I wanted.	1	2	3	4	5	6
19. I asked for a volunteer.	1	2	3	4	5	6
20. I gave in.	1	2	3	4	5	6
21. I smiled and laughed with others.	1	2	3	4	5	6
22. I discredited what someone said.	1	2	3	4	5	6
23. I spoke in a clear firm voice.	1	2	3	4	5	6
24. I spoke only when I was spoken to.	1	2	3	4	5	6
25. I showed sympathy.	1	2	3	4	5	6

26. I confronted others about something I did not like.	1	2	3	4	5	6
27. I asked others to do something.	1	2	3	4	5	6
28. I did not say what I wanted directly.	1	2	3	4	5	6
29. I exchanged pleasantries.	1	2	3	4	5	6
30. I gave incorrect information.	1	2	3	4	5	6
31. I got immediately to the point.	1	2	3	4	5	6
32. I did not state my own views.	1	2	3	4	5	6
33. I pointed out to others where there was agreement.	1	2	3	4	5	6
34. I stated strongly that I did not like or that I would not do something.	1	2	3	4	5	6
35. I tried to get others to do something else.	1	2	3	4	5	6
36. I did not say how I felt.	1	2	3	4	5	6
37. I expressed affection with words or gestures.	1	2	3	4	5	6
38. I ignored another's comments.	1	2	3	4	5	6
39. I made suggestions.	1	2	3	4	5	6
40. I avoided taking the lead or being responsible.	1	2	3	4	5	6
41. I made a concession to avoid unpleasantness.	1	2	3	4	5	6
42. I withheld useful information.	1	2	3	4	5	6
43. I assigned someone to a task.	1	2	3	4	5	6
44. I did not say what was on my mind.	1	2	3	4	5	6
45. I expressed reassurance.	1	2	3	4	5	6
46. I showed impatience.	1	2	3	4	5	6

Appendix D

Names of People You Interact With

Please list 45 people with whom you have interacted on several occasions. You should know them well enough to answer questions about what they are like when they interact with you. For example, do they appear warm, shy, passive, and so forth.

Note that people you interact with may fall under a variety of relationship categories such as parents, siblings, cousins, aunts/uncles, grandparents, romantic partners, friends, enemies, classmates, teammates, coaches, co-workers, bosses, supervisors, supervisees, mentors, teachers, and others (e.g. mailman, grocer, salesperson, landlord, don, and so forth).

Try to list a variety of people across these different types of relationships, **including not only those you enjoy interacting with, but also those you find less enjoyable**.

Please also indicate how much you enjoy interacting with each person:

	Name	**Relationship**	**Approximately how long have you known this person?**
E.g.	*Mark S.*	*Friend*	*1.5 years*
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			

16. _____ _____ _____
17. _____ _____ _____
18. _____ _____ _____
19. _____ _____ _____
20. _____ _____ _____
21. _____ _____ _____
22. _____ _____ _____
23. _____ _____ _____
24. _____ _____ _____
25. _____ _____ _____
26. _____ _____ _____
27. _____ _____ _____
28. _____ _____ _____
29. _____ _____ _____
30. _____ _____ _____
31. _____ _____ _____
32. _____ _____ _____
33. _____ _____ _____
34. _____ _____ _____
35. _____ _____ _____
36. _____ _____ _____
37. _____ _____ _____
38. _____ _____ _____
39. _____ _____ _____
40. _____ _____ _____
41. _____ _____ _____
42. _____ _____ _____
43. _____ _____ _____
44. _____ _____ _____
45. _____ _____ _____

Appendix E

Your Behavior Toward _____

Top of Form

Please think about how you behave when you interact with this person. It might be helpful to call to mind one or two interactions in particular. From your perspective, please indicate how well each adjective describes you when you interact with this person.

	1 Extremely Inaccurate	2 Very Inaccurate	3 Quite Inaccurate	4 Slightly Inaccurate	5 Slightly Accurate	6 Quite Accurate	7 Very Accurate	8 Extremely Accurate
1. Dominant	1	2	3	4	5	6	7	8
2. Extraverted	1	2	3	4	5	6	7	8
3. Agreeable	1	2	3	4	5	6	7	8
4. Trusting	1	2	3	4	5	6	7	8
5. Submissive	1	2	3	4	5	6	7	8
6. Introverted	1	2	3	4	5	6	7	8
7. Critical	1	2	3	4	5	6	7	8
8. Mistrusting	1	2	3	4	5	6	7	8
9. Assertive	1	2	3	4	5	6	7	8
10. Outgoing	1	2	3	4	5	6	7	8
11. Warm	1	2	3	4	5	6	7	8
12. Naive	1	2	3	4	5	6	7	8
13. Passive	1	2	3	4	5	6	7	8
14. Unsociable	1	2	3	4	5	6	7	8
15. Cold	1	2	3	4	5	6	7	8

16. Sly 1 2 3 4 5 6 7 8

Appendix H

CSIE instructions: For each item below, answer the following question: "When I am in interpersonal situations (such as with close friends, with strangers, at work, at social gatherings, and so on), in general how sure (or capable am I to act that way with others?) I am that I could act that way with others?" Please circle the most appropriate response for each question using the following rating scale:

Not at all Confident	Mildly Confident	Moderately Confident	Very Confident	Extremely Confident
0	1	2	3	4

When I am with other people, I feel sure that

1. I can express myself openly	0	1	2	3	4
2. I can be tough	0	1	2	3	4
3. I can follow the rules	0	1	2	3	4
4. I can be assertive	0	1	2	3	4
5. I can hide my thoughts and feelings	0	1	2	3	4
6. I can fit in	0	1	2	3	4
7. I can keep the upper hand	0	1	2	3	4
8. I can avoid getting into arguments	0	1	2	3	4
9. I can smooth over any difficulties	0	1	2	3	4
10. I can be cold and unfriendly when I want to	0	1	2	3	4
11. I can get along with them	0	1	2	3	4
12. I can speak up when I have something to say	0	1	2	3	4
13. I can be submissive	0	1	2	3	4
14. I can understand their feelings	0	1	2	3	4
15. I can win any arguments or competitions	0	1	2	3	4

16. I can be a follower	0	1	2	3	4
17. I can get them to listen to what I have to say	0	1	2	3	4
18. I can get them to leave me alone	0	1	2	3	4
19. I can be nice	0	1	2	3	4
20. I can take charge	0	1	2	3	4
21. I can disappear into the background when I want	0	1	2	3	4
22. I can soothe hurt feelings	0	1	2	3	4
23. I can be aggressive if I need to	0	1	2	3	4
24. I can avoid making them angry	0	1	2	3	4
25. I can be a leader	0	1	2	3	4
26. I can be cruel when the situation calls for it	0	1	2	3	4
27. I can be giving	0	1	2	3	4
28. I can be forceful	0	1	2	3	4
29. I can be quiet	0	1	2	3	4
30. I can be helpful	0	1	2	3	4
31. I can tell them when I am annoyed	0	1	2	3	4
32. I can let others take charge	0	1	2	3	4

Appendix I

Ryff Well-Being Scale

The following items ask about how you feel about yourself and your life. Please read each statement and then circle the appropriate number on the scale to indicate how you have felt **during the past month.**

Note: The following scale is provided for each of the following questions

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5	6	7

1. In general, I feel I am in charge of the situation in which I live.
2. People would describe me as a giving person, willing to share my time with others.
3. I have confidence in my opinions, even if they are contrary to the general consensus.
4. For me, life has been a continuous process of learning, changing, and growth.
5. I tend to be influenced by people with strong opinions.
6. I like most aspects of my personality.
7. I live one day at a time and don't really think about the future.
8. I have not experienced many warm and trusting relationships with others.
9. I am quite good at managing the many responsibilities of my daily life.
10. When I look at the story of my life, I am pleased with how things have turned out.
11. I judge myself by what I think is important, not by the values of what others think is important.
12. The demands of everyday life often get me down.
13. In many ways, I feel disappointed about my achievements in life.
14. I think it is important to have new experiences that challenge how you think about yourself and the world.
15. I sometimes feel as if I've done all there is to do in life.
16. I gave up trying to make big improvements of changes in my life a long time ago.
17. Maintaining close relationships has been difficult and frustrating for me.
18. Some people wander aimlessly through life, but I am not one of them.

Appendix J

Satisfaction with Life Scale

Please respond to these statements by circling the number that best applies:

		Strongly Disagree	Somewhat Disagree	Uncertain	Somewhat Agree	Strongly Agree
1.	In most ways, my life is close to ideal.	1	2	3	4	5
2.	The conditions in my life are excellent.	1	2	3	4	5
3.	I am satisfied with my life.	1	2	3	4	5
4.	If I could live my life over, I would change almost nothing.	1	2	3	4	5
5.	So far I have gotten the important things I want in my life.	1	2	3	4	5

Appendix K

Event-Contingent Questionnaire

When did this interaction start?
Date: _____
Time: _____

Tell us about your interaction partner:

1. What is you interaction partner's name? _____

2. What is this person's gender?
   a. Male
   b. Female

3. What type of relationship do you have with this person?
   a. Parent
   b. Sibling
   c. Friend
   d. Other Relative
   e. Romantic Partner
   f. Classmate
   g. Co-Worker
   h. Supervisor / Boss
   i. Acquaintance
   j. Other: _____

4. How long have you know this person?
   a. First Encounter
   b. Less than a month
   c. 1 to 6 months
   d. 6 months to 1 year
   e. 1 year to 5 years
   f. 5 years to 10 years
   g. All my life

5. What mode of communication did you use to interact with the other person?
   a. Face-to-face
   b. Phone
   c. Internet (e.g. chat rooms, MSN)

Rate **your** behaviors during this interaction

Please think about how you behaved when you interacted with this person. From your perspective, please indicate how well each adjective describes how you behaved.

1 Extremely Inaccurate	2 Very	3 Quite	4 Slightly	5 Neutral	6 Slightly	7 Quite	8 Very Accurate	9 Extremely
Assertive	1	2	3	4	5	6	7	8	9
Outgoing	1	2	3	4	5	6	7	8	9
Warm	1	2	3	4	5	6	7	8	9
Naïve	1	2	3	4	5	6	7	8	9
Passive	1	2	3	4	5	6	7	8	9
Unsociable	1	2	3	4	5	6	7	8	9
Cold	1	2	3	4	5	6	7	8	9
Sly	1	2	3	4	5	6	7	8	9
Dominant	1	2	3	4	5	6	7	8	9
Extraverted	1	2	3	4	5	6	7	8	9
Agreeable	1	2	3	4	5	6	7	8	9
Trusting	1	2	3	4	5	6	7	8	9
Submissive	1	2	3	4	5	6	7	8	9
Introverted	1	2	3	4	5	6	7	8	9
Critical	1	2	3	4	5	6	7	8	9
Mistrusting	1	2	3	4	5	6	7	8	9

Rate the **other person's** behaviors during this interaction

Please think about how the other person behaved when you interacted with him/her. From your perspective, please indicate how well each adjective describes how he/she behaved towards you.

1 Extremely Inaccurate	2 Very	3 Quite	4 Slightly	5 Neutral	6 Slightly	7 Quite	8 Very Accurate	9 Extremely
Assertive	1	2	3	4	5	6	7	8	9
Outgoing	1	2	3	4	5	6	7	8	9
Warm	1	2	3	4	5	6	7	8	9
Naïve	1	2	3	4	5	6	7	8	9

Passive	1	2	3	4	5	6	7	8	9
Unsociable	1	2	3	4	5	6	7	8	9
Cold	1	2	3	4	5	6	7	8	9
Sly	1	2	3	4	5	6	7	8	9
Dominant	1	2	3	4	5	6	7	8	9
Extraverted	1	2	3	4	5	6	7	8	9
Agreeable	1	2	3	4	5	6	7	8	9
Trusting	1	2	3	4	5	6	7	8	9
Submissive	1	2	3	4	5	6	7	8	9
Introverted	1	2	3	4	5	6	7	8	9
Critical	1	2	3	4	5	6	7	8	9
Mistrusting	1	2	3	4	5	6	7	8	9

6. How pleasant did you find this interaction?

1	2	3	4	5	6	7	8	9
Extremely Unpleasant	**Very**	**Quite**	**Slightly**	**Neutral**	**Slightly**	**Quite**	**Very**	**Extremely Pleasant**

7. How rewarding did you find this interaction?

1	2	3	4	5	6	7	8	9
Extremely Unpleasant	**Very**	**Quite**	**Slightly**	**Neutral**	**Slightly**	**Quite**	**Very**	**Extremely Pleasant**

8. How stressful did you find this interaction?

1	2	3	4	5	6	7	8	9
Extremely Unstressful	**Very**	**Quite**	**Slightly**	**Neutral**	**Slightly**	**Quite**	**Very**	**Extremely Stressful**

9. How conflictual did you find this interaction?

1	2	3	4	5	6	7	8	9
Extremely Non-Conflictual	**Very**	**Quite**	**Slightly**	**Neutral**	**Slightly**	**Quite**	**Very**	**Extremely Conflictual**

10. How harmonious did you find this interaction?

1	2	3	4	5	6	7	8	9
Extremely	**Very**	**Quite**	**Slightly**	**Neutral**	**Slightly**	**Quite**	**Very**	**Extremely**
Unharmonious								**Harmonious**