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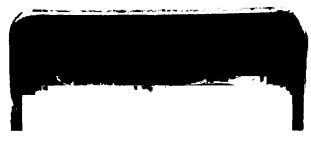

ON THE MEASUREMENT OF INTRAINDIVIDUAL PERSONALITY VARIABILITY

By

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ABSTRACT

ON THE MEASUREMENT OF INTRAINDIVIDUAL PERSONALITY VARIABILITY

By

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Intraindividual personality variability, which is the extent that a person's behavior changes over time or across situations, is a centerpiece of modern research in personality psychology. Previous research has shown that individual differences in variability are stable and may even have important implications for psychological health. However, when certain self-reports methods are used to assess this trait, response styles may contribute reliable, yet irrelevant variance to indexes of intraindividual variability. In two studies, I examined the validity of various self-report indexes of variability and used these measures to test predictions about broad outcomes for psychological well-being. Findings indicate that individuals who provide self-reports of personality that are inconsistent across roles or over time also tend to report greater variability in judgments of conceptually unrelated phenomena.

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INTRODUCTION

Monday morning, 9:00am. A woman sits in a board meeting, listening attentively as her fellow executives give their weekly reports. On a notepad in front of her is a list of questions that she prepared in advance and a set of detailed notes that grow longer with each presentation. Every once in a while, the woman raises her hand to ask pointed questions or to interject her views on a topic. When it is time, she promptly adjourns the meeting in order to be on time for her next appointment.

Thursday evening, 9:00pm. A woman deals cards to a group of friends during their weekly poker game. As other people share stories about their vacations and tell dirty jokes, the woman quietly keeps score and watches bubbles form in her soft drink. Each time it is her turn to wager, she cautiously considers her chances of winning and often folds without placing a bet. As the game wears on, she yawns widely and looks forward to a quiet weekend.

The personalities depicted in these scenarios are obviously quite different from one another. The woman in the first scenario is extraverted and conscientiousness, whereas the woman in the second scenario is introverted and perhaps a little neurotic. But what if both descriptions were actually about the same person? How might we describe her personality, given the differences in her behavior from one situation to the next? Perhaps it would be useful to say that the woman is inconsistent, variable, or unstable. We might also want to understand why the woman behaves so differently at work than she does around her friends. Perhaps there is something unique about someone whose behavior changes a great deal from situation to situation.

THEORETICAL BACKGROUND

Personality psychologists are increasingly interested in the kinds of people that exhibit a lot of variability in their behavior, as well as in the processes that might produce this individual difference (Cervone, 2004; Cloninger, 2003; Fleeson, 2004; Mischel & Shoda, 1995; Pervin, 2001; Roberts & Pomerantz, 2004). In order to make inferences about these processes, researchers have come up with a variety of self-report methods to study how people change. However, in many instances, it is unclear whether these methods are able to capture constructs that are psychologically meaningful. Therefore, to it is important to rigorously examine the psychometric properties of intraindividual variability measures and to identify potential limitations of the information they provide.

Most psychologists acknowledge that environmental factors have the potential to exert powerful influences on behavior, yet they often disagree about the meaning of changes that occur in people's behavior across situations. For example, it would be hard to argue against the notion that people tend to behave differently at work than they do when playing card games. However, there are different views about why these changes occur. On one hand, differences in people's behaviors across situations may simply be due to contextual factors that have a similar impact on everyone. If so, then the ways people change across situations may have little to do with personality. On the other hand, it may also be the case that some people are more sensitive to situational influences than are other people and, as a result, change their behavior more dramatically (Snyder, 1974). In other words, there may be stable personality processes that moderate the impact of situational factors on behavior, leading some people to change their behavior a great deal across situations and other people to behave the same way all the time

(Mischel & Shoda, 1995). If intraindividual variability is an individual difference, then research should focus on identifying the processes and outcomes related to it.

Although most people may tend to be outgoing and talkative around their friends, and quiet and contemplative in school, there are certain kinds of people who behave the same way in each situation and others whose behavior varies widely (Bem & Allen, 1974; Fleeson, 2001; Lanning, 1988; Paulhus & Martin, 1988). In one study, Schneiderman (1980) asked participants to act out the role of a teacher in each of three different ways: introverted, extraverted, and natural. Across these three conditions, extraverted behaviors were most common in the extraverted condition and least common in the introverted condition, demonstrating that most people were able to act appropriately in each condition. However, people who described themselves as being highly variable showed the most change in observable behavior across the conditions. In another study, Fleeson (2001) found that extraversion varied as a function of the time of day and the number of people present at a given moment, but that a great deal of intraindividual variability in extraversion could also be attributed to participants' personalities.

In addition to observable behavior, there may also be meaningful individual differences in the variability of other aspects of personality. For instance, there is no question that affect changes as a function of the situations that people encounter, yet research has shown that some people exhibit more variability in their moods across situations than other people (Diener & Larsen, 1984; Penner, Shiffman, Paty, & Fritzsche, 1994). Similarly, although cycles of physical activity and inactivity can account for some of the changes in moods that occur throughout the course of a day or

across different days of the week, there are substantial individual differences in the extent to which people's moods fluctuate over time (Larsen, 1987; Larsen & Kasimatis, 1990; Watson, 2000). Furthermore, intraindividual variability in affect has been linked to broad personality traits, such as extraversion and neuroticism (Eid & Diener, 1999; McConville & Cooper, 1999). Therefore, although some situations tend to evoke positive feelings and other situations tend to evoke negative feelings, certain kinds of people have moods that change a great deal from situation to situation whereas others have moods that rarely change at all.

Like many other aspects of personality, intraindividual variability appears to be quite stable over time (Baumeister, 1991). For instance, Fleeson (2001) reported three-week stability estimates for variability scores on the Big Five that were often above .75, and a recent study of longer-term stability found that variability scores correlated roughly .70 across six to nine months (Baird, Le, & Lucas, 2006). Considering that mean-levels of the Big Five traits are only slightly more stable than variability scores, these findings are quite remarkable and suggest that variability may be an important component of personality. However, psychologist have a great deal yet to learn about the nature of personality variability.

On the Nature of Intraindividual Variability

Changes in a person's behavior can occur for a number of reasons (Fiske & Rice, 1955). For instance, physiological processes, such as arousal in the cardiovascular or central nervous systems, can produce changes in observable behavior. A person might also behave differently around certain people than he or she does around other people. Finally, a person may behave differently from one time to another because of events that

occur in between observations. Although each of these processes are interesting in its own right, they all add up to individual differences in intraindividual variability that can be studied empirically.

When studying individual differences in intraindividual variability, it is important to consider the variety of ways that change can be conceptualized (Nesselroade, 1992; Tellegen, 1988). So far I have focused only on short-term variability that occurs over brief intervals of time or across situations. However, psychologists are often interested in how people behave at different points throughout the lifespan and seek to understand changes that occur over the course of several years. In contrast to the spontaneous and temporary fluctuations in behavior across situations that are the focus of this paper, longer-term changes constitute shifts in baseline behaviors that occur gradually. As such, they may be theoretically independent of shorter-term variability. More importantly, the processes underlying developmental shifts may be different from those that produce changes in personality across situations.

Another issue that should be addressed involves determining the appropriate unit of analysis. Some theorists have argued that variability is multi-faceted and that people can differ from one another in both the number of traits and the kinds of traits upon which they vary (Baumeister & Tice, 1988; Fleeson & Jolley, in press; Mischel & Shoda, 1999). Furthermore, the processes that govern variability in one trait may be different from those that govern variability in another trait. In other words, the extent to which a person is variably extraverted may be independent of his or her tendency to be variably neurotic. According to this perspective, it is important to assess the variability in each trait separately.

In contrast, other researchers have argued that different types of variability, although conceptually distinct, are actually linked to the same underlying mechanism. For instance, variable people may behave differently from one situation to another because they are particularly sensitive to social influences (Snyder, 1974). When situational cues indicate that a person's typical ways of behaving might be inappropriate at a given moment, he or she may vary in extraversion and neuroticism simultaneously. In support of this perspective, much of the research that has examined variability in multiple traits has shown that trait-specific indexes of variability tend to be strongly correlated with one another and that these relationships can be explained by a single factor (Baird et al., 2006; Eid & Diener, 1999; Penner et al., 1994). This suggests that intraindividual variability may be a broad trait that is distinct from other dimensions of personality. Therefore, it is important to consider whether this trait is associated with outcomes in other areas of psychological functioning.

Implications of Intraindividual Variability

Perhaps the most important outcomes that have been linked to intraindividual variability are those that relate to psychological health. Although a great deal of research has been done on the topic, theorists have tended to disagree about whether variability is associated with well-being. Some theorists believe that variability reflects an ability to adapt to the environment (Bem & Lewis, 1975; Paulhus & Martin, 1988; Snyder, 1974). For example, Bem and Lewis (1975) argued that individuals who can behave in ways that are both feminine and masculine are likely to behave appropriately across different kinds of situations. Similarly, individuals who can engage in a wide range of behaviors may be better able to act in ways that fit a variety of situations than are rigid people (Paulhus &

Martin, 1988). Therefore, if a person acts differently around friends than he or she acts around family, then this may be an indication that the person is adapting appropriately to each situation. According to this perspective, intraindividual variability should be associated with positive outcomes.

In contrast, other theorists have argued that variability is a sign of psychological immaturity (Jourard, 1963; Maslow, 1968; Rogers, 1961). For instance, Maslow (1968) argued that healthy people are able to transcend the environment and express their true selves by resisting social pressures. When people succumb to situational influences, they must expend a great deal of psychological energy to repress their inner selves, and ultimately will experience lower levels of well-being as a result. Similarly, people who are variable may lack a sense of self-direction (Rogers, 1961), and may be more worried about what other people expect of them rather than about their own values (Jourard, 1963). In other words, intraindividual variability may result from conflicts between one's dispositional tendencies and external pressures to behave in ways that are socially appropriate, but which may not come naturally to the person. According to this view, intraindividual variability should be associated with lower levels of psychological well-being.

Finally, if personality variability is the result of heightened sensitivity to social influences, then it may also have an impact on the quality of interpersonal relationships. Of all the external pressures that people encounter, those that are imposed by family and friends may be among the strongest and most influential. In fact, over time, these relationships have the potential to alter one's sense of self and to shape important aspects of one's identity (Aron, Aron, Tudor, & Nelson, 1991). To the extent that an individual's

family and friends share similar expectations for his or her behavior, the person should experience few conflicts about how to behave. Furthermore, according to self-determination theory (Ryan & Deci, 2000), social relationships that promote a sense of autonomy and self-direction should lead to positive outcomes for health and well-being. In other words, relationships in which people are able to determine their own actions tend to be more satisfying than those that encourage conformity or dependency. Therefore, the quality of one's relationships with family and friends may be a predictor of intraindividual variability.

Alternatively, personality variability may have an adverse impact on the development of social relationships. For instance, because variable people continually change their behavior to please other people, they may feel that other people don't understand them or appreciate them for who they really are. In fact, recent empirical evidence suggests that they might be right. Compared to people with consistent personalities, variable people tend to be harder for others to judge (Colvin, 1993), and tend describe their own personalities differently than other people describe them (Baird et al., 2006; Biesanz & West, 2000). In other words, people tend to find it difficult to understand what another person's personality is like when that person's behavior changes from situation to situation. As a result, variable people may have a hard time establishing close bonds with others and may feel dissatisfied with their social relationships.

If intraindividual variability has implications for psychological well-being, as many theorists believe it does, then it is important that research be done to examine these links directly. In the studies described below, I tested whether or not personality variability was associated with self-reports of relationship satisfaction (Study 1) and

psychological health (Study 2). To provide the best possible test for competing theories of variability, careful attention had to be given to the measurement process. Therefore, in the next section, I outline several important details about existing variability indexes and consider the potential strengths and weaknesses of each.

ASSESSING INTRAINDIVIDUAL VARIABILITY

The psychometric assessment of intraindividual variability can be quite challenging and often requires the use of complex statistical analyses (Nesselroade, 1992; Tellegen, 1988). Perhaps the greatest challenge, however, is simply gathering useful information about the ways people change. In many instances, it is nearly impossible to observe people directly as they move from one situation to the next, or to create a variety of situations in a laboratory that can mimic the complexity of real-life situations. Therefore, researchers often rely on self-report measures to assess variability instead.

In general, self-reports can be used to study variability in one of two ways (Cervone, 1999). First, a researcher can simply ask people direct questions about how variable they are. This approach, referred to as top-down measurement, has been used in previous research on self-esteem stability (Rosenberg, 1985) and self-concept pluralism (McReynolds, Altrocchi, & House, 2000). Alternatively, researchers can also assess variability by examining the extent to which a person's response varies each time he or she is asked about a certain trait. Examples of this approach, referred to as bottom-up measurement, have been used in research on role variability (Donahue, Robins, Roberts, & John, 1993) and trait scalability (Lanning, 1988; Reise & Waller, 1993). The distinctions between top-down and bottom-up indexes are important because each method may actually provide unique information about personality.

Top-down approaches

Certain self-report measures are designed to assess people's perceptions of variability in their own behavior. For example, the Self-Pluralism Scale (McReynolds et al., 2000) includes items such as "I act and feel essentially the same whether at home, at

work, or with friends" and "My personality is always the same regardless of whom I'm with or the situation I'm in." Presumably, people who strongly endorse these statements should exhibit little variability in their behavior. Other top-down measures focus explicitly on the underlying processes that might lead to observable variability in behavior. For example, the Self-Concept Clarity scale (Campbell, Trapnell, Heine, Katz, Lavallee, & Lehman, 1996), includes items such as "My beliefs about myself often conflict with one another" and "Sometimes I feel that I am not really the person that I appear to be." Similarly, Rosenberg (1989) developed a 5-item scale to capture variability in self-esteem that includes items such as "Does your opinion of yourself tend to change a good deal, or does it always continue to remain the same?" and "Do you ever find that on one day you have one opinion of yourself and on another day you have a different opinion?" These instruments may provide an ideal way to test competing theories about the mechanisms underlying variability in observable behavior.

The ways people respond to top-down measures may also help researchers learn about the underlying structure of variability. For instance, if variability is multi-dimensional, then a person who gets a high score on a measure of self-concept pluralism wouldn't necessarily get a high score on a measure of self-esteem stability. Furthermore, if different top-down measures capture distinct phenomena, then they should predict different patterns of change in personality. However, for the most part, these measures tend to be highly correlated with one another, and often predict many of the same outcomes. This suggests that different top-down measures might actually tap into the same global tendency to be variable.

On the other hand, strong correlations among various top-down indexes might

also be due to a certain degree of item overlap across different measures. For instance, items that assess behavioral consistency often appear in the same questionnaire with items that assess affective consistency. The self-pluralism measure (McReynolds et al., 2000) even includes an item about naming different parts of oneself and another item about not being able to remember one's own actions. As a result, it is unclear whether this kind of measure captures a general tendency to vary or simply combines multiple traits of variability into a single index. Therefore, research should be done to test whether or not top-down indexes are associated with changes in observable behavior.

To date, the studies that have directly compared subjective judgments of variability with measures of how much people actually change are somewhat inconclusive. In one study, Robins, Noftle, Trzesniewski, and Roberts (2005) found that participants' retrospective judgments of how much their personalities changed during college were moderately correlated with actual changes in traits that were assessed across four years. However, in another study (Baird et al., 2006), scores on a top-down measure were only weakly correlated with an experience-sampling measure of variability in behavior across moments. Therefore, it is important to understand how top-down measures differ from alternative indexes of personality variability.

Bottom-up approaches

In addition to capturing global perceptions of variability, researchers can use self-reports to estimate variability from people's responses to questions about specific aspects of behavior. In other words, variability can also be measured from the bottom-up. One way this can be done is by computing the internal consistency of a person's responses across items that measure the same trait (Bem & Allen, 1974; Lanning, 1988). For

example, if a measure contains multiple items that assess extraversion, then each item in the scale can be treated as a separate indicator of the underlying trait. A person who is consistently extraverted should endorse the items "I am talkative" and "I am outgoing" equally, whereas a person who is variably extraverted should endorse one item but not the other (Reise & Waller, 1993). In addition, if variability is a global trait, then the person who responds consistently across extraversion items should also respond consistently across items that measure conscientiousness.

Although researchers have demonstrated that response consistency may be linked to some important individual differences (Berg & Collier, 1953; Goldberg, 1978; McFarland & Sparks, 1985; Siegrist, 1996), this approach to measuring personality variability suffers from two important limitations. First, indexes of cross-item variability can be confounded with mean scores across the same items. Specifically, in order for a person to get a high mean score on an extraversion scale, he or she must give responses that are consistently high across all of the items (Paunonen & Jackson, 1985). In contrast, a person can get a moderate score either by giving consistently moderate responses or by giving a combination of high and low responses. Therefore, individual differences in mean levels must be carefully separated from indexes of internal consistency. The second limitation concerns the potential impact of scale reliability on response consistency. Specifically, a person may be more likely to give variable responses across items from an unreliable measure than from a reliable measure, regardless of how variable his or her personality is. Therefore, researchers have turned to alternative ways of estimating bottom-up consistency from self-reports.

Another way to compute bottom-up indexes is by comparing a person's responses

across repeated measurements. In other words, if an individual is asked to answer the same set of questions multiple times, then the extent to which his or her responses change across occasions can be used as an index of personality variability (Block, 1961; Donahue et al., 1993; Eid & Diener, 1999; Fleeson, 2004; Kernis & Goldman, 2003; Penner et al., 1994). For example, researchers interested in the ways someone's extraversion changes across social roles might ask the person to describe what his or her personality is like around friends and around family members. Someone who is variably extraverted should say that he or she is highly talkative around friends but not at all talkative around family members, whereas someone who is consistently extraverted should report being equally talkative in both kinds of situations.

An advantage of this approach over measures of internal-consistency is that it can be used to capture variability in specific behaviors, as opposed to variability across behaviors that are related to one another, but are nonetheless distinct. Furthermore, repeated-measures indexes may also be less sensitive to scale reliability than indexes of internal-consistency because responses are compared within each item, instead of across items. However, repeated-measures indexes still suffer from some important limitations. First, estimates of consistency can become confounded with mean scores in ways that alter the interpretation of findings (Baird et al., 2006; Eid & Diener, 1999; Locke, 2003). In order for a person to have an average that is extremely high or extremely low across occasions, he or she must give the same answer each time. Alternatively, people with moderate scores could get those scores by being consistently moderate or by giving a combination of high and low responses. Therefore, just as with other bottom-up indexes, individual differences in mean scores should be separated from variability.

A second limitation of the repeated-measures approach is that it may be sensitive to unique response biases that are not typically found in global questionnaires. For instance, when people are asked to answer the same questions several times, norms that govern the exchange of information in everyday conversations may have an influence on the ways they respond (Schwarz, 1999). Baird & Lucas (2006) found that differences in self-reported personality across contexts were significantly larger if participants were asked the same questions multiple times within the same questionnaire than if they were asked each question only once. This means that a certain amount of inconsistency may be due to the measurement process, rather than to individual differences in personality.

Response Styles in Variability Measures

For a long time, researchers have acknowledged that self-report measures are sensitive to certain biases that may threaten their validity (Cronbach, 1950; Jackson & Messick, 1958; Rundquist, 1950; see also Schimmack, Böckenholt, & Reisenzein, 2002). For instance, in order to make a favorable impression on others, some people may describe their personalities in ways that exaggerate their positive qualities (Edwards, 1957). To solve the problem of response styles, researchers have developed ways of aggregating self-reports across repeated measurements (Epstein, 1979; Stone, Shiffman, & DeVries, 1999). Instead of asking people to describe what they are generally like, researchers can ask them to describe what they are like at specific moments in time, and then combine these multiple reports into a single index. Presumably, these aggregated measures of personality traits are less sensitive to response styles than global reports.

However, new evidence suggests that aggregated measures of personality might also be sensitive to response styles. Watson and Tellegen (2002) argued that the

tendency to blindly agree or disagree with items can create problems when multiple responses are combined into a single index. Specifically, compared to global ratings of affect, aggregated measures of momentary affect yield stronger positive correlations among affect scales of similar valence (e.g. joy and happiness), and weaker negative correlations among scales of opposite valence (e.g. joy and sadness). Watson and Tellegen called this the "aggregation paradox" (p.596), and showed that it is directly related to acquiescent responding. In other words, although aggregated measures are less sensitive to socially desirable responding than are global reports, they may still be susceptible to other response biases.

If response styles have an impact on the correlations among mean scores on an aggregated measure, then they may also have an impact on indexes of intraindividual variability across repeated measurements. In other words, some people may use response scales in ways that inflate the variability in their responses, whereas other people may respond in ways that are more consistent. This would mean that bottom-up indexes of intraindividual variability are contaminated by stable individual differences in response style. Of particular concern may be the tendency of some participants to use extreme numbers on a scale more than others.

Extreme responding

In Berg's (1953) study of extreme response style, participants were asked to report their reactions to several neutral words and abstract shapes. For each word or shape, participants indicated their initial impression of the stimulus on a 4-point scale. The number of times participants expressed an extreme response ("like much" or "dislike much") to neutral words was correlated with the number times they expressed an extreme

response to abstract shapes. Subsequent research has shown that the tendency to give extreme responses is also quite stable (Austin et al., 1998; Greenleaf, 1992). This is important for research on intraindividual personality variability because bottom-up indexes are likely to be inflated by extreme responding.

To date, research has yet to confirm that extreme responding has a direct impact on measures of personality variability. For instance, Penner et al. (1994) used standard deviations in responses on global measures of optimism and self-consciousness to index extreme responding. These indexes were correlated with each other, but were not correlated with the standard deviations in momentary affect ratings. Similarly, Diener & Larsen (1982) included two artifact checks to test whether response extremity could account for differential consistency in affect ratings. First, respondents provided detailed descriptions of what each number meant to them. Then, independent raters coded those descriptions for conservativeness of ratings. Second, respondents indicated where they thought each scale number would fall on a line. Although these artifact checks were correlated with one another, they did not account for individual differences in affect consistency.

Given that so little research has been done on response styles in the measurement of intraindividual variability, it is somewhat unclear how to study them. Perhaps the best test of extreme responding would be to compare standard deviations from completely unrelated scales and see how strongly they relate to one another (Greenleaf, 1992). For instance, variability in a person's repeated responses on a bottom-up measure of personality across contexts should not be associated with variability in his or her descriptions of daily weather conditions. Similarly, variability in a person's descriptions

of other people should not be associated with variability in his or her moods across days of the week. Finally, variability in a person's descriptions of neutral objects should not be associated with variability in his or her daily reports of personality. However, correlations among these measures would provide particularly strong evidence that estimates of intraindividual personality variability are capturing irrelevant information.

OVERVIEW OF STUDIES

So far, I have raised a number of important issues related to the study of intraindividual personality variability. First, individuals clearly differ from one another in the extent to which their behaviors and moods change across situations, but the reasons for this individual difference remain unclear. Second, empirical evidence indicates that intraindividual variability may be linked to a single underlying mechanism. Third, some theorists have argued that variability in observable behavior results from underlying conflicts in the self-concept and has implications for interpersonal relationships. Fourth, intraindividual variability can be measured with a variety of self-report methods, including top-down and bottom-up assessments. Finally, bottom-up measures may be sensitive to response styles that inflate the associations among trait-specific indexes of variability.

The studies presented in this paper were designed with several of these issues in mind. In order to accurately assess intraindividual personality variability, it is important to establish the validity of bottom-up indexes. Therefore, I compared a variety of variability measures with reports of conceptually irrelevant phenomena. If measures of personality variability are correlated with variability in responses on unrelated measures, then the interpretation of bottom-up indexes must be reevaluated. For instance, response style may have an impact on the underlying factor structure of trait-specific measures or on the associations between bottom-up and top-down indexes. Finally, it is also important to determine whether bottom-up indexes can be used to test hypotheses about the relationship between intraindividual variability and psychological well-being.

STUDY 1

Bottom-up indexes of intraindividual personality variability are supposed to capture important individual differences and predict important outcomes related to psychological health. However, these indexes may instead capture systematic variance that is due to habitual styles of responding to self-report measures. In this study, I examined two different bottom-up indexes of personality variability. The first is based on the internal consistency of an individual's responses to multiple items within the same scale. The second is based on the standard deviation of a person's responses to the same items across different hypothetical contexts. Along with these measures, I also computed indexes of response style from self-reports of phenomena that are conceptually unrelated to personality variability. The first is based on the internal consistency of an individual's ratings of inanimate objects. The second is based on the standard deviation of a person's ratings of different cartoon characters. If bottom-up indexes are valid, then they should be positively correlated with top-down measures and should not be correlated with indexes that are derived from self-reports of unrelated phenomena.

Method

Participants

One hundred forty-nine university students were recruited from undergraduate psychology courses during the summer semester. A researcher visited each classroom and asked volunteers to complete a brief, anonymous survey about personality and well-being. In exchange for completing the survey, participants received course credit.

Materials

Participants completed the 50-item, International Personality Item Pool measure

of the Big Five traits (Goldberg, 1999; see Appendix). This measure consists of several short statements that are each rated on a Likert scale from 1 ("very inaccurate") to 5 ("very accurate"). Negatively worded items were reverse keyed so that each trait would be assessed with 10 items of the same valence. Participants then completed the Self-Concept Clarity scale (Campbell et al., 1996; see Appendix). This measure consists of 12 items, each rated on a Likert scale from 1 ("strongly disagree") to 5 ("strongly agree"), that measure top-down perceptions of variability ($\alpha = .90$). Scale scores were computed from the average across the items ($M = 3.32$, $SD = .92$). Next, participants were asked to complete a measure of personality across contexts (see Appendix). For each of 4 different social roles, participants indicated how well 15 different words describe their behavior on a Likert scale from 1 ("does not describe me") to 5 ("describes me very well"). From these ratings, item-specific variability scores can be combined into bottom-up indexes for each of the Big Five traits and for overall variability (Baird et al., 2006; Fleeson, 2001). Next, participants completed a measure of satisfaction with friendships and kinships (see Appendix). This measure was derived from a measure of perceived autonomy support (Deci & Ryan, 2006) and consists of 18 items ($\alpha = .93$) that were each rated on a 5-point scale. Scale scores were computed by averaging together each participant's responses on all the items ($M = 4.05$, $SD = .75$).

Finally, participants completed the two measures of response style. First, they were asked to indicate, on a 5-point scale, how well each of ten adjectives describes four different characters from the television show, The Simpsons (see Appendix). Recent research found a high level of consensus among people's descriptions of these cartoon characters, even among raters with varying familiarity with the show (Kenny & Kenny,

2006), suggesting that there are recognizable differences among these characters' personalities. For example, most people describe Bart Simpson as being more extraverted than Lisa Simpson, and Marge Simpson as being more conscientious than Homer Simpson. However, for the purposes of this study, I was interested in the extent to which each participant rated these characters differently. Because there are real differences among the Simpsons, each person should report a similar amount of cross-character variability. Furthermore, any individual difference in variability across characters should be uncorrelated with variability in self-reported personality.

The second response style measure consisted of a survey of attitudes toward neutral objects that has been used in previous research to assess positive response biases (Judge & Bretz, 1993). Participants reported their feelings toward each of 25 objects using a Likert scale that ranged from 1 ("very dissatisfied") to 5 ("very satisfied"). With this measure, an estimate of response style variability can be derived from the consistency of each participant's ratings across the objects. Because most of these objects are relatively benign, each person should report a similar amount of cross-object variability, and individual differences in variability across objects should not be associated with cross-character variability in ratings of the Simpsons. Furthermore, variability in ratings of neutral objects should not correlate with cross-role or cross-item variability in self-reported personality.

Analytic technique

In this study, I used structural equations modeling (Kline, 2005) to examine the relationships among trait-specific variability indexes and to test the associations between latent variability factors and measures of self-consistency and relationship satisfaction.

In the first set of analyses, I tested the fit of a measurement model that included a single variability factor and then added directional paths from the latent variability factors to indicators of the outcome variables in structural models. Zero-order correlations from equivalent models are presented in parentheses next to the regression coefficients. In the second set of analyses, I tested the associations between response style variability and the latent personality variability factors. Then I examined the impact of response style by comparing the directional coefficients from the first set of analyses to those that emerged when response style variability was added to the models. If bottom-up indexes are contaminated by response style, then controlling for variability in ratings of the Simpsons and neutral objects may change the nature of associations among measures of theoretical interest. For all models, parameter estimates were computed using maximum likelihood estimation in AMOS 5 (Arbuckle, 2003), and model fit was assessed from the comparative fit index (CFI) and root mean square error of approximation (RMSEA). As a rule of thumb, if a model fits the data well, the CFI will be .95 or higher and the RMSEA will be .05 or lower.

Results

A major challenge in the analysis of intraindividual variability is to use statistical indexes that are able to capture the constructs of interest. Several variability indexes are available (Tellegen, 1988), but some of them are inappropriate because they have the potential to confound additional personality traits with intraindividual variability (Baird et al., 2006). In this study, I used linear regression analyses to control for the quadratic relationship between means and standard deviations during the computation of bottom-up indexes. Specifically, each bottom-up standard deviation was regressed onto the mean

score and the squared mean score from the same items. The residuals from these equations represent the extent to which a person with a given mean score has a high amount of variability in his or her responses relative to other individuals with the same mean. When variability scores are computed in this way, the result is a normally distributed index with a mean of zero.

The first index of intraindividual variability that I examined was derived from responses on the IPIP. This measure is typically used to assess trait levels of the Big Five personality factors and, in this sample, provides reliable estimates of Extraversion (α=.90), Agreeableness (α=.83), Conscientiousness (α=.85), Neuroticism (α=.88), and Openness (α=.82).[1] However, for the purposes of this study, I computed the standard deviation of each participant's responses across the 10 items within each of the five subscales. Then, to correct for trait levels on these scales, each trait-specific standard deviation was regressed onto the corresponding mean scores and squared mean scores from the same scale. The bivariate correlations among these corrected indexes ranged from .22 to .42 (all $ps < .05$; mean $r = .30$).

The second index of personality variability was derived from responses to the measure of personality across contexts. Again, this measure consists of 15 items that were administered repeatedly across 4 social roles (Friend, Family, Romantic Partner, and Student). The cross-role standard deviation of each item was regressed onto the corresponding cross-role mean and squared mean from the same item. Then, the residual standard deviations from items that measured the same trait were averaged together to yield separate variability scores for each of the Big Five factors. The bivariate correlations among these trait-specific indexes ranged from .35 to .55 (all $ps < .05$; mean

r = .47). In addition, the cross-role variability indexes were significantly ($p < .05$) correlated with the cross-item variability indexes for the corresponding trait for Extraversion (r = .22), Agreeableness (r = .30), Conscientiousness (r = .23), Neuroticism (r = .24), and Openness (r = .26). In other words, people who responded variably across extraversion items on the IPIP also reported varying in their levels of extraversion across roles. When these indexes were examined in a latent factor model (χ^2 = 55.83, df = 34, CFI = .94; $RMSEA$ = .07), the correlation between Role variability and IPIP variability was .71 (see Figure 1). Taken at face value, this seems to provide initial support for theories that link intraindividual variability to a single underlying mechanism.

To test whether variability in behavior is associated with top-down perceptions of variability, I compared bottom-up indexes from the IPIP and Role measures with scores on the self-concept clarity scale. The only trait-specific, bottom-up index that was significantly correlated with self-concept clarity was variability in extraversion across contexts (r = -.16; p<.05). When the associations among these indexes were tested in the latent-factor model (χ^2 = 62.30, df = 42, CFI = .95; $RMSEA$ = .06), neither the IPIP variability factor (r = -.09; n.s.) nor the Role variability factor (r = -.05; n.s.) predicted self-concept clarity (see Figure 2). In other words, bottom-up indexes of variability were not associated with top-down perceptions of self-consistency.

To test whether personality variability is associated with relationship quality, I compared the bottom-up indexes with reports of relationship satisfaction. None of the trait-specific indexes were correlated with relationship satisfaction. Furthermore, in a model that included directional paths from the latent variability factors to the outcome measure (χ^2 = 66.20, df = 42, CFI = .94; $RMSEA$ = .06), neither bottom-up index was

associated with relationship satisfaction (see Figure 3). Taken together, these findings suggest that bottom-up indexes may not capture the constructs of interest.

To test the presence of response-style variance in the bottom-up measures, I computed variability indexes from ratings of satisfaction with neutral objects and from ratings of the personality traits of the Simpsons characters. First, the standard deviation of each participant's ratings across the 25 neutral objects was regressed onto the mean and squared mean of those ratings. Second, for each of the 10 items in the Simpsons measure, the cross-character standard deviation was regressed onto the cross-character mean and squared mean from the same item. Then these ten, corrected standard deviations were averaged together. These two indexes capture sources response variability that are conceptually distinct from one another and from intraindividual personality variability. However, variability in responses on the neutral objects measure was significantly correlated with variability in ratings of Simpsons characters ($r = .47$, $p < .05$), suggesting that these measures capture the same tendency to give variable responses.

Next, I tested the associations between response styles and self-reports of personality variability and relationship satisfaction. Bivariate correlations among the response style measures, cross-item and cross-role variability, self-concept clarity, and relationship satisfaction are presented in Table 1. Both of the bottom-up indexes were significantly correlated with variability across the Simpsons and with variability across objects. In other words, participants whose self-reported personality varied across items or across roles tended to rate the personalities of Simpsons characters, as well as their own satisfaction with neutral objects, in ways that were more variable than participants

who gave consistent self-reports of personality. Finally, bottom-up variability was not correlated with self-concept clarity or with relationship satisfaction. However, self-concept clarity was positively correlated with relationship satisfaction ($r = .45, p < .05$).

In order to assess the impact of response style on the psychometric properties of bottom-up indexes, the Simpsons and neutral objects indexes were added to the latent factor model (Figure 4). In this model ($\chi^2 = 77.63$, $df = 52$, $CFI = .95$; $RMSEA = .06$), response style variability explained a significant amount of variance in both of the latent variability factors. Perhaps more importantly, as can be seen in the models depicted in Figure 5 ($\chi^2 = 82.76$, $df = 60$, $CFI = .95$; $RMSEA = .05$) and Figure 6 ($\chi^2 = 86.54$, $df = 60$, $CFI = .94$; $RMSEA = .06$), accounting for response style did not change the patterns of associations between the bottom-up indexes and the measures of self-concept clarity and relationship satisfaction. In other words, intraindividual variability was not associated with top-down consistency or with psychological well-being.

An alternative explanation for these findings is that the top-down measure is really capturing something entirely different from variability in behavior. In fact, many of the items in the self-concept clarity scale assess people's overall evaluations of their identities or the extent to which they feel that they know themselves (e.g., items 3, 7, & 11), instead of their perceptions of how much their personality traits actually vary. In other words, this scale may be an inappropriate criterion for testing the validity of bottom-up variability, and the lack of convergence with the bottom-up indexes should not come as a surprise. A more appropriate test would be to use items that are directly related to bottom-up variability. Fortunately, some of the self-concept clarity items are more face-valid that the others, including "On one day I might have one opinion of

myself and on another day I might have a different opinion" (item 2), "My beliefs about myself seem to change very frequently" (item 8), and "If I were asked to describe my personality, my description might end up being different from one day to another day" (item 9). Therefore, I examined how strongly each item correlated with the two aggregated bottom-up indexes. Item-specific correlations with IPIP variability ranged from -.21 (item 11) to .06 (item 3). However, the correlations for items two (r = .00), eight (r = -.10), and nine (r = -.01) were non-significant and near-zero. Instead, only items 11 ("In general, I have a clear sense of who I am and what I am.") and 12 ("It is often hard for me to make up my mind about things because I don't really know what I want.") were significantly correlated with IPIP variability. Item-specific correlations with cross-role variability ranged from -.12 (item 8) to .06 (item 10). None of these correlations were significant, and even the most face valid items were not associated with bottom-up variability.

Discussion

In Study 1, trait-specific indexes of cross-role variability were significantly correlated with one another, indicating that people who reported varying in extraversion across roles also reported varying in the other Big Five traits across those same roles. Similarly, trait-specific indexes of cross-item variability were significantly correlated with one another, indicating that people who responded inconsistently across items that measured extraversion also responded inconsistently across items that measured other Big Five traits. Furthermore, latent factors of cross-role variability and cross-item variability were strongly correlated with one another. However, these bottom-up indexes of variability were not associated with top-down judgments of self-concept clarity or

with ratings of relationship satisfaction. Instead, bottom-up variability was associated with a tendency to describe neutral objects and cartoon characters inconsistently. When measures of response style were added to the analyses, there were no changes the overall fit of the models and no differences in the relationships between the bottom-up indexes and the substantive measures of subjective variability and well-being.

Clearly, bottom-up indexes of variability that are derived from global self-reports of personality are contaminated by response styles, and this has an impact on the psychometric properties of these measures. However, it is possible that this phenomenon is limited to survey methods of assessing variability. In other words, something about the questionnaire itself may have elicited greater variability in people's responses (Baird & Lucas, 2006; Schwarz, 1999). Perhaps because all of the measures were administered at the same time, participants adopted temporary styles of responding in order to complete the survey. If so, then response style may be less of a problem when bottom-up indexes are computed from repeated measurements that are administered at different points in time. Therefore, in Study 2, I examined the associations between global measures of variability and an index that is derived from daily reports of personality.

STUDY 2

In recent years, researchers interested in intraindividual variability have developed ways of assessing changes in personality that occur across actual experiences and situations (Eid & Diener, 1999; Fleeson, 2001; Kernis, 2005). Although these methods provide an ideal opportunity to test theories that link behavioral inconsistency to broad individual differences, only a few studies have directly compared global indexes of personality variability with changes in ongoing behavior. In research that utilized an experience-sampling design, Baird et al. (2006) tested the validity of several global indexes that are similar to the ones used in Study 1. They found that a top-down measure of self-consistency was not associated with variability across reports of moment-to-moment behavior. In other words, people who reported having inconsistent feelings and beliefs were no more likely to behave inconsistently than people who held consistent perceptions of themselves. In contrast, a bottom-up index of cross-role variability predicted variability in behavior across moments, as well as changes in personality over time and self-other agreement.

While these findings may provide initial support for the validity of bottom-up indexes, they may also indicate that daily-diary measures are sensitive to the same response style that impacts global measures. In fact, although the global and momentary indexes were correlated in the Baird et al. study, both were only modestly correlated with the top-down measure and neither was correlated with subjective well-being. In other words, people who give variable responses may do so consistently, regardless of item content, and this may lead to spurious correlations between global and momentary measures of variability. Therefore, in Study 2, I examined associations among indexes of

variability from survey and daily-diary methods. If global measures of intraindividual variability are valid, then they should predict the extent to which a person's behavior varies from day to day, above and beyond any effect of shared response style.

In this study, I assessed response style variability with measures of three different phenomena that are unrelated to personality variability. First, as in Study 1, participants were asked to rate their satisfaction with each of several neutral objects. This measure provides an estimate of how consistently a person responds to different items within a scale. Second, each day for two weeks, participants were asked to answer questions about current weather conditions. Although there are objective changes in the weather, individual differences in the variability of weather reports should be relatively small and should not be correlated with variability in ratings of neutral objects. Finally, each participant was asked to describe the ways a close friend behaves in different situations. Unlike on the Simpsons measure, where everyone was asked to rate the same set of targets and each target was described once, on this measure, participants were free to choose the person that they wanted to rate and then described that person's behavior multiple times. This measure is also similar to the self-report of personality across contexts, except that friends were rated within contexts that were different than those within which participants rated themselves. Although variable people may have friends that are also variable, if variability in the descriptions of a friend correlate with variability in satisfaction with neutral objects or in reports of the weather, then this measure may capture response style.

Presumably, variability in reports of satisfaction with neutral objects, variability in descriptions of a friend's behavior across contexts, and variability in reports of the

weather should not be associated with variability in one's own personality across items, in different contexts, or over time. On the other hand, if these measures are correlated with one another, then this would suggest that bottom-up indexes of personality variability capture a response style.

Finally, the results of Study 1 raised some doubts about the appropriateness of self-concept clarity as a criterion for the bottom-up indexes. It is possible that this measure, and others like it, are better suited for studying variability in evaluative components of personality, such as affect and self-esteem. In other words, because measures of self-concept clarity and self-esteem stability focus explicitly on consistency in people's beliefs and opinions about themselves, they should be more strongly associated with variability in relevant traits than with variability in behavior. In other words, if top-down indexes are capturing constructs that are different from those that are measured with bottom-up indexes, then they should be differentially associated with these alternative measures. Therefore, in Study 2, I examined compared measures of day-to-day variation in positive and negative affect and self-esteem with top-down and bottom-up indexes of variability in behavior.

Method

Participants

Two-hundred fifty-two undergraduate students signed up to participate in a three-week study of personality and emotions. The entire study took place on the internet and correspondence between researchers and participants was conducted via electronic mail. In exchange for completing the study, participants were given course credit. Individuals who dropped out before the end of the study received partial credit.

Materials

Global reports. Global personality variability was assessed using with the same two bottom-up measures that were used in Study 1. Responses on the 50-item IPIP and the 15-item x 4-role contextual measures were used to compute indicators of trait-specific variability . Subjective variability was assessed using the Self-Concept Clarity scale ($\alpha = .89$) and the Stability of Self Scale (Rosenberg, 1989), which contains 5 items that capture consistency in one's opinions and ideas about himself or herself ($\alpha = .86$). To compute top-down indicators from these measures, responses on each item were converted into z-scores and then averaged together.

Participants also completed several global measures of psychological well-being. The Intensity and Time Affect Survey (ITAS; Diener, Smith, & Fujita, 1995) was used to assess trait levels of positive affect ($\alpha = .82$) and negative affect ($\alpha = .90$). On this measure, participants indicated, on a 5-point Likert scale from 1 ("very slightly or not at all") to 5 ("extremely"), the extent to which they experience each of several emotions. Global self-esteem was measured using ten items from Rosenberg's (1989) measure ($\alpha = .91$), which were rated on a 5-point Likert scale ranging from 1 ("does not describe me at all") to 5 ("describes me very well"). Participants also completed Spielberger's (1983) 20-item Trait Anxiety Scale ($\alpha = .92$), the 10-item short form ($\alpha = .81$) of the Center for Epidemiological Studies Depression scale (Cole, Rabin, Smith, & Kaufman, 2004), and a 10-item measure of dispositional optimism ($\alpha = .82$).

Finally, two of the response style measures were included among the global assessments. Variability in satisfaction with neutral objects was assessed with the same measure that was used in Study 1. A second index was derived from participants' ratings

of a close friend's personality across three contexts (" in general", "at work", & "with strangers"). This measure is similar to the contextual self-report, except that friends were rated on five adjectives and across three contexts that were all different from those on the self-report (see Appendix). Presumably, the extent to which a participant's friend is different around strangers than at work should not predict how much the participant varies from situations with romantic partners or family members.

Daily reports. To assess personality variability across ongoing experiences, participants were asked to give daily reports of their behavior and affect (see Appendices). On this measure, each of the Big Five traits was assessed with two adjectives that also appeared on global self-report of variability across contexts. Respondents were also asked to report their self-esteem each day by indicating how well the statement "Today I feel that I am a person of worth, at least on an equal basis with others" described them. Finally, to measure response style, participants were asked to report how sunny, windy, and cold it was each day, on a 1 ("not at all") to 5 ("very") scale. Because all the participants were living in the same city at the time of the study, and because everyone completed the daily reports during the same two-week period, they were exposed to the same weather conditions. Therefore, any individual differences in the variability of weather reports are assumed to reflect response style.

Procedure

To sign up for the study, participants logged on to the psychology department's website and completed an online consent form. During this initial session, participants completed the 50-item IPIP, the 60-item measure of role variability, the ITAS, the neutral objects questionnaire, and the self-concept clarity measure. Then, for the remainder of

the study, participants were instructed to log on to a password-protected website, where they could complete the daily reports and a follow-up questionnaire.

Participants completed the daily reports each evening during the same two-week period. However, participants were informed that the website could only be accessed between 5:00pm and midnight each day, and that they would not allowed to make up for any days that were missed. On average, the daily report sessions lasted about two minutes. Participants who participated in the daily-diary portion of the study ($N = 239$) completed an average of 10.68 daily reports, and roughly 90% completed at least seven.

Finally, at the end of the two weeks, 229 participants were asked to complete a follow up questionnaire on the same website. That questionnaire included the 50-item IPIP, the stability of self measure, and the global measures of self-esteem, optimism, depression, and anxiety.

Analytic technique

The analyses for this study were conducted using modeling strategies that were similar to those in Study 1. First, trait-specific indicators of variability from the three self-report measures were examined in a measurement model that included latent factors of IPIP variability, Role variability, and Daily variability. Then, in a series of structural models, directional paths from the latent variability factors to the outcome variables were added. Zero-order correlations from equivalent models are presented in parentheses next to the regression coefficients. Finally, the three measures of response style variability were added to these models in order to examine the association between bottom-up variability and response style, as well as the impact on the covariances and directional coefficients from the first set of analyses.

Results

Bottom-up indexes of personality variability were computed from the global measures using the regression procedure described in Study 1. First, standard deviations across the 10 items in each of the IPIP subscales were regressed onto the means and squared means from the same scales. The residuals from these equations represent the extent that a person's responses varied relative to other people with the same mean scores. Next, cross-role standard deviations for each of the 15 items in the contextual measure were regressed onto the cross-role means and squared means from the same items. Then, the residual standard deviations from items that measured the same trait were averaged together to create five, trait-specific indexes. An index of daily behavior variability was computed for each participant who completed at least seven daily reports ($N = 217$). The cross-day standard deviations on each of the 10 items were regressed onto the cross-day means and squared means from the same item. Then, residuals from items that measured the same trait were combined to create trait-specific indexes of daily variability for each of the Big Five. Variability scores for daily positive and negative affect and daily self-esteem were computed in the same way as the daily behavior variability indexes.

The relationships among indexes from the three bottom-up measures were examined in a latent-factor model (Figure 7). In this model ($\chi^2 = 149.20$, $df = 87$, $CFI = .96$; $RMSEA = .05$), variability factors from the two global measures were significantly correlated with one another, and both were moderately correlated with daily variability. This means that people who gave variable responses across IPIP items also rated themselves differently across contexts, and reported behaving in variable ways across

ongoing experiences. In other words, each measure appears to capture a general trait of personality variability. However, as can be seen in Figure 8, these measures were differentially associated with the top-down measures ($\chi^2 = 177.82$, $df = 113$, $CFI = .96$; $RMSEA = .05$). Specifically, variability on the Role measure was associated with lower self-concept consistency, whereas variability on the IPIP measure was associated with higher self-concept consistency. Variability in the daily reports was not associated with scores on the top-down measures.

Finally, the association between intraindividual variability and psychological well-being was examined in the model found in Figure 9 ($\chi^2 = 321.40$, $df = 183$, $CFI = .94$; $RMSEA = .05$). Specifically, each of the three latent variability traits was regressed onto a well-being factor that included positive and negative affect, self-esteem, depression, optimism, and anxiety (Table 2 contains descriptive statistics for well-being measures). In this model, role variability was associated with significantly lower well-being, whereas IPIP variability was associated with significantly higher well-being. Daily variability did not predict psychological well-being. Taken together, these findings provide contradictory evidence for the implications of intraindividual variability. Although the three latent factors are positively correlated with one another, each is differentially associated with subjective variability and with psychological well-being. Therefore, it is important to determine whether the bottom-up indexes are capturing valid individual differences or response styles.

Indexes of response style variability were computed from responses on the measures of phenomena that are conceptually unrelated to personality variability. First, the standard deviations in participants' responses on the neutral objects measure were

regressed onto the mean and squared mean of those ratings. Second, the cross-role standard deviation on each item in the friend measure was regressed onto the mean and squared mean from the same item. Finally, the standard deviations in reports of daily weather conditions were regressed onto the mean and squared mean of each item. Bivariate correlations among these three indexes, as well as their associations with personality variability, can be found in Table 3. All of response style indicators were significantly correlated with the three measures of bottom-up variability. However, the correlation between variability in weather reports and variability in friend ratings was not significant. It is possible that the relatively weak relationships between the weather index and the other response style indexes are due to objective stability in weather conditions during the study.[2] In other words, because the weather did not change a great deal, this may not be an ideal way to measure response styles. On the other hand, the fact that individual differences in weather variability were significantly correlated with the bottom-up indexes may be particularly strong evidence of a response style. Removing this index from the analyses did not alter the overall pattern of results. Therefore, in subsequent analyses, the relationships among the three response style indicators were modeled as a latent trait.

To examine the impact of response style on the psychometric properties of variability measures, I added the three response style measures to the models presented above. In the model depicted in Figure 10 ($\chi^2 = 216.56$, $df = 132$, $CFI = .95$; $RMSEA = .05$), a significant amount of variance in each of the three bottom-up indexes was explained by the latent response style factor. This suggests that the correlations among variability indexes that were found in previous analyses may overestimate the true

relationship between global variability and daily variability. In fact, in a model depicted in Figure 11 ($\chi^2 = 212.71$, $df = 129$, $CFI = .95$; $RMSEA = .05$), neither global index predicted daily variability when response style was controlled. In other words, people who responded variably on the IPIP, or who described themselves variably across roles, also tended to describe unrelated phenomena in variable ways, and this explains why they also reported differences in their behavior across ongoing experiences.

So how might response style impact the associations between intraindividual variability and substantive outcomes like self-consistency and psychological well-being? This question can be answered by including the response style variables in the models that were tested above.[3] Recall that in the previous models both indexes were significantly correlated with these outcomes, but in opposite directions. As can be seen in Figure 12 ($\chi^2 = 144.22$, $df = 84$, $CFI = .95$; $RMSEA = .05$) and Figure 13 ($\chi^2 = 276.56$, $df = 146$, $CFI = .93$; $RMSEA = .06$), neither of the global indexes predicted self-consistency or psychological well-being when response style was partialled from the equations.

A final issue is to determine the meaning of the top-down measures. Specifically, if self-concept clarity and self-esteem stability are unrelated to variability in behavior, then what might explain individual differences on these measures? Perhaps these measures capture perceptions of variability in personality traits other than the big five. Therefore, I examined the correlations between each of the top-down indexes and daily variability in affect and self-esteem. Scores on the self-concept clarity scale were significantly correlated with variability in positive affect ($r = -.29$, $p<.05$) but were unrelated to variability in negative affect ($r = -.04$, *ns*) and self-esteem ($r = -.10$, *ns*).

Similarly, scores on the self-esteem stability scale were significantly correlated with variability in positive affect (r = -.29, p<.05) but were unrelated to variability in negative affect (r = -.11, *ns*) and self-esteem (r = -.13, *ns*). In other words, people who experienced consistent levels of positive affect were more likely to report having stable beliefs and opinions about themselves than people who experienced unstable levels of positive affect.

In contrast, each of the bottom-up indexes of variability in behavior were associated with daily variability in affect and self-esteem. Specifically, cross-role variability was significantly correlated with variability in positive affect (r = .41, p<.05), negative affect (r = .30, p<.05), and self-esteem (r = .30, p<.05). IPIP variability was significantly correlated with variability in positive affect (r = .26, p<.05), negative affect (r = .28, p<.05), and self-esteem (r = .27, p<.05). Finally, daily variability was significantly correlated with variability in positive affect (r = .65, p<.05), negative affect (r = .55, p<.05), and self-esteem (r = .55, p<.05). In other words, people who behaved in variable ways were also likely to experience variable levels of affect and have unstable levels of self-esteem. This suggests that bottom-up indexes of behavior variability are capturing meaningful individual differences, but that they are unrelated to top-down perceptions of self-consistency.

Discussion

In Study 2, people who described themselves differently across contexts also tended to give inconsistent responses on the IPIP. Although the correlation was somewhat weaker than in Study 1, bottom-up indexes of variability from these two measures appear to capture the same underlying construct. Furthermore, replicating

findings from Baird et al. (2006), global measures of personality variability were significantly correlated with changes in reports of ongoing behavior in the daily diary assessment. In other words, people who said that they tend to behave differently in different contexts also reported differences in their ongoing behavior across days.

On the surface, these findings seem to support the validity of bottom-up methods of measuring personality variability. However, each of these measures was also correlated with variability in reports of irrelevant phenomena. That is, people who gave variable reports of their own personalities also rated neutral objects in variable ways, described their friends differently across contexts, and gave inconsistent reports of the weather. When this response style was statistically controlled, the two global measures no longer predicted variability in daily reports and neither index was associated with substantive measures of self-consistency and well-being.

GENERAL DISCUSSION

The studies reported in this dissertation were designed to address four issues. First, personality variability may be a global trait that permeates multiple aspects of behavior. Therefore, I examined the relationships among trait-specific measures of variability to see whether these indexes could be explained by a single underlying factor. Second, the extent to which a person's personality varies across situations may be associated with his or her perceptions of variability. Therefore, I examined the relationships between bottom-up indexes and top-down measures of self-concept clarity and self-esteem stability. Third, intraindividual variability may have implications for outcomes related to psychosocial adjustment. Therefore, I tested the associations among various measures of personality variability and self-reports of relationship satisfaction and psychological health. Finally, bottom-up indexes of variability may be sensitive to unique response biases that arise when respondents are asked provide repeated self-reports of personality. Therefore, I compared scores on various bottom-up measures with variability in ratings of several unrelated phenomena.

Summary of Findings

In both studies, bottom-up indexes of trait-specific variability were significantly correlated with one another. In other words, people who reported varying in their levels of one trait also reported a great deal of variability in other traits. Furthermore, latent traits of bottom-up variability from two global measures were strongly related to one another. In Study 2, both of these global measures were significantly correlated with variability in daily reports of behavior. Taken at face value, these findings support theories that link intraindividual variability to a single underlying mechanism.

However, on the whole, bottom-up indexes were not associated with top-down ratings of self-consistency. In Study 1, neither of the global measures was correlated with self-concept clarity. In Study 2, bottom-up indexes from global measures were correlated with self-concept clarity and self-consistency, but in opposite directions, and daily variability was uncorrelated with the top-down measures. Finally, bottom-up measures were not reliably associated with well-being. In Study 1, neither of the global indexes was correlated with relationship satisfaction, whereas in Study 2, IPIP variability and Role variability were both correlated with psychological health, but in opposite directions. In other words, although trait-specific variability appears to be linked to a single underlying factor, this factor is not associated with inconsistency in the self-concept or with lower psychological health.

If bottom-up indexes are not correlated with measures of theoretical interest, then why are they so strongly related to one another? In Study 1, people who gave variable responses on self-report measures of personality also reported inconsistent levels of satisfaction with neutral objects and rated the personalities of cartoon characters in variable ways. In Study 2, people who described their own personalities in variable ways also described their friends' personalities in variable ways and gave variable reports of objective weather conditions. When the correlations with these irrelevant indexes were controlled, the relationships among bottom-up measures of personality variability were substantially reduced.

Implications

A number of theorists have argued that intraindividual variability is an important component of personality and some have even developed complex models to account for

the processes underlying it. Many of these models make clear predictions about relationships among multiple indicators of consistency. For instance, theories that link intraindividual variability to identity conflicts or to unstable self-concepts predict that multiple aspects of a person's behavior should be similarly unstable. Furthermore, these theories predict that the internal conflicts that lead people to behave inconsistently can be assessed by asking variable people direct questions about their self-conceptions. Finally, conflict theories also predict that personality variability should be associated with lower levels of psychological well-being.

In general, the results of these studies indicate that variability is a global trait, but this trait does not appear to be linked to underlying conflicts. Bottom-up indexes were not associated with self-concept clarity or with self-esteem stability, nor did they predict outcomes related to psychological health. In contrast, top-down measures were significantly correlated with both relationship satisfaction and well-being. A simple interpretation of these findings might be that variability in the self-concept is not related to variability in behavior, and that top-down measures tap into processes that are different than those captured by bottom-up measures. However, an alternative explanation is that the single factor that links bottom-up indexes is a response style, rather than a meaningful psychological process.

If bottom-up indexes are contaminated by response styles, then these methods of assessing personality variability may be inappropriate for tests of substantive hypotheses. Therefore, in order to understand the theoretical implications of these findings, it is important to consider what this response style represents. For instance, there may be meaningful individual differences in styles of information processing that lead to

differences in response consistency (Robinson, Goetz, Wilkowski, & Hoffman, 2006). In other words, the tendency to give variable responses may be related to rigidity or impulsivity in decision making. If so, then researchers may be able to use bottom-up indexes as indirect or implicit measures of personality (see also McGee, 1962). However, response consistency may also be tied to methodological factors that inflate the differences in a person's responses across items or on different measurement occasions. For instance, certain conversational norms of information sharing may lead people to respond in variable ways in order to avoid giving redundant information (Baird & Lucas, 2006). Therefore, future research must examine the factors that can account for individual differences in response consistency.

In their classic review, Fiske and Rice (1955) described different types of variability that may be important for psychological research. The first type, called spontaneous variability, occurs when a person behaves differently over time because of organic processes within the individual, such as fluctuations in hormone levels, blood pressure, or brain chemistry. The second type of variability, referred to as systematic variability, occurs when a person responds differently to the same stimulus over time because of prior repetitions of exposure-and-reaction to that stimulus. Finally, the third type of variability occurs because of changes in the stimulus itself or in the environment within which the stimulus is encountered. Although Fiske and Rice did not give this type of variability a name, it might be helpful to call it reactive variability because it reflects the influence of external factors on behavior. This framework provides a good foundation for variability research because it clearly differentiates among various aspects of personality variability that are theoretically meaningful. However, in practice, it may

be difficult to separate one type of variability from another.

To illustrate the differences among these types of variability, consider an example of a hypothetical participant from Study 2. On Monday, a person reports a high level of talkativeness and a low level of irritability, but then on Thursday he or she reports a low level of talkativeness and a high level of irritability. Why did the person's responses change? If the person was healthy on Monday, but then was sick on Thursday, the change in physical health might have contributed to differences in his or her behavior. This would be an example of spontaneous variability. If the person interacted with a friend on Monday and a family member on Thursday, then the differences in behavior could be attributed to differences in the social context. This would be an example of reactive variability. Finally, perhaps the person reported behaving differently on Thursday simply because he or she was asked the same set of questions on Monday. In other words, the process of responding to the same questions over and over again may have led the person to give different answers over time. This would be an example of systematic variability. As this example demonstrates, intraindividual variability may reflect a variety of processes, some of which are more relevant to personality theories than others.

For the most part, models of personality variability are based on the assumption that changes in self-reports reflect either spontaneous or reactive mechanisms. On one hand, psychophysiological models of temperament (Geen, 1997), which link behavior to biological processes, can be used to explain instances of spontaneous variability. For example, Larsen (1985) argued that circadian rhythms may contribute to changes in a person's personality over the course of a day. On the other hand, social-cognitive models

of personality, which link behavior to characteristic thoughts and beliefs about the environment, can be used to explain reactive variability. For example, in Mischel and Shoda's (1995) CAPS model, variability in behavior results from idiosyncratic ways of processing information about social situations. However, because both sets of theories are often tested using self-report methods, it is impossible to rule out the possibility that changes in reports of personality are the result of systematic variability.

Because of the increasing interest in intraindividual variability, response styles may have practical implications for other areas of research as well. For instance, researchers interested in self-esteem stability often ask people to give repeated reports of their self-esteem in order to see how much each person changes (Kernis, 2005). If bottom-up indexes of self-esteem stability are affected by response styles, then these measures may not correlate with top-down judgements. In addition, researchers interested in individual differences in the complexity of self-reported affect should be aware of the potential for response styles to impact indexes of emotional variability (Tugade, Fredrickson, & Barrett, 2004). In particular, people who tend to give variable answers may be likely to report large differences in their emotions, and this may lead to inaccurate estimates of variability.

Limitations and Future Directions

An important limitation of these studies is that they only include self-report methods of assessing personality variability. Although a great deal of previous research on personality variability has relied exclusively on similar measures, these findings may not generalize to alternative methods. For instance, it is possible that a different structure of trait-specific variability would emerge if personality was measured with observational

methods. Therefore, more studies should be done to compare variability in self-reports with systematic observations of behavioral variability (Schneiderman, 1980). This would help rule out response styles as an explanation for associations among indexes of variability in different traits.

In addition to observational methods, it is also important to compare self-reports of variability with variability in informant ratings of behavior. For instance, if a person reports behaving differently across roles, then people who know that person in those contexts should describe him or her in different ways. This may also allow for a more direct test of relationship outcomes. Perhaps disagreement between relationship partners about what a person's personality is like produces feelings of variability and lower relationship satisfaction without leading to variable behavior.

Finally, these studies are also limited to self-reports that are made over relatively short periods of time. In other words, it is important to investigate how response styles might impact measures of variability that are based on longer measurement intervals. For instance, it is possible that the response styles that impact short-term variability estimates can help explain certain effects of instrumentation that have been documented in longitudinal panel studies. Therefore, future research should incorporate measures of short-term variability with measures of developmental changes in personality that occur across the life span.

CONCLUSION

Theories that can account for intraindividual variability hold great promise for personality psychology (Fleeson & Jolley, 2006), but in order to capitalize on this potential, researchers must continue to refine their methods and consider alternative explanations for their findings. In other words, individual differences in response consistency are likely to reflect a combination of factors, and some of these mechanisms may be irrelevant to personality. Therefore, perhaps the greatest challenge is to separate meaningful response variability from measurement unreliability.

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FOOTNOTES

1. Although the items on these scales exhibit high levels of internal consistency across individuals, it is still possible for individuals to differ from one another in the extent that their responses change across items (McFarland & Sparks, 1985).

2. According to meteorological records downloaded from Accuweather.com, average daily precipitation was less than a tenth of an inch during the two week period, and no rainfall was recorded on 10 of the days. High temperatures ranged from 38 to 81 degrees ($M = 63$, $SD = 12.48$), but only five days had high temperatures that were beyond one standard deviation of the mean. Finally, average daily wind speeds ranged from 4.50 to 15.50 mph ($M = 9.85$, $SD = 3.44$), but winds on nine days were within one standard deviation of the mean.

3. Because variability in daily reports was not associated with self-consistency or well-being in previous models, this index was removed from these analyses. However, models that included daily variability indicated that response style had no impact on these associations, and findings for the global indexes were nearly identical.

Table 1. *Bivariate correlations among indexes of personality variability, response style, and relationship satisfaction (Study 1).*

Measure	1	2	3	4	5	6
1. IPIP	.--					
2. Contextual	.54*	.--				
3. Simpsons	.43*	.45*	.--			
4. Neutral objects	.40*	.47*	.47*	.--		
5. Self-consistency	-.01	-.11	.00	.01	.--	
6. Satisfaction	.04	.01	.16*	.17*	.45*	.--

Note. IPIP = average of corrected trait-specific variability indexes across IPIP items; Contextual = average of corrected trait-specific variability indexes across roles; Simpsons = corrected cross-character standard deviation; Neutral objects = corrected cross-item variability from ratings of neutral objects; Self-consistency = mean score on the self-concept clarity scale; Satisfaction = means score on the measure of satisfaction with relationships. *p<.05; *N*=149.

Table 2. *Means and standard deviations of well-being measures (Study 2).*

Measure	*M*	*SD*
Positive Affect	3.69	.60
Negative Affect	2.22	.63
Self-esteem	3.88	.72
Depression	1.79	.48
Optimism	3.61	.60
Anxiety	2.08	.51

Table 3. *Bivariate correlations among indexes of personality variability and response style (Study 2).*

Measure	1	2	3	4	5	6	7	8
1. IPIP	.--							
2. Contextual	.47*	.--						
3. Daily	.44*	.57*	.--					
4. Neutral objects	.46*	.40*	.34*	.--				
5. Friend ratings	.35*	.59*	.47*	.33*	.--			
6. Weather reports	.16*	.15*	.23*	.11	.17*	.--		
7. Self-consistency	.09	-.15*	-.10	.05	-.02	.04	.--	
8. Self-stability	.03	-.13	-.15*	.06	-.06	.02	.64*	.--

Note. IPIP = average of corrected trait-specific variability indexes across IPIP items; Contextual = average of corrected trait-specific variability indexes across roles; Daily = average of corrected trait-specific variability indexes across days; Neutral Objects = corrected cross-item variability from ratings of neutral objects; Friend ratings = average of corrected cross-context standard deviations from descriptions of a friend; Weather = corrected cross-day standard deviation in reports of weather conditions; Self-consistency = mean score on the self-concept clarity scale; Self-stability = mean score on the self-esteem stability scale. *p<.05; N=203.

Figure 1. *Latent-trait model of variability (Study 1).*

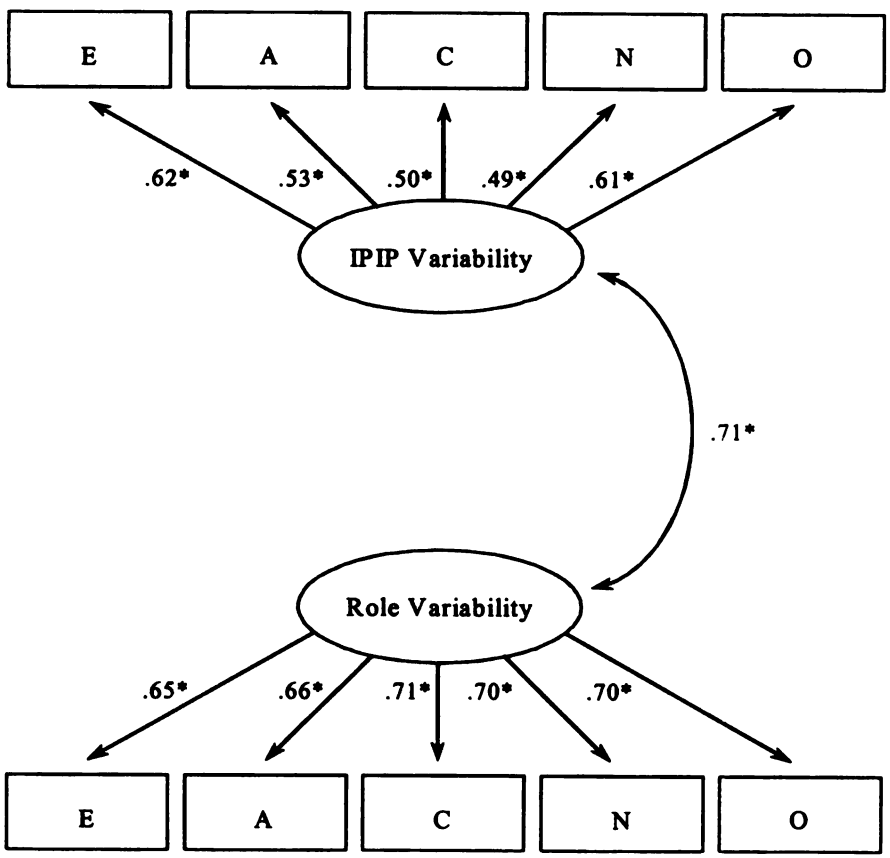


Figure 2. *Path diagram of relationships among latent variability factors and self-concept clarity (Study 1).*

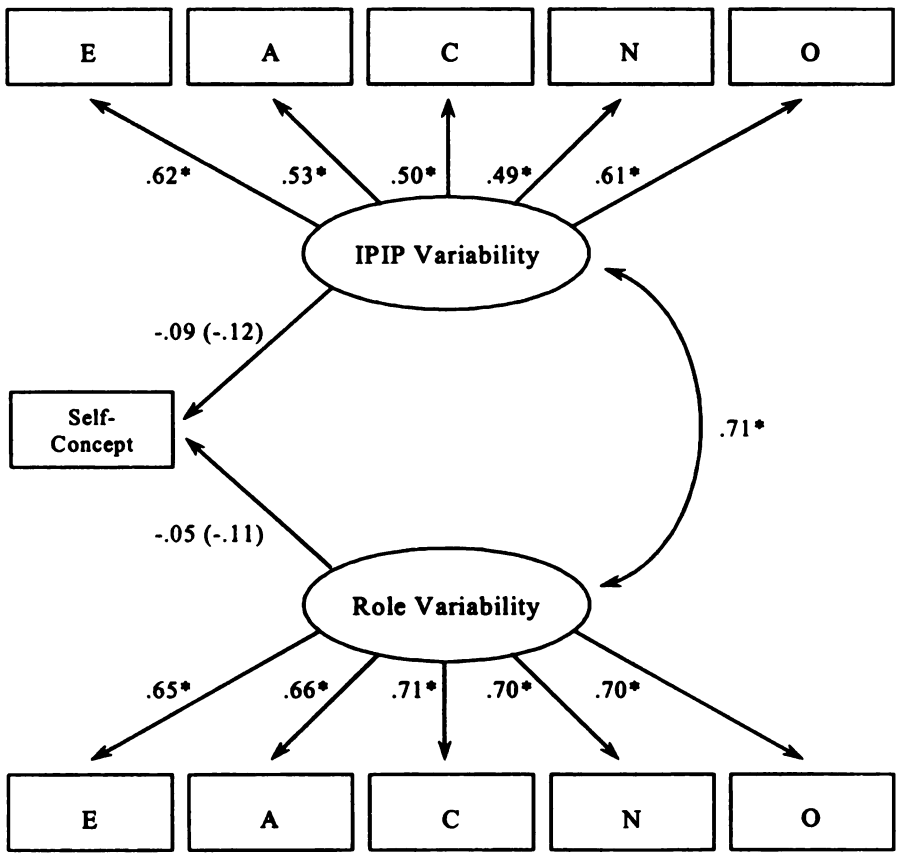


Figure 3. *Path diagram of relationships among latent variability factors and relationship satisfaction (Study 1).*

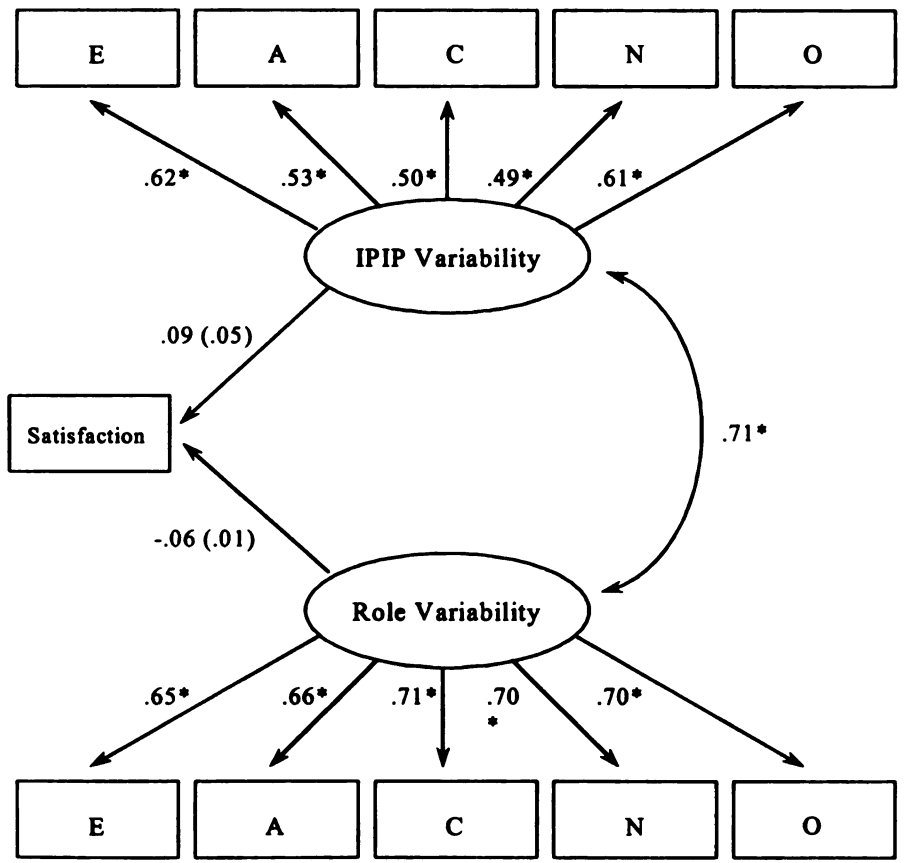


Figure 4. *Latent-trait model of variability and response style (Study 1).*

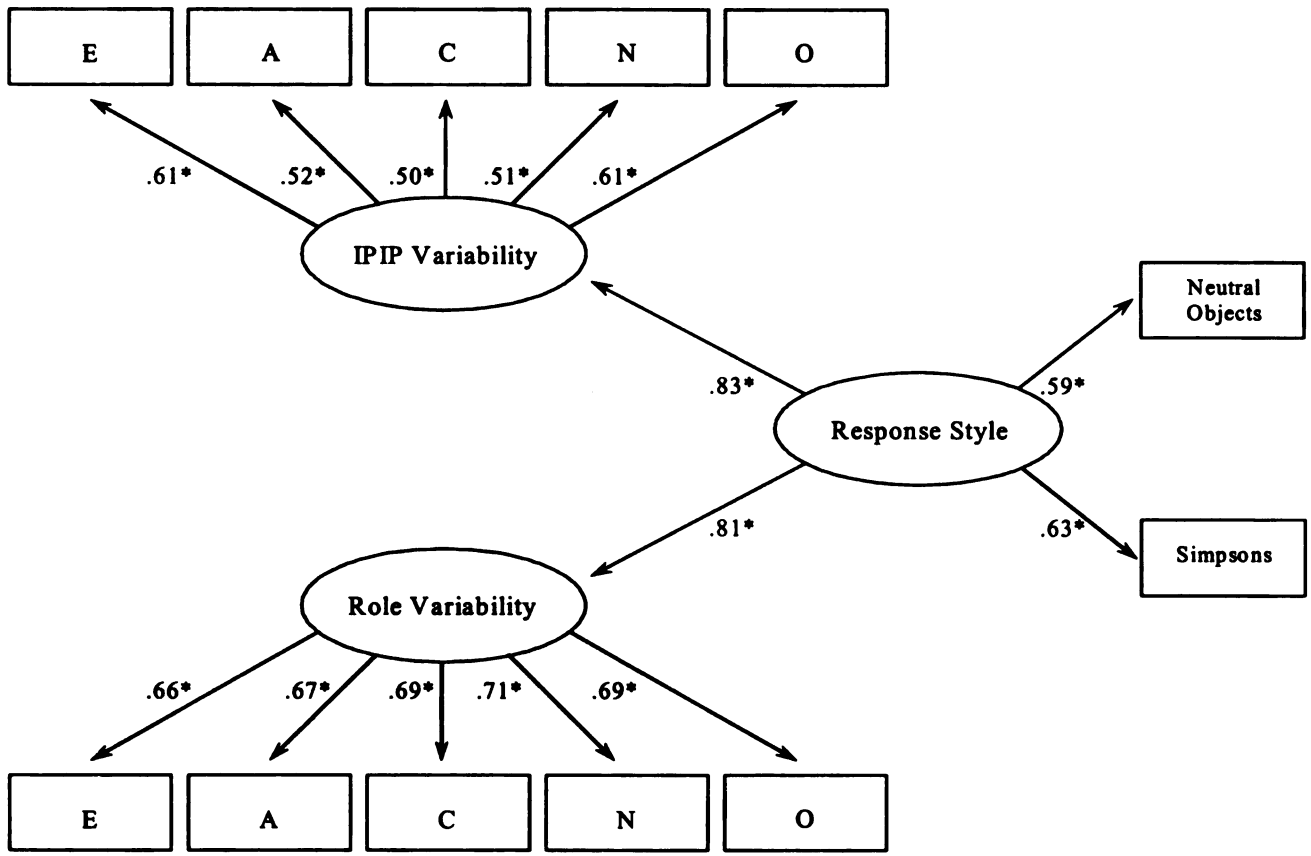


Figure 5. *Path diagram of relationships among latent variability factors, self-concept clarity, and response style (Study 1).*

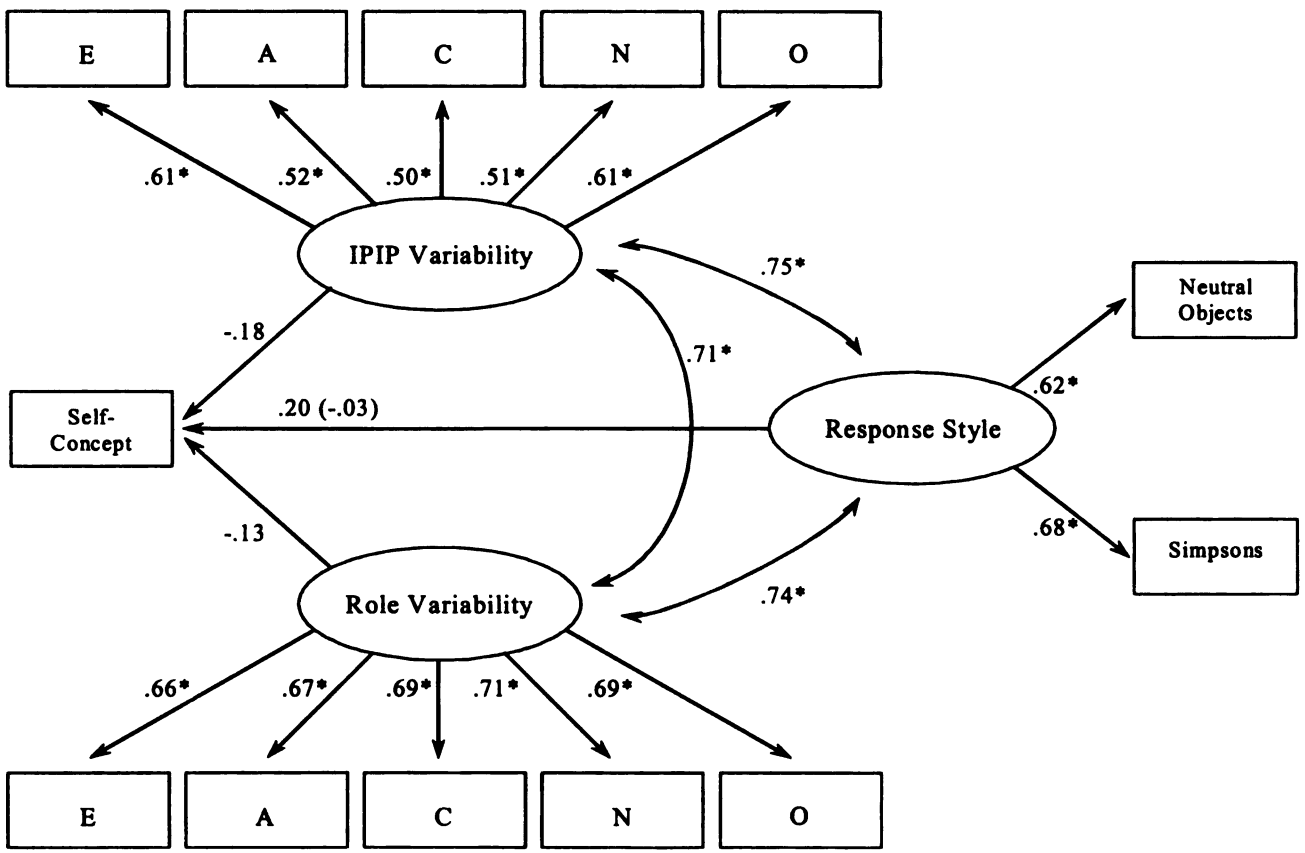


Figure 6. *Path diagram of relationships among latent variability factors, relationship satisfaction, and response style (Study 1).*

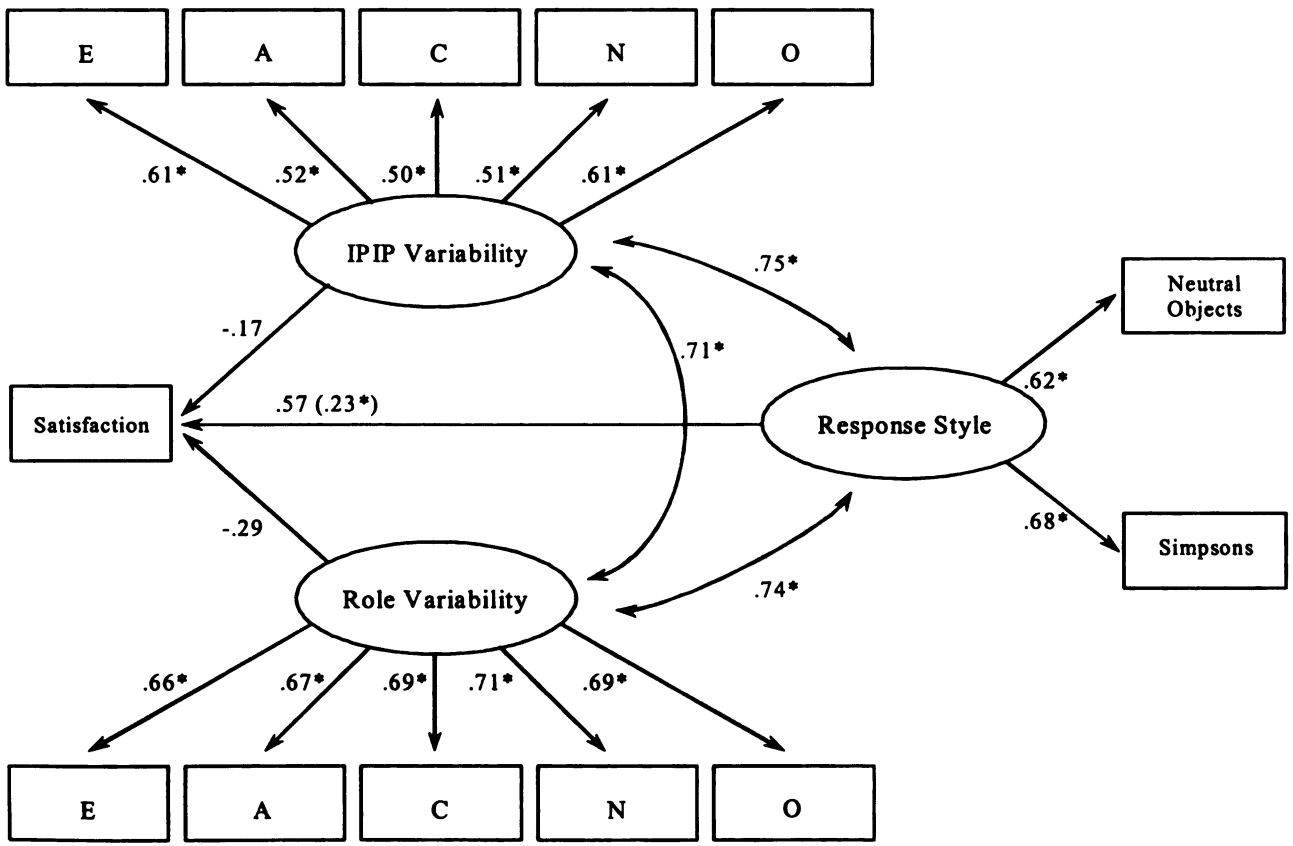


Figure 7. *Latent-trait model of bottom-up variability from global and daily reports (Study 2).*

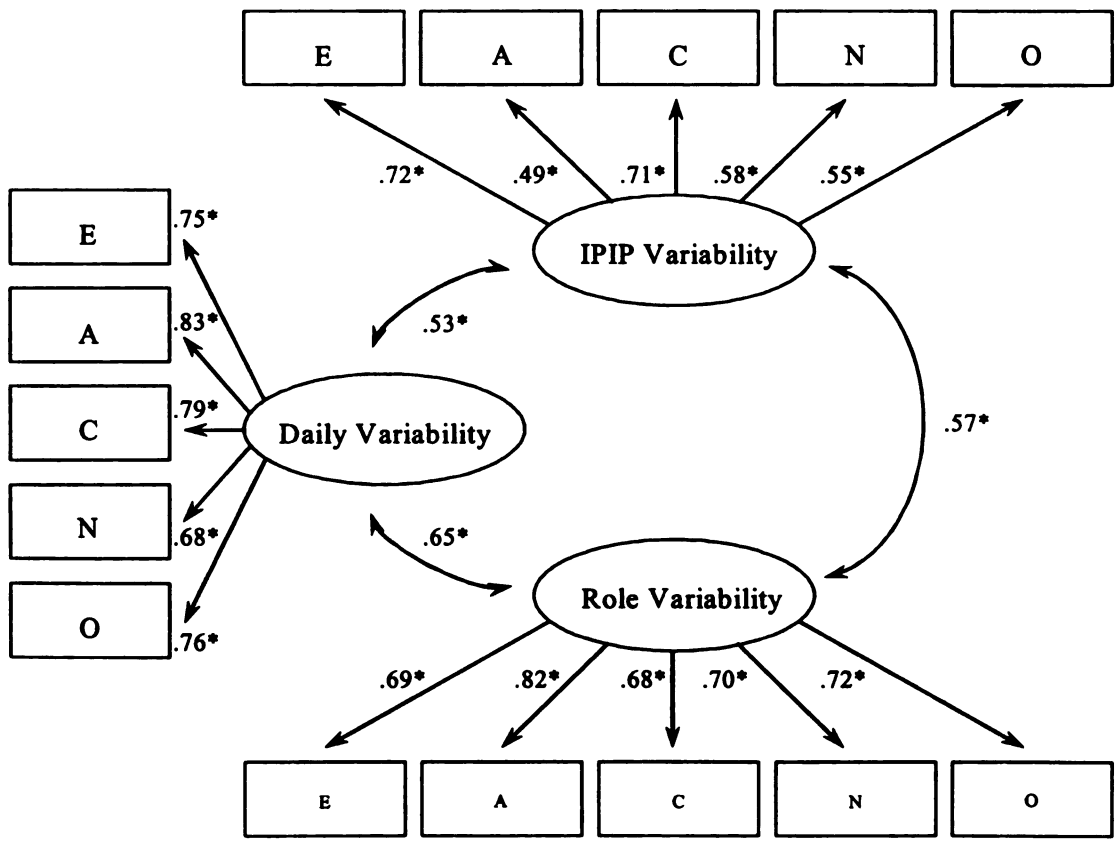


Figure 8. *Path diagram of relationships among latent factors of bottom-up variability and self-consistency (Study 2).*

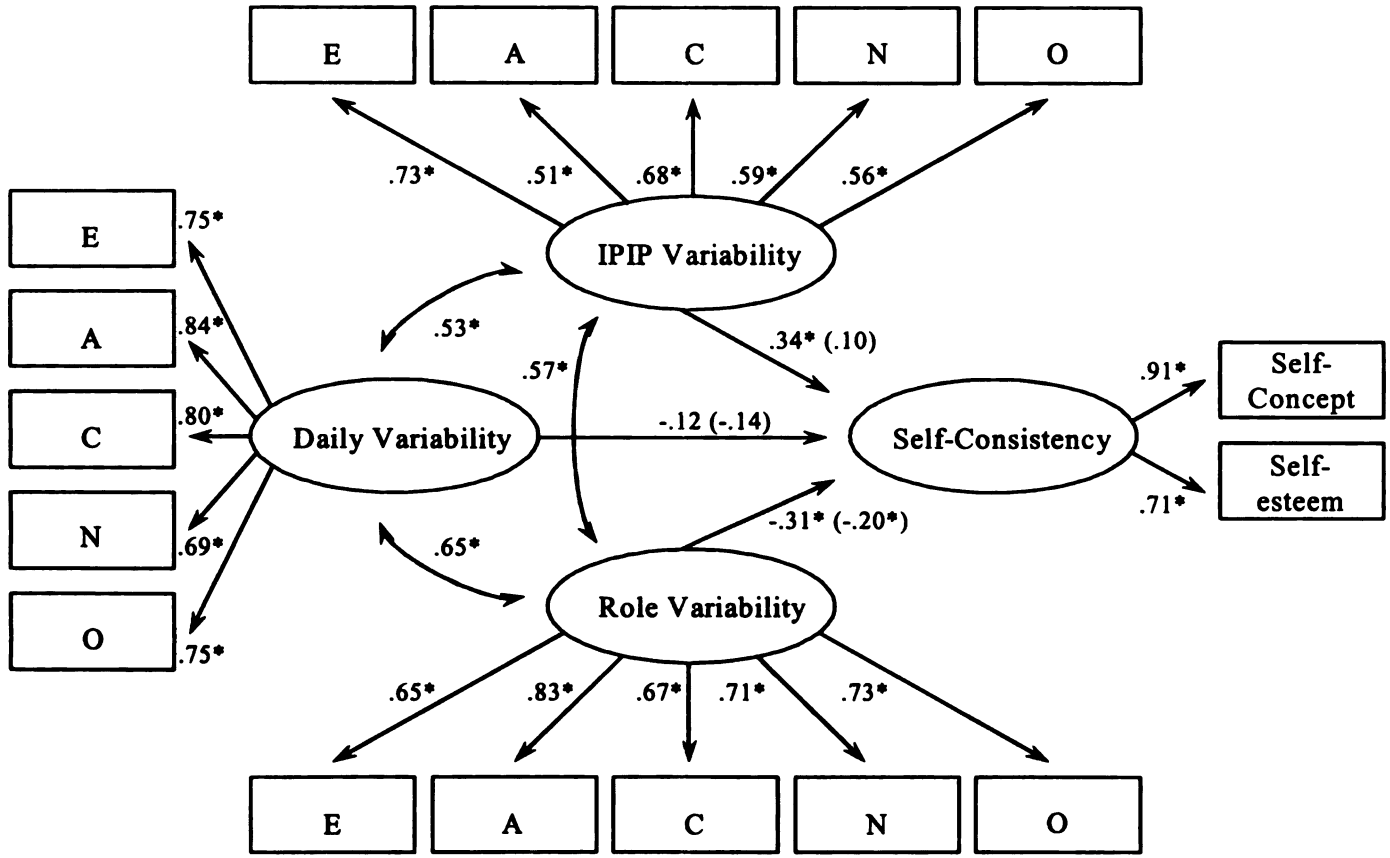


Figure 9. *Path diagram of relationships among latent factors of bottom-up variability and psychological health (Study 2).*

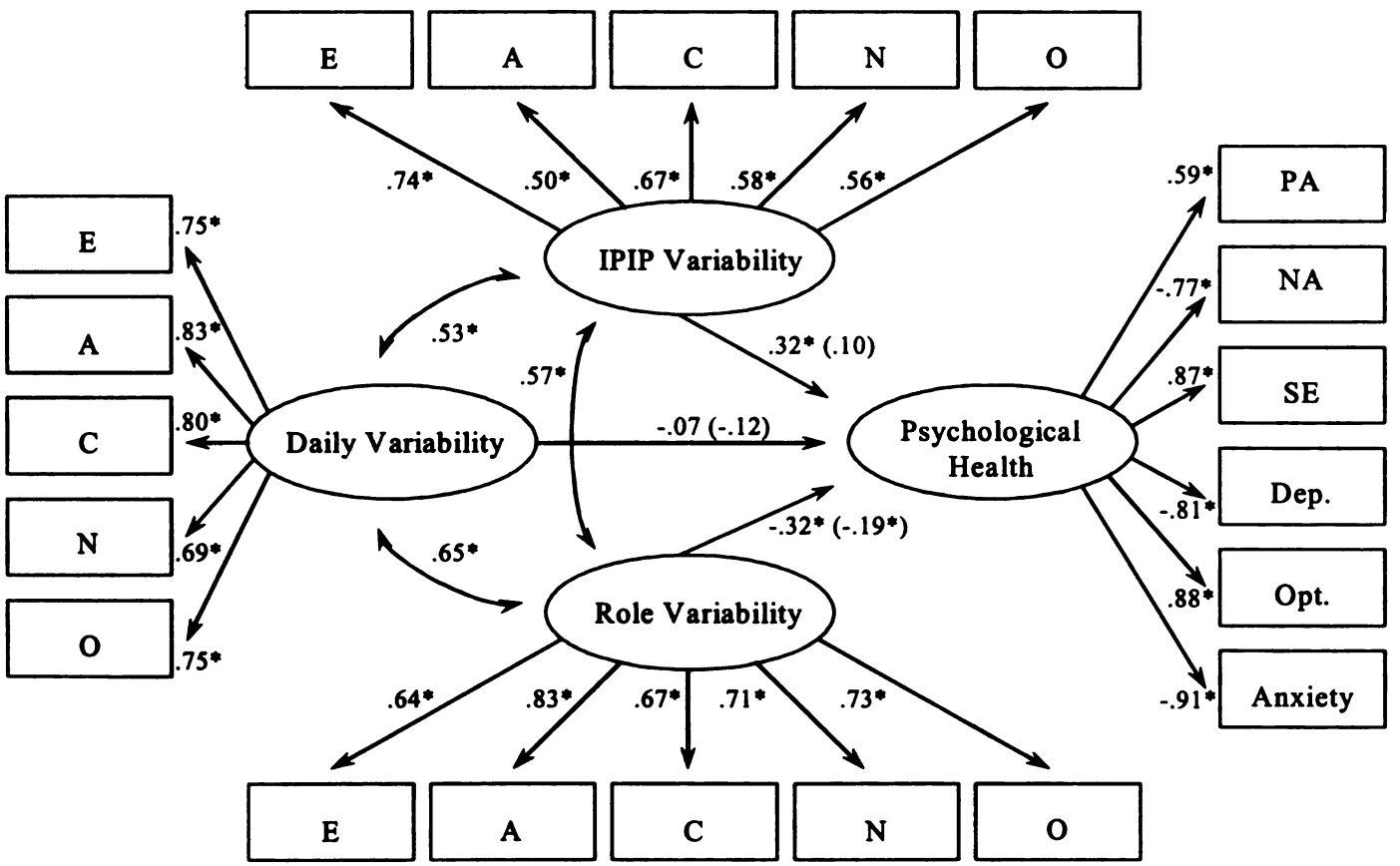


Figure 10. *Latent-trait model of variability and response style (Study 2).*

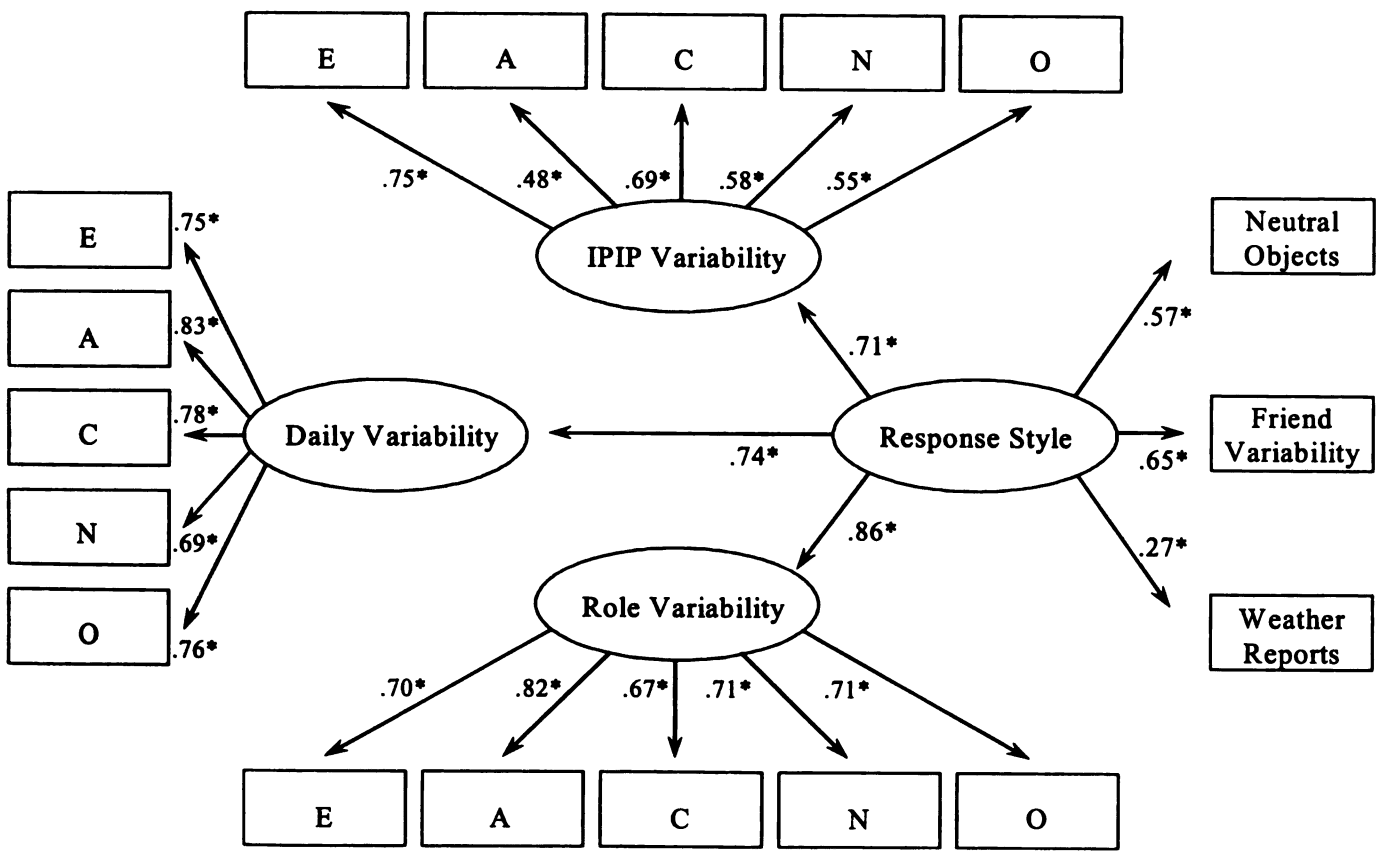


Figure 11. *Path diagram of relationships among latent factors of bottom-up variability and response style (Study 2).*

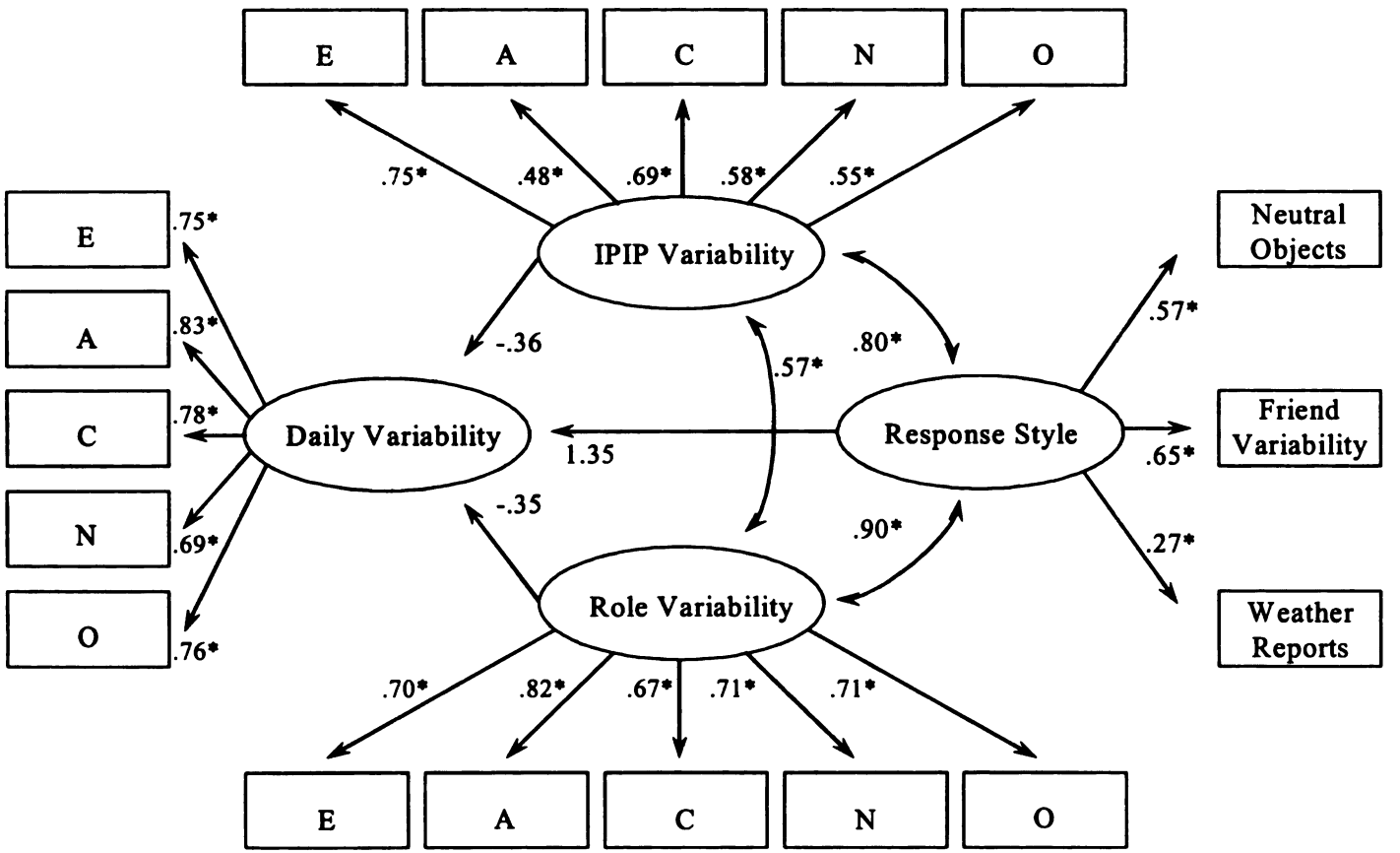


Figure 12. *Path diagram of relationships among latent factors of bottom-up variability, self-consistency, and response style (Study 2).*

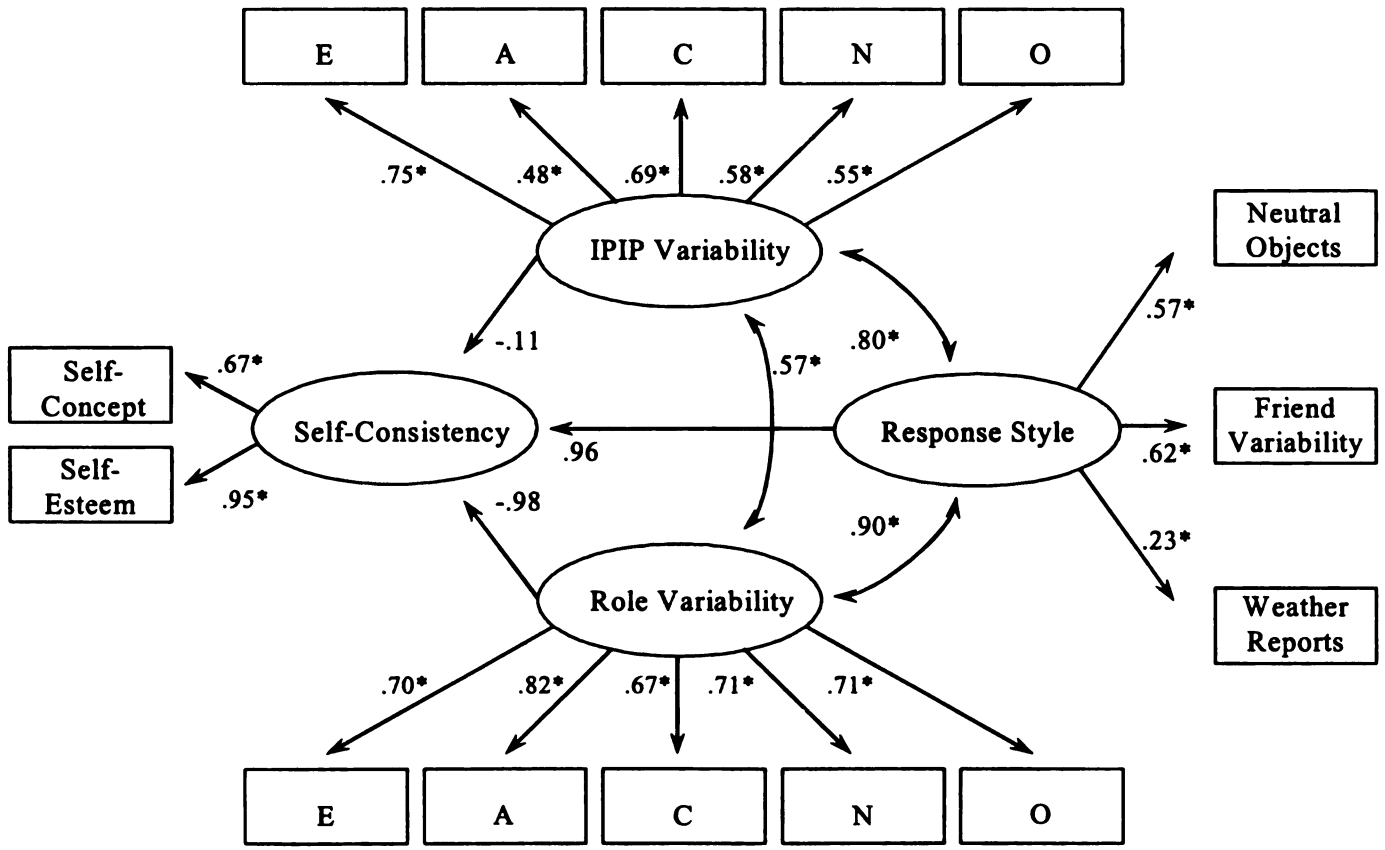
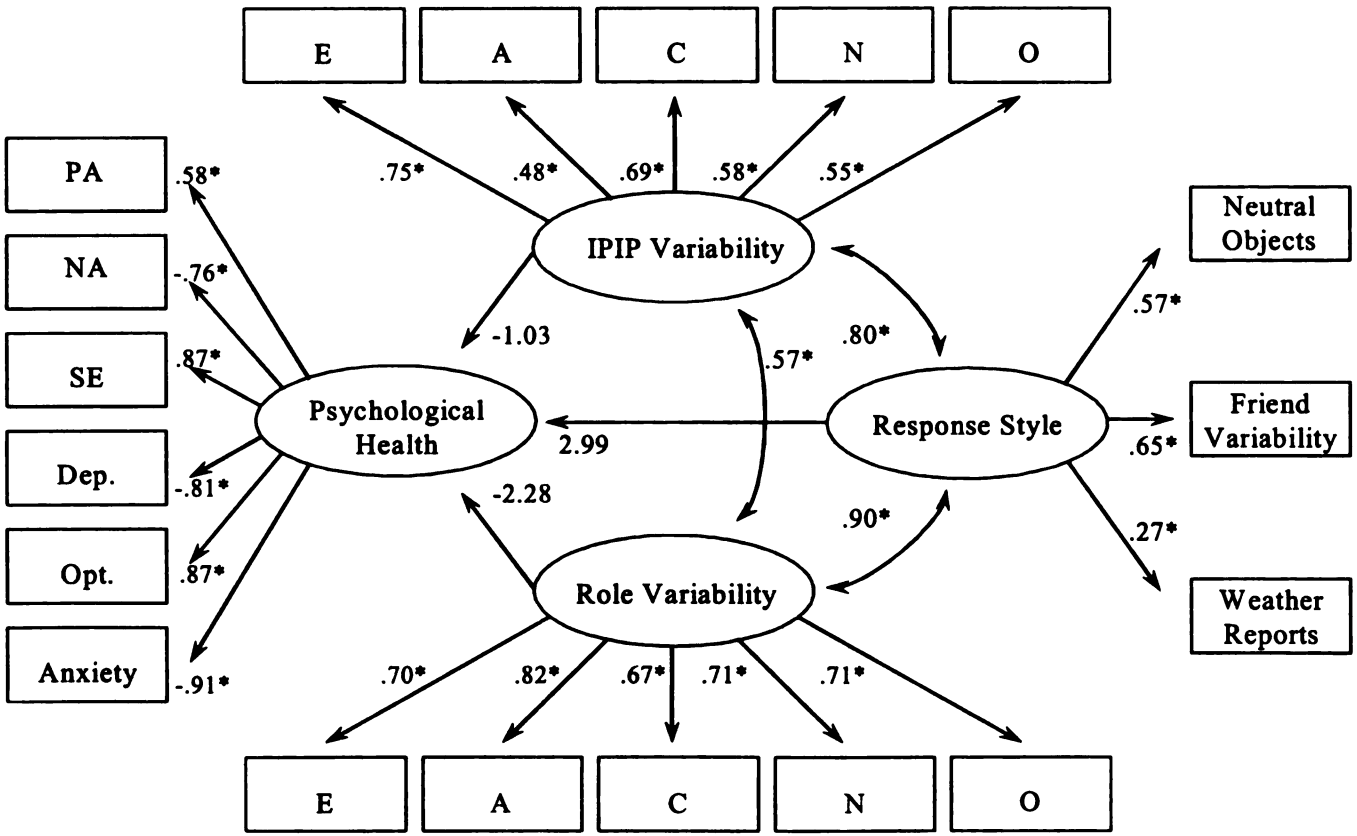


Figure 13. *Path diagram of relationships among latent factors of bottom-up variability, well-being, and response style (Study 2).*



APPENDICES

Appendix A. *Self-Concept Clarity Scale.*

Please indicate the degree to which you agree or disagree with the following statements using the scale below.

Scale:
1 – Strongly disagree
2 – Slightly disagree
3 – Neither disagree nor agree
4 – Slightly agree
5 – Strongly agree

1. My beliefs about myself often conflict with one another.
2. On one day I might have one opinion of myself and on another day I might have a different opinion.
3. I spend a lot of time wondering about what kind of person I really am.
4. Sometimes I feel that I am not really the person that I appear to be.
5. When I think about the kind of person I have been in the past, I'm not sure what I was really like.
6. I seldom experience conflict between the different aspects of my personality.
7. Sometimes I think I know other people better than I know myself.
8. My beliefs about myself seem to change very frequently.
9. If I were asked to describe my personality, my description might end up being different from one day to another day.
10. Even if I wanted to, I don't think I could tell someone what I'm really like.
11. In general, I have a clear sense of who I am and what I am.
12. It is often hard for me to make up my mind about things because I don't really know what I want.

Appendix B. *Relationship satisfaction measure.*

1 – Strongly disagree
2 – Somewhat disagree
3 – Neutral
4 – Somewhat agree
5 – Strongly agree

1. I feel understood by my friends.
2. I am able to be open with my friends.
3. My friends convey confidence in me.
4. I feel that my friends accept me.
5. I feel a lot of trust in my friends.
6. I feel that my friends care about me as a person.
7. I don't feel very good about the way my friends talk to me.
8. I feel able to share my feelings with my friends.
9. I am satisfied with my relationships with friends.

10. I feel understood by my family.
11. I am able to be open with my family.
12. My family convey confidence in me.
13. I feel that my family accept me.
14. I feel a lot of trust in my family.
15. I feel that my family care about me as a person.
16. I don't feel very good about the way my family talk to me.
17. I feel able to share my feelings with my family.
18. I am satisfied with my relationships with family.

Appendix C. *Stability of Self Scale.*

1. Does your opinion of yourself tend to change a good deal, or does it always continue to remain the same?
   1) Changes a great deal.
   2) Changes somewhat
   3) Changes very little
   4) Does not change at all

2. Do you ever find that on one day you have one opinion of yourself and on another day you have a different opinion?
   1) Yes, this happens often
   2) Yes, this happens sometimes
   3) Yes, this rarely happens
   4) No, this never happens

3. I have noticed that my ideas about myself seem to change very quickly.
   1) Agree
   2) Disagree

4. Some days I have a very good opinion of myself; other days I have a very poor opinion of myself.
   1) Agree
   2) Disagree

5. I feel that nothing, or almost nothing, can change the opinion I currently hold about myself.
   1) Agree
   2) Disagree

Appendix D. *Self-concept Differentiation Scale.*

Below is a list of adjectives that can be used to describe people. We would like you to think about how you see yourself when you are with friends. For each of the following adjectives, using the scale below, please indicate how each describes you when you are **BEING A FRIEND**.

SCALE:
1 – Does not describe me
2 – Describes me a little
3 – Describes me moderately
4 – Describes me well
5 – Describes me very well

1. Talkative
2. Cooperative
3. Organized
4. Irritable
5. Intelligent
6. Assertive
7. Rude
8. Hardworking
9. Optimistic
10. Inquisitive
11. Adventurous
12. Caring
13. Responsible
14. Insecure
15. Creative

Next we would like you to think about how you see yourself when you are with a romantic partner. For each of the following adjectives, using the scale below, please indicate how each describes you when you are **BEING A ROMANTIC PARTNER**.

SCALE:
1 – Does not describe me
2 – Describes me a little
3 – Describes me moderately
4 – Describes me well
5 – Describes me very well

1. Talkative
2. Cooperative
3. Organized
4. Irritable
5. Intelligent
6. Assertive
7. Rude
8. Hardworking
9. Optimistic
10. Inquisitive
11. Adventurous
12. Caring
13. Responsible
14. Insecure
15. Creative

Next we would like you to think about how you see yourself when you are with family members. For each of the following adjectives, using the scale below, please indicate how each describes you when you are **BEING A FAMILY MEMBER.**

SCALE:
1 – Does not describe me
2 – Describes me a little
3 – Describes me moderately
4 – Describes me well
5 – Describes me very well

1. Talkative
2. Cooperative
3. Organized
4. Irritable
5. Intelligent
6. Assertive
7. Rude
8. Hardworking
9. Optimistic
10. Inquisitive
11. Adventurous
12. Caring
13. Responsible
14. Insecure
15. Creative

Next we would like you to think about how you see yourself when you are being a student. For each of the following adjectives, using the scale below, please indicate how each describes you when you are **BEING A STUDENT**.

SCALE:
1 – Does not describe me
2 – Describes me a little
3 – Describes me moderately
4 – Describes me well
5 – Describes me very well

1. Talkative
2. Cooperative
3. Organized
4. Irritable
5. Intelligent
6. Assertive
7. Rude
8. Hardworking
9. Optimistic
10. Inquisitive
11. Adventurous
12. Caring
13. Responsible
14. Insecure
15. Creative

Appendix E. *Daily Questionnaire.*

1. How sunny is it today?
    1.) Not sunny at all
    2.) A little sunny
    3.) Moderately sunny
    4.) Mostly sunny
    5.) Very sunny

2. How cold is it today?
    1.) Not cold at all
    2.) A little cold
    3.) Moderately cold
    4.) Fairly cold
    5.) Very cold

3. How windy is it today?
    1.) Not windy at all
    2.) A little windy
    3.) Moderately windy
    4.) Fairly windy
    5.) Very windy

For the following adjectives, please indicate how well each describes how you have been today.

1 – Does not describe me
2 – Describes me a little
3 – Describes me moderately
4 – Describes me well
5 – Describes me very well

1. Talkative
2. Cooperative
3. Organized
4. Irritable
5. Energetic
6. Insecure
7. Rude
8. Inquisitive
9. Responsible
10. Creative

Please indicate how much you felt each of the following emotions today.

1 – None at all
2 – Less than usual
3 – No more than usual
4 – More than usual
5 – A lot more than usual

1. Affection
2. Joy
3. Anger
4. Shame
5. Sadness
6. Love
7. Worry
8. Guilt
9. Loneliness
10. Contentment
11. Disgust
12. Nervousness
13. Amusement
14. Interest

Appendix F. *50-Item IPIP Scale.*

On this page, there are phrases describing people's behaviors. Please use the rating scale below to describe how accurately each statement describes you. Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself in relation to other people you know of the same sex as you are, and roughly your same age. Please read each statement carefully, and then fill in the bubble on the scantron that corresponds to the number on the scale.

SCALE:
1 – Very Inaccurate
2 – Moderately Inaccurate
3 – Neither Inaccurate nor Accurate
4 – Moderately Accurate
5 – Very Accurate

1. Am the life of the party.
2. Feel little concern for others.
3. Am always prepared.
4. Get stressed out easily.
5. Have a rich vocabulary.
6. Don't talk a lot.
7. Am interested in people.
8. Leave my belongings around.
9. Am relaxed most of the time.
10. Have difficulty understanding abstract ideas.
11. Feel comfortable around people.
12. Insult people.
13. Pay attention to details.
14. Worry about things.
15. Have a vivid imagination.
16. Keep in the background.
17. Sympathize with others' feelings.
18. Make a mess of things.
19. Seldom feel blue.
20. Am not interested in abstract ideas.
21. Start conversations.
22. Am not interested in other people's problems.
23. Get chores done right away.
24. Am easily disturbed.
25. Have excellent ideas.
26. Have little to say.
27. Have a soft heart.
28. Often forget to put things back in their proper place.
29. Get upset easily.
30. Do not have a good imagination.
31. Talk to a lot of different people at parties.
32. Am not really interested in others.
33. Like order.
34. Change my mood a lot.
35. Am quick to understand things.
36. Don't like to draw attention to myself.
37. Take time out for others.
38. Shirk my duties.
39. Have frequent mood swings.
40. Use difficult words.
41. Don't mind being the center of attention.
42. Feel others' emotions.
43. Follow a schedule.
44. Get irritated easily.
45. Spend time reflecting on things.
46. Am quiet around strangers.
47. Make people feel at ease.
48. Am exacting in my work.
49. Often feel blue.
50. Am full of ideas.

Appendix G. *Intensity and Time Affect Survey.*

Next, we want to know how you feel in general, that is on average. To what extent do you experience each of the following emotions in general?

SCALE:
1 – Very slightly or not at all
2 – A little
3 – Moderately
4 – Quite a bit
5 – Extremely

1. Affection
2. Joy
3. Fear
4. Anger
5. Shame
6. Sadness
7. Love
8. Happiness
9. Worry
10. Irritation
11. Guilt
12. Loneliness
13. Caring
14. Contentment
15. Anxiety
16. Disgust
17. Regret
18. Unhappiness
19. Fondness
20. Pride
21. Nervous
22. Rage
23. Embarrassment
24. Depression

Appendix H. *Neutral Objects Questionnaire.*

Please indicate the response that best represents your feelings about the following items.

Scale:
1 – Very Dissatisfied
2 – Somewhat Dissatisfied
3 – Neutral
4 – Somewhat Satisfied
5 – Very Satisfied

1. The city in which you live.
2. The residence where you live.
3. The neighbors you have.
4. The high school you attended.
5. The climate where you live.
6. The movies being produced today.
7. The quality of food you buy.
8. Today's cars.
9. Local newspapers.
10. Your relaxation time.
11. Your first name.
12. The people you know.
13. Television programs.
14. Local speed limits.
15. The way people drive.
16. Advertising.
17. The way you were raised.
18. Telephone service.
19. Public Transportation.
20. Restaurant food.
21. Yourself
22. Modern art.
23. Popular music.
24. 8 ½" x 11" paper
25. Your telephone number.

Appendix I. *Global Self-Esteem (*) and Optimism.*

Listed below are a number of statements concerning how you may see yourself. Please read each item and use the scale below to rate how well each statement describes you. Fill in the appropriate circle to indicate your response:

1 – Does not describe me
2 – Describes me a little
3 – Describes me moderately
4 – Describes me well
5 – Describes me very well

1. I feel that I am a person of worth, at least on an equal basis with others.*
2. I feel that I have a number of good qualities.*
3. In uncertain times, I usually expect the best.
4. It's easy for me to relax.
5. All in all, I am inclined to feel that I am a failure.*
6. If something can go wrong for me, it will.
7. I am able to do things as well as most other people.*
8. I'm always optimistic about my future.
9. I feel I do not have much to be proud of. *
10. I wish I could have more respect for myself.*
11. On the whole, I am satisfied with myself.*
12. I enjoy my friends a lot.
13. It's important for me to keep busy.
14. I take a positive attitude toward myself.*
15. I hardly ever expect things to go my way.
16. I certainly feel useless at times.*
17. I don't get upset too easily.
18. I rarely count on good things happening to me.
19. Overall, I expect more good things to happen to me than bad.
20. At times, I think I am no good at all.*

Appendix J. *Depression Scale.*

How often you felt or behaved this way during the past week.

0 – Rarely/None
1 – Some or a Little of the Time
2 – A lot of the Time
3 – Most of the Time

1. I was bothered by things that usually don't bother me.
2. I felt that I could not shake off the blues even with the help of my friends or family.
3. I felt that I was just as good as other people.
4. I had trouble keeping my mind on what I was doing.
5. I felt that everything I did was an effort.
6. I felt hopeful about the future.
7. I felt my life had been a failure.
8. I felt fearful.
9. People were unfriendly.
10. I felt lonely.

Appendix K. *Anxiety Scale.*

A number of statements which people have used to describe themselves are given below. Read each statement and then select the appropriate number to indicate how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

1 – Almost never
2 – Sometimes
3 – Often
4 – Almost always

1. I feel pleasant
2. I tire quickly
3. I feel like crying
4. I wish I could be as happy as others seem to be
5. I am losing out on things because I can't make up my mind soon enough
6. I feel rested
7. I am "calm, cool, and collected"
8. I feel that difficulties are piling up so that I cannot overcome them
9. I worry too much over something that really doesn't matter
10. I am happy
11. I am inclined to take things hard
12. I lack self-confidence
13. I feel secure
14. I try to avoid facing a crisis or difficulty
15. I feel blue
16. I am content
17. Some unimportant thought runs through my mind and bothers me
18. I take disappointments so keenly that I can't put them out of my mind
19. I am a steady person
20. I become tense and upset when I think about my present concerns

Appendix L. *Personality ratings of the Simpsons.*

For the following individuals, please use the rating scale to indicate how well you think each adjective describes him or her:

1 – Does not describe this person
2 – Describes this person a little
3 – Describes this person moderately
4 – Describes this person well
5 – Describes this person very well

Bart Simpson

1. Energetic
2. Trustful
3. Dependable
4. Vulnerable
5. Philosophical
6. Talkative
7. Cooperative
8. Organized
9. Irritable
10. Intelligent

Lisa Simpson

1. Energetic
2. Trustful
3. Dependable
4. Vulnerable
5. Philosophical
6. Talkative
7. Cooperative
8. Organized
9. Irritable
10. Intelligent

Homer Simpson

1. Energetic
2. Trustful
3. Dependable
4. Vulnerable
5. Philosophical
6. Talkative
7. Cooperative
8. Organized
9. Irritable
10. Intelligent

Marge Simpson

1. Energetic
2. Trustful
3. Dependable
4. Vulnerable
5. Philosophical
6. Talkative
7. Cooperative
8. Organized
9. Irritable
10. Intelligent

Appendix M. *Variability of a friend across contexts.*

Below is a list of adjectives that can be used to describe people. We would like you to think a person that you know well. This person should be a close friend with whom you feel close. For each of the following adjectives, using the scale below, please indicate how each describes your friend **IN GENERAL.**

SCALE:
1 – Does not describe him or her
2 – Describes him or her a little
3 – Describes him or her moderately
4 – Describes him or her well
5 – Describes him or her very well

1. Energetic
2. Trustful
3. Dependable
4. Vulnerable
5. Philosophical

Next we would like you to think about how you see your friend when he or she is at work or at a job. For each of the following adjectives, using the scale below, please indicate how each describes your friend when he or she is **BEING A WORKER.**

1. Energetic
2. Trustful
3. Dependable
4. Vulnerable
5. Philosophical

Next we would like you to think about how you see your friend when he or she is with people that he or she doesn't know. For each of the following adjectives, using the scale below, please indicate how each describes your friend when he or she is **BEING A STRANGER.**

1. Energetic
2. Trustful
3. Dependable
4. Vulnerable
5. Philosophical