

VARIABILITY IN RELATIONSHIP COMMITMENT AND ITS CORRELATES

A Dissertation

Presented to

The Faculty of the Department

of Psychology

University of Houston

In Partial Fulfillment

Of the Requirements for the Degree of

Doctor of Philosophy

By

Bennett W. Porter

August, 2013

VARIABILITY IN RELATIONSHIP COMMITMENT AND ITS CORRELATES

Bennett W. Porter

APPROVED:

C. Raymond Knee, Ph.D.
Committee Chair

Paras Mehta, Ph.D.

Linda Acitelli, Ph.D.

Whitney Heppner, Ph.D.

John W. Roberts, Ph.D.
Dean, College of Liberal Arts and Social Sciences
Department of English

VARIABILITY IN RELATIONSHIP COMMITMENT AND ITS CORRELATES

An Abstract of a Dissertation

Presented to

The Faculty of the Department

of Psychology

University of Houston

In Partial Fulfillment

Of the Requirements for the Degree of

Doctor of Philosophy

By

Bennett W. Porter

August, 2013

ABSTRACT

Variability in relationship commitment describes how individuals experience different amounts of change from day to day in their commitment to their relationship and their partner. Only a few studies have examined variability in relationship commitment prior to the current dissertation. The current dissertation examined variability in relationship commitment using two studies and four measures of variability in relationship commitment (observed, self-reported, situational, and interitem). The first study created multiple cross-sectional measures of variability in relationship commitment (self-reported and situational). Associations between all four measures of variability in relationship commitment and associated concepts were examined. Self-reported variability performed as expected. Situational and interitem variability in relationship commitment did not. The second study examined observed and interitem variability in relationship commitment within a dyadic context. Observed variability in relationship commitment performed as expected for both men and women and interitem variability in relationship commitment only performed as expected for men.

TABLE OF CONTENTS

	Page
I. ABSTRACT.....	iv
II. TABLE OF CONTENTS.....	v
III. LIST OF TABLES.....	vii
IV. LIST OF FIGURES.....	viii
V. INTRODUCTION.....	1
a. Definition of Terms.....	2
b. Importance of Variability.....	5
c. Variability in Romantic Commitment.....	8
d. The Importance of Partners in Relationships.....	15
e. Measurement of Variability in Relationship Commitment.....	17
f. Associations with Other Constructs.....	24
g. Overview of the Present Research.....	30
VI. STUDY 1.....	32
a. Methods.....	34
b. Data Analysis Plan.....	40
c. Results.....	44
d. Discussion.....	59
VII. STUDY 2.....	63
a. Methods.....	64
b. Data Analysis Plan.....	68
c. Results.....	70
d. Discussion.....	79
VIII. GENERAL CONCLUSIONS.....	81

a. Limitations and Future Directions.....	83
IX. REFERENCES.....	86
X. APPENDICES.....	97

List of Tables

Study 1

Means and Standard Deviations of Situations	45
Eigenvalues for EFA for Situational VRC Scale	46
Item Loadings for Optimal Rotation for Situational VRC Scale	46
Eigenvalues for EFA for Self-Reported VRC Scale	47
Item Loadings for EFA Rotation for Self-Reported VRC Scale	47
Slope and Threshold Parameters for Self-Reported Variability Scale	50
Slope and Threshold Parameters for Self-Reported Stability Scale	51
Means, Standard Deviations, and <i>t</i> -Tests of VRC Types	53
Means, Standard Deviations, and <i>t</i> -Tests of VRC Types by Test Administration	53
Means, Standard Deviations, and <i>t</i> -Tests of VRC Types by Gender	54
Correlation Table for all Participants Combined	54
Correlation Table for Participants Currently in Romantic Relationships	55
Correlation Table for Single Participants	55
Combined Results of Associations of VRC Measures with Other Concepts	59

Study 2

Means and Standard Deviations of Men and Women	71
Correlations Between VRC Types	71
Replication of Study 1 with Interitem VRC	75
Replication of Study 1 with Observed VRC	75
Actor and Partner Effects Relating to Interitem VRC	79
Actor and Partner Effects Relating to Observed VRC	79

List of Figures

Study 1

Proposed Model for Testing Theoretical Predictors	43
Proposed Model for Testing Theoretical Outcomes	44
Two Factor Solution for Self-Reported VRC	48
Investment Model Solution for Self-Reported VRC	49
Total Information Curve for Self-Reported Variability	50
Total Information Curve for Self-Reported Stability	51

Study 2

APIM Model for VRC as an Outcome	69
APIM Model for VRC as a Predictor	70

Variability in Relationship Commitment and Its Correlates

“And she, sweet lady, dotes,
Devoutly dotes, dotes in idolatry,
Upon this spotted and inconstant man”

-William Shakespeare, *A Midsummer's Night Dream* Act I, Scene II

In the quote above, Lysander does not question the love that Demetrius showed Helena, but rather questions the consistency of his commitment, which is contrasted to the steady devotion that Helena displays for Demetrius. The difference between these two is not in the amount of commitment that each has displayed, but rather that Demetrius' affection was unstable whereas Helena's remained consistent. This dissertation investigates how variability in feelings of commitment can differentiate individuals beyond being high or low in commitment generally and beyond predictions arising from commitment being high or low relative to an individual's average. Specifically, I posit that some individuals experience high amounts of variability in their relationship commitment, like Demetrius, and others experience low amounts of variability, like Helena. This dissertation outlines and describes this difference and demonstrates how having high or low amounts of variability in relationship commitment is associated with different qualities of relationships.

Romantic relationships are one of the most important relationships that people will form in their lifetime. Within romantic relationships, much attention has been paid to commitment between partners. More committed partners are more satisfied (Le & Agnew, 2003; Rusbult, Martz, & Agnew, 1998), more willing to sacrifice for their

partner (Van Lange et al., 1997), less likely to break up (Le, Dove, Agnew, Korn, & Mutso, 2010), and are higher on a host of other positive outcomes. However, little attention has been paid to differences between individuals in how much their commitment is steady or fluctuates over time. This dissertation examines the construct of variability in relationship commitment (VRC). The aims of this project are to examine the idea of VRC, to reveal potential avenues for future research, and provide tools to facilitate pursuit of these avenues. This is accomplished by establishing and validating new methods of measuring VRC, examining the dyadic structure of VRC within couples, and testing hypotheses about potential predictors and outcomes of VRC.

Definition of Terms

I will be using several terms to describe VRC and variation within individuals. The different terms have nuanced distinctions between them that lead to vastly different interpretation and results. The current section is intended to provide exact definitions for these terms as they are used in this dissertation. Although the descriptions and labels specifically refer to commitment, the general labeling convention could be applied to any construct.

Commitment is the “intention to continue in one’s romantic relationship” (p. 206, Miller & Perlman, 2008). As relationship dissolution constitutes the end of any romantic relationship, much research has focused on examining the desire (and lack of desire) to continue a relationship. One model describes commitment as a cost/benefit analysis where commitment is derived from satisfaction, investment, and perceived quality of alternatives (Rusbult et al., 1998; Rusbult, 1980). Other models describe commitment more cognitively; in one such model, commitment is defined by the expectation that the

relationship will continue psychological dependence, and a long-term view of the relationship (Arriaga & Agnew, 2001). Despite the differences in the definitions of commitment, it is an important construct in the study of romantic relationships.

Commitment level represents the average level of commitment displayed by participants. In a study with multiple collection points, commitment level is the mean commitment score across all timepoints whereas for a cross-sectional study, commitment level is simply the score from a commitment scale. Commitment level is a between-person variable in that it describes how relatively high or low a participant's commitment is relative to other participants, but does not describe variability. The terms listed below are based on temporal changes from one's commitment level.

Fluctuations refer to specific instances of temporal deviations in commitment from the average commitment level of an individual. As such, fluctuations can only be measured in studies that collect more than a single timepoint in which a mean can be calculated for each participant and a residual can be calculated for each timepoint. However, these fluctuations are not VRC. A fluctuation refers to a person-specific change from one's own average commitment level, and thus a fluctuation is a within-person variable. Fluctuations are always valenced. If an individual is temporarily higher than his or her commitment level, the fluctuation will be positive. Alternatively, if an individual is temporarily lower than his or her mean, the fluctuation will be negative. As fluctuations are residuals around individual means, the sum of all fluctuations for each individual is mathematically constrained to zero. In other words, fluctuations cannot distinguish between individuals because the sum of fluctuations for each participant is constrained to the same value.

Variability in relationship commitment (VRC) refers to the between-person construct that describes the magnitude and frequency of fluctuations. Individuals with high VRC experience more frequent fluctuations and fluctuations of a greater magnitude than individuals with low VRC. VRC is derived from fluctuations, but emerges as a separate construct. In a parallel example, calculating the standard deviation in a study does not describe one participant's residual but rather the differences between all participants in the study. Similarly, VRC does not describe one particular fluctuation, but rather all fluctuations simultaneously. VRC is a between-person variable and thus can only predict other between-person variables (Snijders & Bosker, 1999). This is distinct from fluctuations which are within-person phenomena and thus, can only predict within-person variables. In other words, a fluctuation describes how different one's commitment is from his or her average commitment level at a specific time of measurement whereas VRC describes the differences between individuals in the magnitude and frequency of the changes they experience in commitment across all time points. Another term that has been used to describe variability is *stability*. The term stability has been used interchangeably with variability especially in research dealing with variability in self-esteem (e.g., Kernis, 2005; Kernis, Cornell, Sun, Berry, & Harlow, 1993).

I chose to use the term variability rather than stability to describe the current concept because the term variability is more statistically based and does not make the implicit theoretical assumption that observed differences are the result of the person. To clarify this point, a table is unstable if it is inherently wobbly. If a passerby decided to flip the table down a hill, the table is not less stable because this was the action of the

passerby and not an attribute of the table. Similarly, a number of different sources outside of an individual (i.e., partners, financial situations, stress, lack of sleep, etc.) could cause an individual to demonstrate VRC even if that individual normally has stable commitment. Unfortunately, in order to measure variability across these domains, a more rigorous study would need to be designed (e.g., to measure variability due to partners, variability would have to be collected for a single individual across a number of romantic relationships). Due to the cost and time to collect data for such a study, strong and specific hypotheses about external effects on VRC would need to be formulated. With the scarcity of research on VRC, I can only conjecture as to what these effects would be. Thus, in the current study, the variability in commitment is measured only at the person-level.

Importance of Variability

Variability and the ways constructs change over time have been studied extensively in psychology and statistics. Even “traits” such as major personality dimensions (i.e., extraversion, neuroticism, openness to experience, conscientiousness, and agreeableness) fluctuate over time within an individual (Specht, Egloff, & Schmukle, 2011). Feelings about relatedness within close relationships also have been shown to fluctuate, sometimes in dramatic fashion (Baxter, Braithwaite, & Nicholson, 1999). Attachment styles, although regarded as relatively fixed, can change over one’s different relationships or even between different timepoints of a single relationship (Lopez & Gormley, 2002; Simpson, Rholes, Campbell, & Wilson, 2003). Relationship commitment fluctuates through the courtship of a relationship and in response to a variety

of situations throughout relationships (Solomon & Knobloch, 2004; Surra, Arizzi, & Asmussen, 1988).

Historically, when developing a scale, within-person variability has been viewed as an indication of problems of a scale (Tellegen, 1988). Differences between assessments of the same individual were often thought to be nuisance terms or error terms that were psychometrically undesirable (Bingham, 1932). Test-retest reliability was a common indicator of scale validity. When using test-retest reliability in this way, the intent was to demonstrate that scores on a scale remained stable across several weeks or months. Thus, daily fluctuations in the construct being tested reduced test-retest reliability. Similarly, the goal of many personality scales was to measure stable traits, and with stable traits, there should be little variability between assessments of the same individual. In social psychology, differences that were not specifically tied to the situation were undesirable for social psychologists who were interested in the context of response.

One development utilized information about variability in a novel way. Individuals were classified on different constructs as being variable (termed “untraited”) or stable (called “traited”) based on the difference responses to different items on the same scale (Baumeister & Tice, 1988). These assigned values based on the variability between items were expected to moderate the association between constructs such that untraited individuals compared to traited individuals would display weaker associations between constructs because they did not have a cohesive sense of the construct, and so scores on the construct were thought to vary across timepoints randomly.

Variability in most psychological concepts has not been studied with respect to its predictive power with certain notable exceptions. Heart rate variability shows how effectively the parasympathetic system is at regulating stress and has been used as a biomarker to predict a number of well-being outcomes, such as the eventual emergence of PTSD following a traumatic event (Shaikh al arab et al., 2012). Variance in sleep patterns has also been examined in the context of health where more variable sleep patterns predicted lower health outcomes (Dautovich et al., 2012). Some concepts in the literature are theoretically based on the idea of variability. However, these ideas are typically not measured using an observed measure of variability, but rather only using cross-sectional measures. Emotional stability (neuroticism reverse scored) is measured almost exclusively with cross-sectional measures that typically only capture negative reactivity (e.g., Gosling, Rentfrow, & Swann, 2003). By definition, emotional stability is how reactive individuals are to both negative and positive events and could potentially be measured by examining fluctuations in affect over time.

Within social psychology, the most notable study of variability is a program of research about variability of self-esteem (Heppner et al., 2008; Kernis et al., 1993; Kernis & Waschull, 1995; Kernis, 2003, 2005; Paradise & Kernis, 2002). The impetus behind examining variability in self-esteem was based on the idea that optimal self-esteem is the combination of a high level of self-esteem *and* low variability of self-esteem rather than only a high level of self-esteem (Kernis, 2003; Kernis et al., 1993). It is possible for a person to have high self-esteem that is artificially inflated and fluctuates downward due to outside information, as in the case of narcissism (Campbell, Bosson, Goheen, Lakey,

& Kernis, 2007; Zeigler-Hill, 2006). Such forms of high self-esteem are suboptimal for the self.

Observed variability of self-esteem provides additional predictive power beyond the effects of level of self-esteem (Kernis, 2005; Kernis & Waschull, 1995; Paradise & Kernis, 2002). Stability of self-esteem has been shown to negatively relate to higher levels of self-handicapping on academic tests (Newman & Wadas, 1997). Stability of self-esteem is also negatively related to higher depression in the presence of daily hassles (Kernis et al., 1998). Within relationships, higher attachment anxiety is related to higher variability in self-esteem (Foster, Kernis, & Goldman, 2007).

Variability in Romantic Commitment

What is VRC?

Variability in relationship commitment is a person-level construct that measures the degree of change in individuals' relationship commitment. VRC distinguishes between individuals. Some low VRC individuals may have an unshakable commitment. Although negative and positive events occur in their relationships, their intention to persist in the relationship does not change with either negative or positive relationship events. Alternatively, high VRC individuals may have very fragile commitment. These individuals' intention to persist changes with recent relationship events.

Imagine two individuals: Sally Steady and Vic Variable. On average, these two individuals have the same, moderate level of relationship commitment. When Sally learns that her best friend is getting married, Sally's own relationship commitment is not affected from learning this news. Sally still likes her partner and can see her future with him developing, but she is not ready to take their relationship to the next level. When

Vic learns his best friend is getting married, his own commitment to his partner plummets. While he still likes his partner, it seems to him that their relationship is not as strong as his friend's and is likely to be doomed to failure. When Sally meets her partner's family and they approve of her, she is relieved because she wanted their approval, but she is not suddenly more devoted to her partner. Alternatively, when Vic's receives his partner's family's approval, he begins fantasizing about what their life would be like together. Even though Sally and Vic have the same average level of commitment to their partners, the differences between their relationships arise because of how susceptible his relationship commitment is to change.

What VRC is Not

A number of researchers have examined constructs and utilized designs that tap into the importance of variability within relationship functioning. Below, I highlight several programs of research for which variability is a key component. These programs have informed the current dissertation through their theoretical underpinnings, analysis, and thoughtful discussion. However, these programs and the theories that arise from them are distinct from the idea of VRC because (1) VRC focuses on day-to-day variability and (2) VRC attempts to predict general relationship functioning and not responses to daily events.

VRC is not steady change. The construct I examine in the current dissertation only pertains to variability in relationship commitment which is observable over a short period of time rather than steady changes in commitment over time (e.g., commitment steadily decreasing or increasing). Prior research has argued for the distinction between these two types of changes. The type of variability I am interested in has been called

“barometric” variability whereas steady changes have been called “baseline” variability (Rosenberg, 1986). With regard to commitment, VRC is distinct from baseline instability in that VRC describes day-to-day variability in functioning whereas baseline instability describes the steady growth or decline of overall relationship commitment over long periods of time. Both high variability and low variability were found within individuals who displayed both increasing and decreasing baseline instability (Arriaga, Reed, Goodfriend, & Agnew, 2006). Empirical evidence supports the distinction between these two constructs as the correlation between baseline instability and VRC was found to be -.15 (Arriaga et al., 2006).

VRC is not “on again, off again” relationships. Researchers have studied “on again, off again” relationships in which partners break up and restart their relationship, sometimes multiple times (Dailey, Rossetto, Pfiester, & Surra, 2009). Relationships that exhibit this macro-level instability have fewer activities performed together and lower satisfaction with jointly performed activities (Surra & Longstreth, 1990). Although these relationships are defined by variability, these fluctuations must be on a larger scale than what is proposed by VRC. I believe that those who exhibit this pattern of breaking up and getting back together will have higher amounts of VRC. However, I believe that these are two distinct phenomena rather than the same phenomenon observed at different levels of specificity because macro-level instability involves drastic changes in commitment, whereas VRC may emerge as small, frequent fluctuations in commitment.

VRC is not macro-level commitment change. In a similar vein, research has also examined individuals’ narratives of the progression of relationships and how relationship commitment changes in response to events within relationships. Married

participants were asked to retrospectively report on how likely they were to marry their partner at different times throughout their courtship (Surra, 1985). Through this, several patterns of courtship were developed. Inconsistent commitment was associated with a longer length of courtship before engagement and lower interdependence (Surra, 1985). Another analysis of courtship patterns developed two different courtship patterns: one was relatively stable and focused on relationship-driven processes and the other was more unstable and based on event-driven processes. Those with the more unstable pattern reported more conflict and less interdependence though not less love (Surra & Hughes, 1997). Similarly, different situations that cause changes in relationships, or “turning points,” have been studied with respect to relationship functioning and well-being (Baxter & Bullis, 1986; Baxter & Erbert, 1999; Baxter & Pittman, 2001). The differences between these programs of research and VRC are that these research programs focus on larger macro-level changes in relationships and valenced changes rather than solely day-to-day changes and non-valenced change.

The Importance of Variability in Relationship Commitment

The few studies that have examined variability within romantic relationships have found that between-person differences in variability predict important outcomes between individuals beyond the effect of satisfaction or commitment level. Variability in relationship satisfaction has been shown to predict stay-leave behavior beyond the effect of relationship satisfaction level (Arriaga et al., 2006; Arriaga, 2001). Further, relationship variability is associated with severity of depression (Whitton & Whisman, 2010). Variability in commitment and variability in the perception of a partner’s commitment have also been shown to predict relationship dissolution when controlling

for level of commitment and perceptions of one's partner's commitment, respectively (Arriaga et al., 2006).

There is a paucity of research examining VRC, but the importance of the outcomes previously examined (i.e., relationship dissolution and depression) indicate that VRC may be an important variable to examine more thoroughly. Indeed, VRC may affect a number of different relational and personal outcomes for individuals. My general expectation is that negative behaviors and situations will lead to more VRC and VRC will in turn lead to negative well-being and relationship outcomes. Commitment is one's intention to stay in a relationship. Having the intention to stay in a relationship allows one to invest in the relationship, in one's partner, and foster the relationship. Higher levels of commitment are associated with increased trust (Wieselquist, 2009; Wieselquist, Rusbult, Foster, & Agnew, 1999), more constructive reactions to conflict (Rusbult, Johnson, & Morrow, 1986), a greater willingness to sacrifice for one's partner (Van Lange et al., 1997), etc. Having high VRC means that there is inconsistency in one's commitment, and thus likely to be inconsistency in one's relationship investment. This lack of reliability of investment may reduce the benefit of high commitment levels because the positive benefits cannot be consistently relied upon. VRC may exacerbate issues caused by low commitment level because an individual may react to his or her current commitment and invest too much or too little in the relationship.

Examining temporal effects of commitment demonstrates the effect of fluctuations in commitment. As commitment goes up or down, expected values of associated constructs go up and down with it. However, regardless of what has happened in the past, if commitment is at the mean commitment level, so is the associated

construct. The idea behind VRC is that the presence of these changes in commitment will have additional, lasting implications on an individual's perceptions, cognitions, and relationship in ways that persist beyond the fluctuations themselves.

Positive fluctuations in relationships generally predict more positive relationship functioning for as long as the fluctuation persists. However, negative repercussions may exist from positive fluctuations in commitment. Having higher commitment may encourage one to plan future events that are later regretted. For example, proposing to one's partner when experiencing a burst of commitment may be regretted once the wedding finally arrives and commitment has returned to normal. Temporarily acting in more committed ways has been shown to allow one's partner to become more committed either because of a desire to be closer or due to a matching effect (Murray, Holmes, & Collins, 2006). If one's partner becomes more committed in this way, one's partner may be disappointed and upset when one's commitment and related positive behaviors decline. The presence of both higher than average and lower than average commitment may create a juxtaposition which leads either oneself or one's partner to be particularly upset during negative fluctuations and doubtful of the permanence of positive fluctuations.

Negative fluctuations in commitment may also have persistent negative effects beyond the effects directly associated with temporarily having lower commitment. When one is temporarily lower in commitment, one may be more likely to foster relationships with other potential suitors because the perceived quality and availability of alternative partners is related to commitment (Le & Agnew, 2003; Rusbult et al., 1998; Rusbult, 1980). Similarly, having lower commitment may mean that an individual is more prone

to violating the trust implicit within most relationships (Drigotas, Safstrom, & Gentilia, 1999). Even when commitment returns to normal, the relationships fostered and negative cognitions associated with these behaviors may continue. Additionally, individuals with high commitment are relatively inattentive to potential alternatives compared to those with lower commitment (Miller, 1997). However, once an individual becomes aware of attractive alternatives during a negative fluctuation, it may be difficult to resume ignoring these individuals even when commitment returns to normal.

These lines of reasoning may seem to imply that the effect of VRC is simply the sum of the effects of fluctuations, but this is not the case. First, the above section focuses on the lasting ramifications of changes in commitment that can extend beyond the fluctuation. For example, a study examining the relationship between commitment and satisfaction measures these construct over time and develops a model in which commitment predicts satisfaction but VRC is not entered in the model. Now imagine the case of an individual who has high VRC. In one fluctuation, he experienced a dramatic drop in commitment which then steadily increased back to his average commitment level over the course of several days. When commitment falls, the model would predict that his satisfaction would fall concurrently. As this individual's commitment recovered and eventually reached his average level of commitment, the model would predict that his satisfaction would also increase until it reached his average satisfaction. The model predicts this general process to occur for every participant for every fluctuation. If VRC were entered into this model, the pattern described would occur in exactly the same manner. However, the individual with high VRC would be expected to have a lower average satisfaction than an individual with low VRC. Thus, VRC predicts between-

person variables (e.g., average satisfaction) and not within-person variables (e.g., temporal fluctuations in satisfaction).

Beyond the repercussions of fluctuations, high VRC is likely a strong indicator of problematic relationship functioning. Commitment is an aspect of relationships that typically has to build over time (Surra, 1985). As the relationship progresses, individuals develop cognitive, behavioral, and emotional interpersonal bonds that make the relationship a predictable, stable, and constant presence within individuals' lives (Hazan & Shaver, 1987, 1994; Kelley & Tibaut, 1978). If commitment is variable within either partner, the relationship will be less constant and/or predictable. In such a case, both partners would need to monitor and evaluate the relationship more carefully rather than being able to trust that the core of the relationship has not changed.

The Importance of Partners in Relationships

Considerable relationship research has examined the effect of cognitions, traits, and behaviors on relational outcomes, all within a single participant. However, this strategy excludes a very important piece of every relationship, namely the partner. In order to have a romantic relationship, a partner is necessary, but often attribute, traits, behaviors, and cognitions of partners are not often collected or included in analyses. One reason for this strategy is that it is exponentially more difficult to collect dyads rather than individuals. Additionally, analyses that are simple become much more complicated. For certain constructs, the inclusion of dyadic predictors is unnecessary because the cognitions and cognitive representation of behaviors are more important than the behavior itself. For example, the perception of social support is more important to well-being than actual social support (Acitelli, Douvan, & Veroff, 1993). However, without

testing partner constructs, it cannot be determined if they are an important component of a model.

Recent focus on the effects of partners can be seen in by the prevalence of the actor-partner interdependence model (APIM: Kenny, 1996). Currently, APIM models are one of the most frequently employed models to examine dyadic relationships (Wickham & Knee, 2012). Within the APIM model, there are two main types of effects. *Actor effects* are the degree to which one's own predictor is associated with one's own outcome. *Partner effects* are the associations between one's partner's predictor and one's own outcome. Thus, the effect of partners can be statistically distinguished from one's own effect. Furthermore, for dyads in which membership can be categorically distinguished (as gender distinguishes members in heterosexual romantic relationships), intercepts, variances, actor effects, partner effects, and interaction effects can be estimated uniquely for each category of partner. For potentially distinguishable dyads, a test of model fit should be run to determine if the model should be run treating the partners as distinguishable or indistinguishable.

Effects of Partner VRC

In addition to one's own VRC, one's partner's VRC will likely have an effect on one's own well-being and be predicted by one's own traits. Many situations occur in relationships that are affected by the interdependence between members of a couple (Kelly & Tibaut, 1978; Murray & Holmes, 2011). Individuals affect their partner as well as themselves. One's own traits and behaviors can have unique effects on the well-being of one's partner when controlling for one's partner's predictors. For example, worse depression is uniquely related to lower relationship satisfaction for the *partners* of

individuals (Kenny, 1996). One's partner's VRC is likely to have an effect on one's own well-being. Knowing that one's partner sometimes expects the relationship to end and sometimes intends to keep it forever would be difficult because of the ambiguity and changes in behavior. However, this effect may be completely or partly reliant on how well one's partner verbally and non-verbally communicates his or her temporal changes in commitment. Some individuals may experience changes in their commitment, but they hide it well enough that their partner is never aware. It stands to reason that if one cannot detect change in a partner's commitment, the effects of partner VRC will be minimized. Alternatively, incorrectly believing that a partner has high VRC may mirror a situation in which one's partner actually does have high VRC.

Measurement of Variability in Relationship Commitment

Before studying VRC, it is important to acknowledge the different ways in which VRC can be measured. Prior work has looked at variability only by examining fluctuations in diary data (Arriaga et al., 2006; Arriaga, 2001; Gable & Nezlek, 1998; Whitton & Whisman, 2010). However, there are multiple other methods for measuring VRC. Multiple methods of measurement facilitate construct validity by demonstrating the existence of a construct beyond a single method of measurement. There is a paucity of research describing methods for measuring variability for use as a predictor and/or outcome. Below, I describe four methods for measuring VRC which I refer to as self-reported VRC, observed VRC, interitem VRC, and situational VRC, and address the strengths and limitations of each. Last, I describe how the interpretation of each is different and discuss potential relationships between each.

Self-Reported VRC

Self-reported VRC is assessed by asking participants to evaluate the amount of variability in their own relationship commitment on a cross-sectional questionnaire. This method of measuring VRC is the easiest to collect because it can be done cross-sectionally and places little burden on the participant. Several scales use self-reported VRC to assess variability within other constructs, such as self-esteem (Chabrol, Rousseau, & Callahan, 2006; Kernis, Grannemann, & Barclay, 1992). The current dissertation developed a scale for which participants directly answer questions regarding how much their commitment changes from day-to-day. Another option not included in the current dissertation is to give an established commitment scale, but change the response options for the items to reflect how much the participant's answer to the question would change from one day to the next (e.g., 'none,' 'a little,' 'some,' 'a lot').

Observed VRC

Due to the biases inherent in self-reported measures, it may be more optimal to observe fluctuations in participants' relationship commitment. Two slightly different methods have been used to collect observed variability, though both deal with collecting diary data. The first method computes the standard deviation across a series of timepoints (Gable & Nezlek, 1998; Kernis et al., 1993, 1992; Kernis & Goldman, 2006; Whitton & Whisman, 2010). Any deviations from the computed mean will contribute to more variability. Researchers have used this method to create a latent variability index by assessing several related measures longitudinally (i.e., affect, self-esteem, etc.) and loaded the computed standard deviation estimates from all the measures onto a single latent variable (Gable & Nezlek, 1998). This may ultimately be a good way of measuring

relationship variability if relationship constructs (e.g., commitment, satisfaction, trust, cognitive interdependence, etc.) fluctuate together.

The second method of measuring observed variability requires researchers to examine each participant individually and measure how many times the residual changed from a positive to a negative value controlling for general trend and level of commitment (Arriaga, 2001). In other words, a participant's variability score is the count of the number of times a graph of their observed scores crosses their predicted commitment. This method captures the frequency of changes in commitment, but not the magnitude of change, which implies that the presence of fluctuations is more important than the magnitude of change.

The items used to assess commitment in longitudinal studies may affect the measurement of VRC. In prior research, regular Likert-type scales were used to assess constructs. However, some participants did not display variability around their mean (typically because they endorsed the highest possible score). With modern technology (i.e., internet records), continuous rating scales are as easy to implement as using Likert-type scales within questionnaires. With these scales, participants would be asked to move a slider along a bar with anchors at either side. These continuous scales may be better suited to measuring variability because smaller amounts of variability can be detected yielding more accurate measurement of VRC. Additionally, because these scales are sensitive to any minute differences in ratings, it is less likely that participants would not display variation. At the very least, Likert-type scales with a larger number of values should be used in order to capture smaller fluctuations in studies designed to examine VRC.

Interitem VRC

Another measure of variability is to examine the variation that an individual displays between different items on a commitment scale. To calculate the interitem VRC, the standard deviation of a person's responses to individual items on a scale is computed (Baumeister & Tice, 1988). This measure has been used to dichotomize individuals as either traitied (i.e., low interitem variability) or untraitied (i.e., high interitem variability) on a construct. However, I believe that it would be more informative to use this measure as a continuous measure because it does not rely on arbitrary cut-points. One problem with using the raw variance is that there may also be severe restriction of range issues when individuals report extremely low or, more commonly, extremely high levels of relationship commitment. As level of commitment approaches either extreme of the scale, the maximum amount of interitem variability mathematically approaches zero. As with observed VRC, this problem can be mitigated by using a scale with a continuous sliding scale measure or Likert-type measure with at least ten points (e.g., 0-9) (Baumeister & Tice, 1988).

Although both interitem VRC and observed VRC are derived from observed behaviors (responses to different questions and responses at different timepoints), interitem VRC is not a subset of observed VRC. Observed VRC is assumed to derive from actual changes in commitment across time, whereas interitem VRC is derived from changes in responses to items at a single timepoint. It is unlikely that an individual would have such rapidly changing commitment that it would cause fluctuations on individual items. The changes observed between different items are likely due to a less cohesive sense of commitment.

Situational VRC

The final type of variability captures an individual's different reactions across a variety of relationship situations. Often, individuals will vary in the degree of a trait across different situations. For example, life satisfaction is not merely dispositional satisfaction but rather arises out of satisfaction in a variety of domains (Heller, Watson, & Ilies, 2004). Situational VRC has not been measured to date, which is unfortunate because considerable social psychological research has shown that situations can have surprisingly powerful effects on behavior (Aronson, Wilson, & Akert, 2010). To measure situational VRC, participants would rate how their commitment would change in a variety of positive and negative relationship-specific vignettes. Alternatively, participants could be asked how committed they would feel after experiencing the hypothetical situation and a standard deviation could be calculated from these responses to capture variability. Situational VRC would likely suffer from contrast effects between positive and negative vignettes, where participants report being less committed after negative events and more committed after positive events than would actually occur. However, this remains a viable method of measurement as long as there are differences between participants in the magnitude of changes to the events. The benefit of using situational VRC is that all participants respond to the same situation which removes differences due to the unique relationships of the participants.

Interpretations of Different Types of Variability

Self-reported, observed, situational, and interitem VRC, in theory, measure the same central construct. However, each type of measurement measures a different aspect of VRC. Self-report VRC measures one's *perceptions* of fluctuations in relationship

commitment. Whether or not one's commitment actually varies, self-reported VRC will be high for individuals who think their commitment is variable. Situational VRC measures *potential* reactivity of individuals' relationship commitment to different occasions. Most individuals will not have experienced the situations presented in their own relationships, but participants will respond to how they would react if those situations occurred. Observed VRC in commitment shows how variable commitment *actually* is. Interitem describes how *nuanced* one's commitment is in a relationship. Individuals whose concept of relationship commitment is fragmented into distinct areas may have commitment that is more susceptible to change.

The conceptual differences between methods of measuring VRC may also relate to which method of measurement is more predictive of particular outcomes. Observed variability is the only variability which is derived from everyday behaviors (i.e., changes in commitment). Thus, it will likely have the strongest partner effects within dyads because it is the only variability that can be observed by one's partner. Alternatively, self-report variability is about perceptions of variability in relationships. This is likely most important for actor effects rather than partner effects because it is focused on one's own perceptions which may not correspond to actual variability (Kernis et al., 1992). Additionally, as participants react to their perceived and not their actual behaviors, self-reported VRC most closely measures the information that participants have available for cognitive use. Finally, situational variability may not relate strongly to either self-report or observed variability because the situations presented may not relate to situations that individuals actually experience. As it is unlikely that all the situations in the measure would have happened to a given individual, situational VRC may best predict how

individuals refer to novel situations in their relationship. Specifically, situational VRC may be the best measure of predicting effects of VRC in the distant future because as relationships progress and change, individuals will be exposed to an increasing number of situations.

Interitem variability is slightly different than the other forms of variability described above. Interitem variability has been used to determine if participants are either traited or untraited for a construct (an idea which is akin to the other forms of variability outlined here). However, I am unsure whether interitem variability is assessing the same construct as the other types of variability because interitem variability does not directly assess temporal changes like the other three types of variability. Low interitem variability of commitment may emerge because participants have a coherent sense of commitment, and thus would be resistant to change over time. If this were the case, high interitem variability would indicate a fragile form of commitment. Alternatively, interitem variability may emerge because participants display a nuanced view of commitment, but this nuanced view may be stable over time. In this case, interitem variability would be measuring a different construct than the other forms of VRC.

Associations Between Types of VRC

There is little research that suggests what relationship should exist between these different measures of VRC. Ideally, all four measures would be positively correlated because the measures are expected to tap into the same construct. In actuality, they may be uncorrelated for a number of reasons. Self-reported VRC should be related particularly highly to observed VRC because self-reported VRC is a self-report of the

same behavior that is measured by observed VRC. However, perceptions of behaviors have been shown to have an inconsistent relation to actual behavior (Wieselquist et al., 1999). Thus, self-reported and observed VRC might not be as closely linked as expected. Situational VRC may not relate strongly to the other measures because the situations experienced in relationships may be more consistent than the situations presented in the vignettes. Interitem VRC does not have the face validity of the other measures of VRC which introduces the possibility that interitem VRC will not be measuring the same construct as the other measures. However, it is also possible that having a nuanced conceptualization of commitment may leave one's commitment vulnerable to change.

The association between different measures of variability has only been examined with regard to self-esteem. The relationship between self-reported and observed variability in self-esteem was found to be .13 ($p = ns$) (Kernis et al., 1992). This result is the best available information regarding the association between self-reported and observed variability. However, this result should be interpreted with care because self-esteem and relationship commitment are categorically distinct constructs. Self-esteem is an evaluation of the self, and thus, stability of self-esteem is referring to stability of one's self-concept. Relationship commitment is not entirely subsumed within the self: Relationships are inherently dyadic and one's partner is also likely to influence changes in one's VRC. Additionally, when examining perceptions of change and actual change in relationship commitment, perceptions did not significantly predict actual change (Sprecher, 1999). This finding further supports the possibility that self-reported and observed variability may not be strongly related, but both may be important.

Associations with Other Constructs

I tested associations between VRC and a number of different personality and relationship constructs. These tests were not part of a programmatic examination of VRC. Rather, these concepts lend themselves to hypotheses about their association with VRC. These associations were tested in order to examine where further study of VRC may be particularly fruitful. Additionally, I think that VRC is an important and central attribute of relationships and thus a wide variety of associations were tested to attempt to demonstrate this centrality. Specifically, I tested associations between relationship contingent self-esteem, attachment style, relationship length, relationship motivation, neuroticism, need satisfaction, and communication with former partners.

Generally, I expected negative personality traits in romantic relationships to predict more VRC, and VRC to predict negative outcomes. Prior work has shown that VRC is associated with a higher likelihood of relationship dissolution (Arriaga et al., 2006). Given that VRC is a sign of instability within relationships, I expected that it would predict other negative outcomes as well. Most theoretical predictors of VRC are also negative, with the exception of avoidant attachment (for which I predicted that higher avoidant attachment would be related to less VRC). If such a pattern is accurate, it would place VRC as a mediator between negative personality constructs and negative outcomes.

Relationship Length

I expected relationship length to predict lower VRC. There are two separate reasons for this prediction. First, VRC has been shown to predict future dissolution in romantic relationship (Arriaga et al., 2006). Thus, participants with high VRC have relationships that are at additional risk of ending, and participants with low VRC are

likely to have relationships that persist longer. Further, high VRC individuals are likely to begin a new relationship which would have a shorter relationship length than if the previous relationship had persisted. Second, as relationships progress, partners will become better acquainted with each other which will allow partners to anticipate and mitigate problems and subsequent reactions to them.

Relationship Contingent Self-Esteem

Relationship contingent self-esteem (RCSE: Knee, Canevello, Bush, & Cook, 2008) arose from literature on more general contingent self-esteem (Crocker & Wolfe, 2001). Individuals with high RCSE have their self-worth tied to how their relationship is functioning. I expected individuals with higher RCSE to experience higher VRC. Because high RCSE individuals have their self-worth contingent on their relationship, these individuals are more attentive to problems within their relationship and are also more strongly impacted by negative relationship events. Alternatively, when their relationship is doing well, they experience higher than normal benefits (Knee et al., 2008). I expected that individuals high in RCSE would have a higher frequency of fluctuations of commitment due to the more attention paid to the relationship. As these individuals' self-esteem is contingent on the success of these relationships, I expected a higher magnitude of change as well. Both of these effects would contribute to higher VRC.

Similarly, I expected that partners' RCSE would predict more participants' VRC. Partners with high RCSE are likely to exhibit highly fluctuating feelings within their relationship. Thus, one must deal with a wider range of emotions from one's partner. Further, the negative emotions associated with RCSE will likely exacerbate conflict due

to the fact that intense negative emotions on the part of one's partner would be occurring when conflict is at its worst.

Attachment Dimensions

Each of the attachment dimensions implies that it will correspond in a certain way with variability of relationship commitment, but they are more easily understood in tandem with the general level of relationship commitment. The commitment of those with avoidant attachment would likely not be variable but have a low level because these individuals consistently fail to invest in their relationship and are uncomfortable with one's partner attempting to become closer (Cassidy & Kobak, 1988). People with an anxious attachment style demonstrate a strong desire for relationship commitment (Feeney & Noller, 1990). However, because anxious attachment is associated with higher felt insecurity and lower satisfaction in relationships, it is likely that this commitment is fragile and would be highly reactive to threats and conflicts in relationships and thus demonstrate more VRC (Joel, MacDonald, & Shimotomai, 2011).

Autonomous Motivation

Autonomous motivations for being in relationships reflect the degree to which an individual has intrinsic reasons for being in the relationship versus extrinsic reasons for being in the relationship (Blais, Sabourin, Boucher, & Vallerand, 1990). This is conceptualized as a continuum in which intrinsic (i.e., personally endorsed) reasons for being in the relationship are optimal, and amotivated (i.e., lacking rationale) reasons for being in the relationship are the most detrimental. Having extrinsically driven reasons for actions is detrimental, but not as detrimental as amotivated reasons (Vallerand, Blais, Brière, & Pelletier, 1989). VRC may indicate amotivated reasons for being in a

relationship. If one is not sure why one is in a relationship, it is likely that one's commitment to his or her partner would be relatively unstable and change with the day-to-day interactions that one has with one's partner. Furthermore, there are also several reasons why individuals may be in a relationship for extrinsically motivated reasons such as avoiding loneliness, pleasing one's family, because one feels compelled to be in a relationship, etc. Those in a relationship for extrinsic reasons would likely have higher levels of VRC because the strength of this extrinsic motivation is more unstable than intrinsic motivation and thus more likely to fluctuate. The extrinsic motivations mentioned previously may be undermined by: spending more time with other friends and thus warding off loneliness; one's parents focusing on something other than one's relationship; and becoming more comfortable with one being single. If these are the reasons one is in a relationship, commitment will likely change accordingly if these extrinsic reasons are no longer important. However, the strength of intrinsic motivation does not fluctuate so temporally because the reward and motivation stem from personal endorsement of being in that relationship rather than external forces.

Neuroticism

Neuroticism is characterized by a predisposition towards negative emotions and attributions. In a factor analysis of adjectives describing the big five, many adjectives that were related to the neuroticism factor (e.g., "insecure," "envious," "jealous," "temperamental," etc.) suggested that neuroticism is very likely related to variability (Saucier, 1994; Thompson, 2008). As high neuroticism is associated with negative events, individuals with high neuroticism may follow the pattern of having a strong drop in relationship commitment that then returns to normal when the cause of the drop can be

properly addressed. Of all of the constructs tested, neuroticism is the one without a specific relational focus.

Need Satisfaction in Relationships

Self-determination theory proposes that individuals have three basic psychological needs: the need for autonomy, the need for relatedness, and the need for competence (Deci & Ryan, 2000). These needs are thought to emerge naturalistically in response to behaving in an intrinsic and self-determined manner. The extent to which these needs are fulfilled demonstrates the extent that an individual is optimally functioning. Need satisfaction in relationships reflects the degree to which these three needs are fulfilled by one's partner and one's relationship. I hypothesized that individuals with high VRC would be likely to report lower need satisfaction. Individuals with high VRC would experience times in their relationship when they are not as sure about their investment in the relationship and other periods during which they feel very close to their partner. This fluctuation in relationship commitment would likely result in lower perceived autonomy because plans made when one had a different commitment level may have to be carried out despite the lack of self-motivation for them. Acting in ways that one does not currently endorse would result in lower need satisfaction (Deci & Ryan, 2000). Similarly, being unable to consistently commit to one's partner may indicate lower relatedness. If one is aware of their relationship fluctuations it may also instill feelings of incompetence about one's ability to successfully foster and maintain relationships.

Former Partner Communication

High VRC will likely relate to higher more communication with former partners. When individuals are low in relationship commitment they are more likely to communicate with their previous partners (Bush, Rodriguez, & Knee, unpublished data). Participants who feel responsible for their breakup or who feel their breakup was mutual have a more positive view of their former partner (Swami & Allum, 2012). VRC is related to breakups and individuals with high VRC may be more likely to initiate breakup because there are times when these individuals temporarily have less intention for the relationship to persist. As these individuals have fluctuating commitment, their commitment could also change after their breakup and they could begin to feel that the prior relationship could have persisted. Having a higher regard for one's former partner, and feeling like the former relationship may have been viable should increase the rate of communication with former partners.

Individuals in current relationships may be avoiding communicating with their former partners as former partners can be seen as particularly threatening to a relationship (Cann & Baucom, 2004). However, if one (temporarily) does not have intentions for one's relationship to persist, there is less of a barrier to beginning communications with former partners. If these communications start when one is experiencing a negative fluctuation in commitment, it may be difficult or socially awkward to end them once one's commitment fluctuates positively.

Overview of the Present Research

The goals of this dissertation were to examine the idea of VRC, to reveal potential programs of future research, and to develop tools and methods that will facilitate future research programs. Prior work on variability in romantic specific constructs (i.e.,

satisfaction, commitment, and perceptions of partner commitment) has only referenced variability using observed measures. Variability was typically measured over several days and the standard deviation for each participant or number of changes in the sign of the residuals was used to operationalize variability. These methods may turn out to be the best ways to operationalize variability, but conducting such studies takes an inordinate amount of resources in order to develop a between-person measure. Given the amount of resources required to collect such data, it is likely that future studies examining these constructs would have smaller sample sizes and thus would be underpowered to detect small, nuanced effects.

The first goal of this dissertation was to develop and explore measures of VRC that can be administered within a cross-sectional study. The availability of valid cross-sectional measures would allow for studies with larger sample sizes that can examine smaller effects and interactions of VRC without having to collect a large sample of diary data. Three measures of cross-sectional VRC were examined (self-reported VRC, situational VRC, and interitem VRC). Ideally, these measures would correlate highly with observed variability making the collection of diary data less critical to the study of VRC. Additionally, in the development of these studies, the definition of what constitutes VRC is expanded beyond the standard deviations from a longitudinal study.

The second goal of this dissertation was to expand the number of associations that have been examined between relationship variability and other constructs. Thus far in the literature, few associations have been examined with regard to variability in relationship satisfaction, and even fewer examining associations with VRC. I tested different associations among a variety of personality and relationship specific variables.

This dissertation also examined the associations in which one's partner is affected by and affects one's own VRC. I reanalyzed an existing dataset to test these partner effects. Observed variability in relationship commitment was computed from a commitment scale administered each night for two weeks. I examined the relationship between VRC of both members of a couple as well as the associations between partner VRC and one's own outcome and the association between one's partner's theoretical predictors and one's own VRC. As VRC is a construct that only exists within a dyadic, romantic context, I expected that VRC would have effects on one's partner as well as on oneself.

This dissertation is composed of two studies. In Study 1, I developed cross-sectional scales for measuring self-reported VRC and situational VRC. The availability of these scales would allow VRC to be measured without collecting longitudinal data. Mean differences in VRC were tested with measures of VRC between participants responding to current relationships and participants responding to previous relationships. Furthermore, associations were examined between theoretical predictors and outcomes of VRC. Study 2 extended the findings of Study 1 by examining couples which permits measurement of dyadic effects of VRC as well as the dyadic structure of VRC within romantic relationships. This is an important extension because VRC necessarily occurs within romantic relationships, and thus, VRC is not a concept that exists in isolation of partners.

Study 1

The main purpose of Study 1 was to create and evaluate cross-sectional measures of VRC. Study 1 consisted of a large cross-sectional survey administered to both

participants in relationships and single participants. This questionnaire included cross-sectional measures of VRC and associated concepts relating to VRC. Participants currently in a relationship completed a longitudinal phase assessing commitment over time.

A self-reported VRC scale and a situational VRC scale were developed from the cross-sectional items. Cross-sectional commitment was also measured in the baseline packet which was used to create interitem VRC. The longitudinal component measured participant commitment each morning and night for two weeks. A standard deviation of these responses was used to measure observed VRC for each participant. Thus, Study 1 measured all four types of VRC (self-reported, situational, interitem, and observed) although observed VRC was only measured in a subset of participants.

In addition to scale development, Study 1 examined the relationship between different measures of VRC. Conceptually, VRC derived from different methods of measurement would be correlated. Prior to this dissertation, this hypothesis has not been directly tested using different methods of measuring VRC. Also, as outlined earlier, there are a number of reasons that these measures may not correlate as strongly as expected.

The final purpose of Study 1 was to test the associations between different predictors and outcomes of VRC. All associations tested controlled for the effect of level of commitment and relevant covariates. Though the associations were labeled predictors or outcomes of VRC based on theoretical rationales, these associations are not causal and temporal precedence cannot be established. The following constructs were examined as theoretical precursors to VRC: attachment style, autonomous motivation, RCSE,

neuroticism and relationship length. Need satisfaction and former partner communication were examined as theoretical outcomes of VRC.

Methods

The baseline measure consisted of a survey administered online or in person to participants recruited from the SONA pool and directly through advertisements publicly posted and presentations to undergraduate classes. All participants were allowed to participate, but participants who have never been in a romantic relationship were excluded from all analyses. Participants who had previously been in a romantic relationship but were not currently answered questions regarding their most recent romantic relationship. Participants who were currently in a romantic relationship were offered the opportunity to participate in a follow-up study which involved collecting relationship commitment over fourteen days. Participants who did not wish to participate were thanked and debriefed. Participants who chose to participate in the second component of Study 1 were given a second consent form and directions for completing the diary records. After completing the diary records participants were thanked and debriefed.

Participants. Two hundred and nineteen participants completed the baseline measure of which 165 were in a relationship and 54 were not currently in a romantic relationship. One hundred and eighty-seven measures were completed online and 32 were completed using pencil and paper. The mean age of participants was 23.4 ($SD=5.9$) and 184 (84%) were female. Participants were racially diverse (45% Caucasian, 15% African American, 20% Asian, 6% multiracial, and 14% other). Ethnicity was assessed separately and the sample was also ethnically diverse (38% Hispanic). Most

participants were heterosexual (94%). Relationship length of current relationships ($M=22.9$, $SD=23.8$) was not significantly different from past relationships ($M=23.0$, $SD=23.5$) ($t=.03$, $p=.98$). Of participants currently in relationships, relationships were, on average, relatively serious (11% casually dating, 61% seriously dating, 9% engaged, 19% married). This trend also emerged with participants responding to their previous relationship (21% casually dating, 74% seriously dating, 4% engaged, 2% married).

One hundred and sixty-five participants were in a romantic relationship at the baseline measure. Of these participants, 56 consented to the longitudinal section of the survey. Twenty of these participants did not provide responses. An additional ten participants provided fewer than seven records and were removed from the longitudinal component. This yielded a final sample of 26 for the longitudinal phase. These participants completed 492 records combined for an average of 18.9 records per participant.

Measures.

Demographics. Participants were asked their age, ethnicity, race, and sexual orientation. Furthermore, participants were asked whether they are (1) currently in a romantic relationship, (2) if they are not currently in a romantic relationship but have been, or (3) have never been in a romantic relationship. Participants in romantic relationships were asked how long they have currently been in their romantic relationship, how serious their relationship is (i.e., casually dating, seriously dating, engaged, or married), and whether they and/or their partner date other people. Participants not currently in relationships, but with prior relationships, were asked the same questions, but about their most recent romantic relationship.

Self-reported VRC. Self-reported VRC was assessed with a scale created for the current study (see Appendix A). The original scale had sixteen items which assess an individual's tendency to experience day-to-day changes in their relationship commitment (e.g., "From one day to the next, my feelings about how long I want my relationship to last change"). Participants rated these items on a five point Likert-type scale with the anchors 1 ("does not describe me at all") and 5 ("describes me very well"). These items were mainly adapted from an established commitment scale (Rusbult, Kumashiro, Kubacka, & Finkel, 2009) and modified to assess day-to-day fluctuations in commitment rather than level of commitment. Additionally, other items were added in the hope that they may contribute unique variance. Alpha for the original sixteen items was .78. These items were broken down into two scales after factor analysis. Self-reported variability was composed of the positively worded items (i.e., higher scores indicated more variability) and self-reported stability was composed of the negatively worded items. The alpha for self-reported variability was .91 and the alpha for self-reported stability was .76.

Situational VRC. Situational VRC was measured by having participants read eight vignettes and respond to a question assessing how their commitment would change in the presented situation (see appendix B). The eight vignettes were selected to cover a range of severity. Further, four vignettes were positively valenced:

e.g., "Your partner is a little stressed so you decide to help him/her out by doing some chores that were being put off. When your partner finds out he/she looks really happy and tells you how much he/she appreciated your gesture."

Four other vignettes were negatively valenced:

e.g., "Your partner was supposed to pick you up from the airport to take you home. You arrived and came out of the terminal but didn't see them. After thirty minutes you call to see if he/she is there and it turns out your partner forgot he/she

needed to pick you up. Your partner is very apologetic and leaves immediately to pick you up.”

Participants answered questions about changes in commitment, changes in satisfaction, changes in positive affect, and changes in negative affect in response to each of the vignettes.

Situational VRC was measured using a 100 point scale sliding scale sensitive to the nearest whole number when measured online. When completing the pencil and paper test, participants made a mark on a fifteen centimeter line and the distance of that mark from the beginning of the line was measured. Measurement was sensitive to .1 cm. The score from the pencil and paper measure was then multiplied by 6.66 to make the two scales comparable on a 100 point scale. The final version of the scale contained the question about change in relationship commitment as this is the focus of VRC. However, the other items were included to test for discriminant validity between VRC and variability in relationship satisfaction and variability in affect. Alpha for the situational VRC scale was .81.

Relationship commitment. Relationship commitment in the longitudinal phase was measured using a scale from the Investment Model Scale (Rusbult et al., 1998). This seven-item measure assesses commitment within romantic relationships (e.g., “I want our relationship to last forever”). Participants responded on a sliding scale from 0-100 sensitive to the .1 on a line marked with the anchors “completely disagree” and “completely agree.” This scale was completed in the mornings and evenings of the study.

Level of baseline relationship commitment was assessed in the baseline packet through the use of an expanded version of the commitment subscale from the Investment Model Scale (Rusbult et al., 2009). This scale differs from the original scale in that there

are fifteen statements assessing commitment. The additional items of this scale may make it more likely to find interitem variability within commitment, especially because certain additional items are difficult for even individuals with high commitment to endorse fully (e.g., “I think my partner is more important to me than anyone else in my life – more important than my parents, friends, etc.”). This scale was rated from 0 (do not agree at all) to 9 (agree completely). Alpha was .96.

Interitem variability was measured from the longer scale administered within the baseline packet by calculating the standard deviation of the responses from the baseline commitment scale. Observed VRC was obtained using the standard deviations from the commitment scales given throughout the diary phase of the study. For this study, a standard deviation was computed from all the timepoints provided by each participant.

Relationship contingent self-esteem. RCSE was assessed using an 11-item measure (Knee et al., 2008). This scale presents 11 statements (e.g., “When my relationship is going well, I feel better about myself overall”) to which participants respond on a 1 (“Not at all like me”) to 5 (“Very much like me”). Higher scores indicate a higher propensity to base one’s self-esteem on one’s romantic relationship. Alpha for RCSE was .90.

Self-determined motivation. Motivations for being in a relationship was measured with the couple motivation questionnaire (Blais et al., 1990). This questionnaire begins with the prompt “Why are you in your relationship?” Items in this scale assess a range of different motivations from amotivated motivation (e.g., “I don’t know. In all honesty, I don’t feel like making the effort to keep this relationship together”) to intrinsic motivation (e.g., “Because the moments I share with my partner are very stimulating and

satisfying to me”). Participants responded on a scale ranging from 1 (“Does not correspond at all”) to 7 (“Corresponds exactly”). Responses were weighted by the degree of intrinsic or extrinsic motivation portrayed in the question and then summed to create a single index of motivation in which higher scores represent more self-determined reasons for being in the relationship. Alpha was .87.

Attachment dimensions. Attachment dimensions were measured using the adult attachment scale (Collins & Read, 1990). The adult attachment scale measures two attachment dimensions (anxious and avoidant). Two separate subscales capture anxious attachment (e.g., “I often worry that my partner does not really love me”) and avoidant attachment (e.g., “I am somewhat uncomfortable being close to others”). All questions were measured on a scale from 1 (“Not at all characteristic”) to 5 (“Very characteristic”). Alphas were .73 and .79, respectively.

Neuroticism. Neuroticism was measured from the neuroticism items on the Ten-Item Personality Inventory (TIPI) (Gosling et al., 2003). Participants respond to the combination of a general prompt “I see myself as...” combined with a number of adjectives and provide a response on a scale from 1 (“Strongly Disagree”) to 7 (“strongly agree”). Two sets of adjectives describe neuroticism (“Anxious, easily upset” and “Calm, emotionally stable”). The correlation between these items was .37.

Former partner communication. Former partner communication was assessed through two related questions. First, “Do you communicate with any of your former romantic partners?” Second, “If so, how frequently?” The second item had the options: “Not Applicable (Never)”, “Less than Once a Month”, “Once a Month”, “2-3 Times a

Month”, “Once a Week”, “2-3 Times a Week”, and “Daily.” As these are single items, alpha cannot be calculated between these items.

Basic need satisfaction in relationships. Need satisfaction was measured using a scale that is specific to relationships (La Guardia, Ryan, Couchman, & Deci, 2000). This scale measures the extent to which participants believe that their partner fulfills their needs for autonomy (e.g., “When I am with my romantic partner, I feel free to be who I am”), relatedness (e.g., “When I am with my romantic partner, I feel loved and cared about”), and competence (e.g., “When I am with my romantic partner, I feel like a competent person”). For each item, participants responded on a scale from 1 (“strongly disagree”) to 7 (“strongly agree”). These subscales can be scored individually or summed to create a measure of general need satisfaction. For the current project, subscales were averaged to form an aggregate measure of need satisfaction. Alpha for need satisfaction was .89.

Data Analysis Plan

Manipulation Checks. Several manipulation checks were conducted on the situational VRC scale to ensure that the vignettes were operating as expected. First, t-tests were conducted between positive and negative vignettes to ensure that positive vignettes were more positive than negative vignettes. Additionally, the positive and negative vignettes were tested for differences between them in change to ensure that the vignettes had a range of severity. Within the situational VRC scale, multiple questions were asked for each vignette. These questions were not intended for future use with the scale but rather to provide discriminant validity for VRC. As such, multilevel models

were constructed to determine whether the other constructs measured explain the person-level variance of situational VRC.

Scale development. Exploratory factor analysis examined the factor structure of situational VRC and self-reported VRC. Before conducting the exploratory factor analysis, responses to the situational VRC scale were readjusted to reflect the absolute difference from the midpoint of the scale. This has the effect of transforming responses that reflect positive change or negative change into simply change. Thus, scores that were 20 points above the midpoint of the scale were scored the same as scores that were 20 points below the midpoint.

In addition to traditional psychometric analysis, I also used item response theory (IRT), specifically the graded response model (Samejima, 1969), to reassess the items from the self-reported VRC scale. This model is sensitive to the underlying dimensionality of the scale so it is important that the self-reported VRC scale forms a single factor because there was not a sufficiently large sample to evaluate complex hierarchical or general-specific models.

IRT uses a system that creates a latent variable that captures the commonality of the items by treating options of items as categorical predictors. This procedure can go beyond what can be determined from traditional procedures for scale development because it examines the items in a more nuanced fashion and examines aspects of the scale that would not be possible using traditional methods alone. IRT cannot be used to analyze the situational VRC scale further because the items on the situational VRC scale are measured using continuous measures, and thus, categorical distinctions cannot be made.

Item response theory offers a number of benefits. Items that do not relate strongly to the central concept (in this case self-reported VRC) can be identified, as can pairs of items that are related to each other beyond the central concept (i.e., local dependence), and the overall tendency of the scale to properly measure individuals at different levels of the central concept. Examining items with this additional rigor further focused the self-reported VRC scale. Using IRT, I identified and eliminated items that did not contribute beyond the other items by removing items with loadings that were below 1.0. Local dependencies are situations in which a subset of items on a scale are related for reasons other than the concept being studied. These local dependencies have the potential to “steal” the meaning of the latent construct. These local dependencies were eliminated. Last, information curves were constructed that describe how efficiently the scale measures individuals at with different scores on the latent construct.

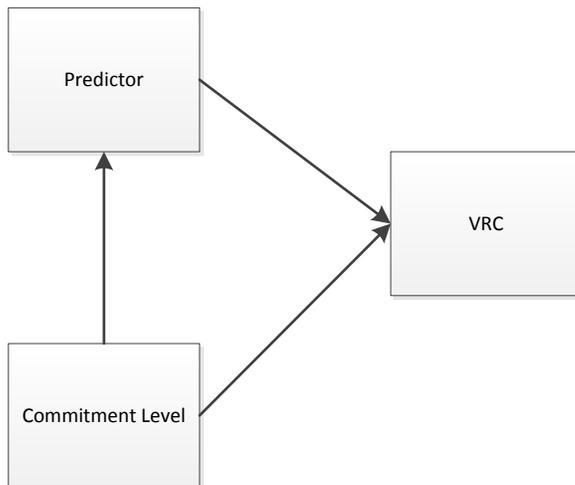
Structure of VRC. Correlation matrices were constructed to assess the association between different methods of computing VRC. Differences in means of situational VRC, self-reported VRC, and interitem VRC were tested between participants in relationships and single participants using *t*-tests. A second set of *t*-tests were conducted to determine if differences exist between participants that took the study online versus on paper. One final round of *t*-tests examined the differences between men and women.

VRC and theoretical predictors. Associations between VRC and theoretical predictors were tested using SEM. Each concept was tested in isolation from the other potential predictors and was tested separately for each method of measuring VRC. Although these tests may be similar depending on the correlation between the different

measures of VRC, conducting them separately allows for the comparison between the strength of association between different predictors and methods of measuring VRC.

Each analysis was computed using a structural SEM model in which the commitment and VRC were regressed on the predictor, and commitment was also regressed on VRC (see Figure 1). This controlled for the effect of commitment. All structural coefficients were standardized so that the effects could be compared between analyses. The significance of these tests was determined using a bootstrapped sample of 5000. This means that the critical values for an estimate were selected from a sample of 5000 computed values of that estimate created from sampling with replacement from the available sample. This has two benefits. First, non-symmetric confidence intervals were constructed according to the observed sampling distribution and not an estimate of it. Second, bootstrapping a sample tends to reduce the standard error and thus, provides a small power benefit.

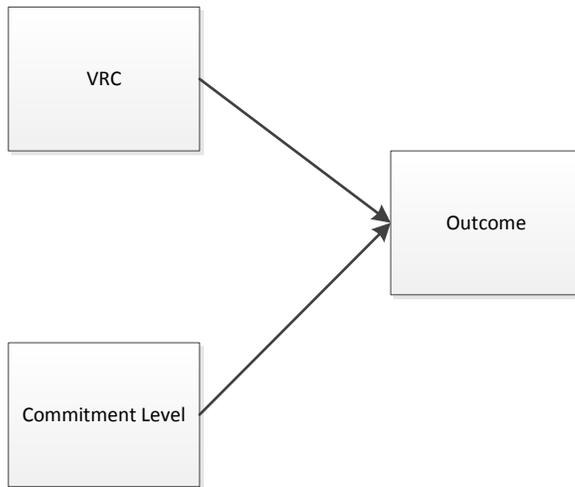
Figure 1. Proposed model for testing theoretical predictors.



VRC and theoretical outcomes. Associations between theoretical outcomes and VRC were also tested using SEM. Four separate tests were conducted for each outcome (corresponding to the four ways to measure VRC). For each test, the outcome was

regressed on VRC and commitment simultaneously (see Figure 2). As with the predictors, the sample was bootstrapped 5000 times.

Figure 2. Proposed model for testing theoretical outcomes



Results

Aim 1: Scale Development

Situational VRC.

Manipulation checks. Before scoring the situational VRC scale to reflect relative change, I tested whether negative vignettes had a different effect than positive vignettes using paired sample t-tests. Positive compared to negative vignettes yielded increases in commitment ($t = 22.7, p < .001$), satisfaction ($t = 21.6, p < .001$), positive emotion ($t = 26.0, p < .001$), and decreases in negative emotion ($t = -17.9, p < .001$). Furthermore, there were mean differences in change in commitment among the negative vignettes ($F_{209,3} = 13.9, p < .001$) and the positive vignettes ($F_{188,3} = 43.2, p < .001$) demonstrating that the vignettes spanned a range of significance. The means and standard deviations for each vignette are provided in Table 1.

Table 1. Means and Standard Deviations of Situations

	Valence	Change in Commitment M(SD)
Situation 1	Positive	75.8 (23.5)
Situation 2	Negative	45.0 (25.8)
Situation 3	Positive	80.2 (20.9)
Situation 4	Negative	56.3 (26.7)
Situation 5	Negative	48.3 (24.2)
Situation 6	Positive	82.9 (22.0)
Situation 7	Negative	33.4 (24.5)
Situation 8	Positive	73.6 (24.9)

Second, I conducted tests to determine whether changes in commitment are explained by changes in the other concepts measured. This test was performed after scoring each of the variables as an absolute deviation from the midpoint of the scale. This test allows the variance attributable to the person to represent differences between individuals in VRC. A cross-classified mixed effects model was computed in SAS 9.2 with two random intercepts (person and vignette) to create a baseline model. In this model, the variance components of the random person-intercept variance is 99.8 (29% of the total), vignette-intercept is 48.7 (14% of the total), and the residual variance is 198.8 (57% of the total). Tests were conducted in which different components were used as predictors with commitment being the outcome. If the person variance becomes non-significant, it would indicate that between-person differences in situational VRC are completely explained by the predictors. Person variance remained significant whether predicted by satisfaction ($z = 5.8, p < .001$), positive emotion ($z = 6.7, p < .001$), negative emotion ($z = 6.7, p < .001$), and all three combined ($z = 5.5, p < .001$).

Factor Analysis. The factor structure of the eight commitment items was estimated using exploratory factor analysis (EFA) using a promax (oblique) rotation.

Two factors emerged as the optimal solution (see Table 2 for eigenvalues). The model displayed adequate fit ($\chi^2(13) = 18.8, p = .13, RMSEA = .045, RSMS = .031$). The first factor was a slightly more general factor on which most of the items loaded positively, particularly the items from positively valenced vignettes. Items from negatively worded vignettes loaded onto the second factor (see Table 3 for factor loadings). The two factors were strongly correlated ($r = .53$). Due to the high positive correlation between the two factors, a single score was computed from all eight items and used throughout analysis.

Table 2. Eigenvalues for EFA for Situational VRC Scale

<u>factors</u>	<u>Eigenvalues</u>
1	3.42
2	1.34
3	0.85

Table 3. Item Loadings for Optimal Rotation for Situational VRC Scale

	<u>Factor 1</u>	<u>Factor 2</u>
Item 1 (+)	.67	-.03
Item 3 (+)	.90	-.12
Item 6 (+)	.60	.06
Item 8 (+)	.76	.01
Item 2 (-)	.09	.54
Item 4 (-)	.29	.47
Item 5 (-)	-.17	.98
Item 7 (-)	.03	.31

Self-Reported VRC.

Factor analysis. Self-reported VRC was tested for dimensionality with EFA using a promax factor rotation. A two factor solution was the optimal solution ($\chi^2(89) = 178.9, p < .001, RMSEA = .066, RSMS = .046$) (see Table 4 for eigenvalues and Table 5 for factor loadings). Positively worded (i.e., higher scores indicate more variability)

items loaded on the first factor and negatively worded items loaded on the second factor. However, the two scales were very weakly correlated ($r = -.16$) suggesting that the two scales are not subscales of the larger concept, VRC, but rather that the first factor represents variability and the second factor represents stability and these concepts are orthogonal.

Table 4. Eigenvalues for EFA for Self-Reported VRC Scale

<u>factors</u>	<u>Eigenvalues</u>
1	5.722
2	2.691
3	1.096

Table 5. Item Loadings for EFA Rotation for Self-Reported VRC Scale

	<u>Factor 1</u>	<u>Factor 2</u>
Item 1 (+)	.68	.02
Item 2 (+)	.77	.05
Item 4 (+)	.55	.00
Item 5 (+)	.71	.08
Item 6 (+)	.74	.10
Item 7 (+)	.71	-.08
Item 12 (+)	.56	-.10
Item 13 (+)	.78	.08
Item 15 (+)	.75	.05
Item 16 (+)	.76	-.08
Item 3 (-)	-.24	.34
Item 8 (-)	-.26	.41
Item 9 (-)	.14	.73
Item 10 (-)	-.01	.74
Item 11 (-)	.12	.69
Item 14 (-)	.02	.60

The self-reported VRC items were developed from the conceptual underpinning of the investment model (Rusbult et al., 1998). In the investment model, relationship satisfaction, investment, and quality of alternatives cause relationship commitment. This brings up an alternative model in which the items representing variability in satisfaction,

variability in investment, and variability in quality of alternatives cause variability in commitment (see Figure 3). This model was compared against the two factor solution (see Figure 4). Results showed that the two factor solution provides a better fit for the data and is more parsimonious (two factor solution AIC: 10930.9; investment model AIC: 11146.7).

Figure 3. Two Factor Solution for Self-Reported VRC

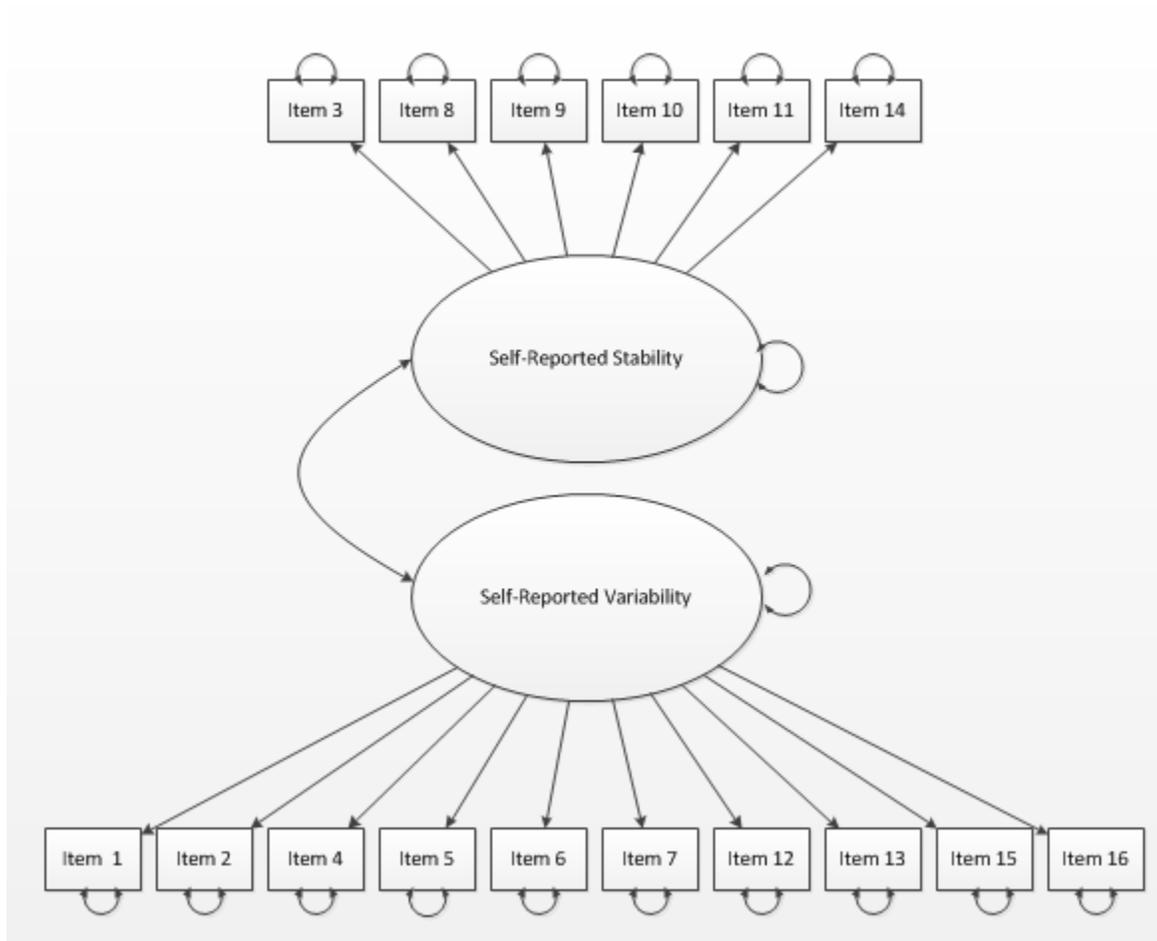
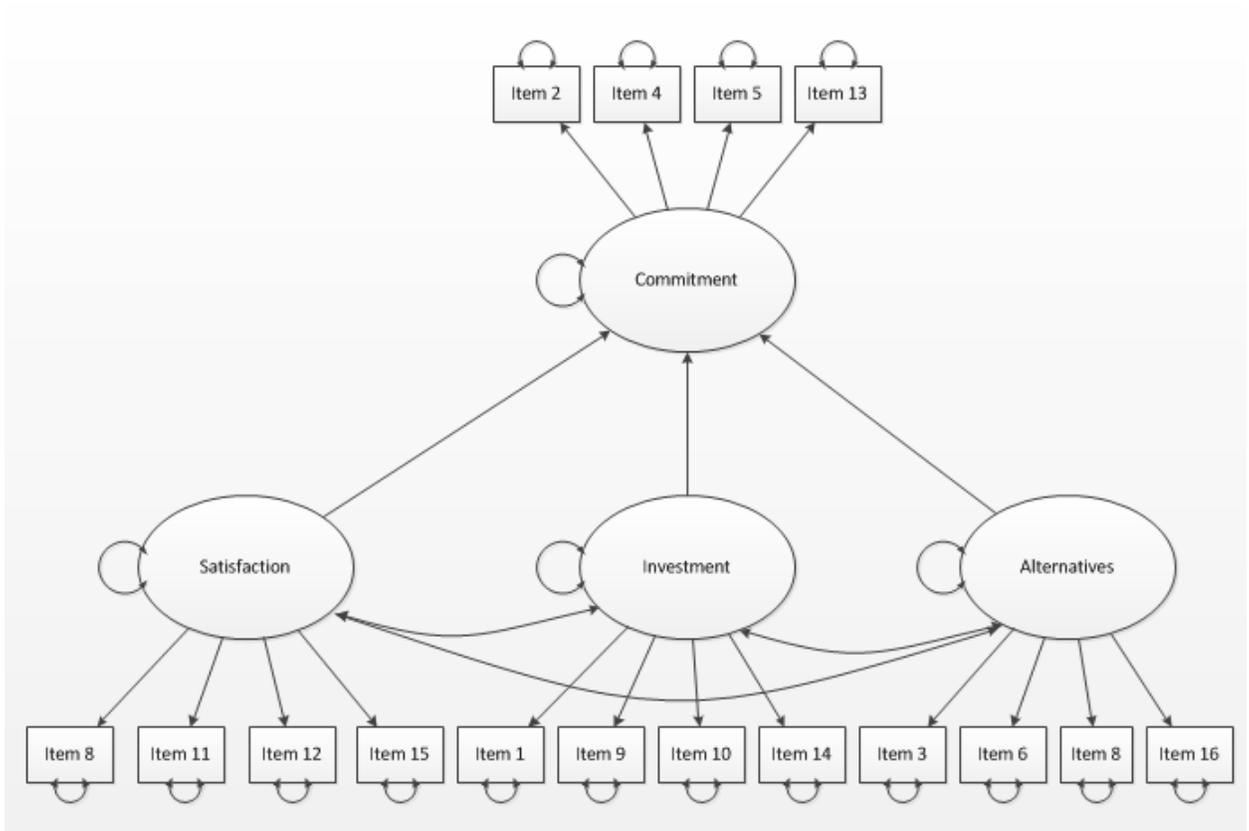


Figure 4. Investment Model Solution for Self-Reported VRC



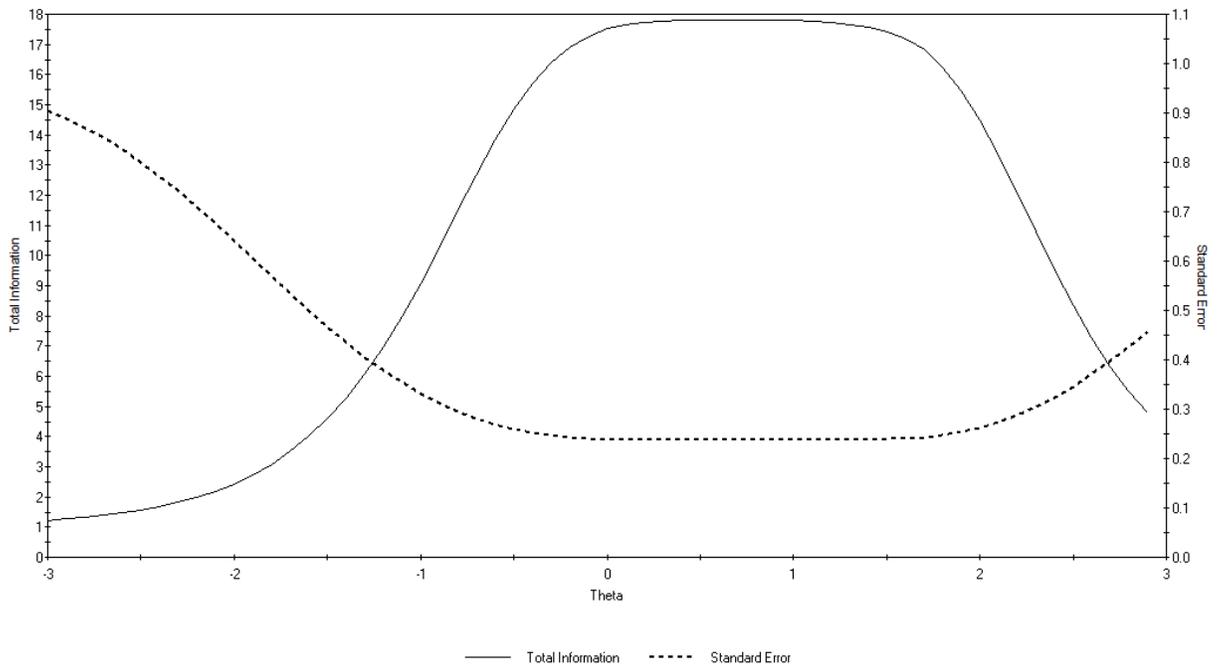
Item Response Theory. The ten positive items were entered into a unidimensional graded model (Samejima, 1969). None of the items within the scale had slopes lower than 1.0, the cutpoint set for items (see Table 6 for slope and threshold estimates). Furthermore, local dependence was examined and no evidence of local dependence between items emerged. The items provided good information coverage around the mean of the true score (see Figure 5).

Table 6. Slope and Threshold Parameters for Self-Reported Variability Scale

	<u>Slope</u>	<u>Threshold 1</u>	<u>Threshold 2</u>	<u>Threshold 3</u>	<u>Threshold 4</u>
Item 1	1.96	-.61	-.01	.87	1.86
Item 2	2.64	-.46	.24	1.02	1.69
Item 4	1.56	-.70	.26	1.16	2.12
Item 5	2.42	-.15	.62	1.26	2.03
Item 6	2.63	-.09	.53	1.08	1.76
Item 7	2.28	-.62	.03	.88	1.76
Item 12	1.60	-.73	.30	1.40	2.55
Item 13	2.88	-.11	.49	1.20	1.75
Item 15	2.48	-.49	.13	.93	1.73
Item 16	2.78	-.38	.37	.98	1.69

Note: Thresholds scaled by Θ scores (i.e., true scores)

Figure 5. Total Information Curve for Self-Reported Variability



The six negative items were also entered into a unidimensional graded model.

One item (item 3) was excluded because its low slope, but the other items provided adequate fit (see Table 7). The factor analysis was repeated excluding item 3, but the two

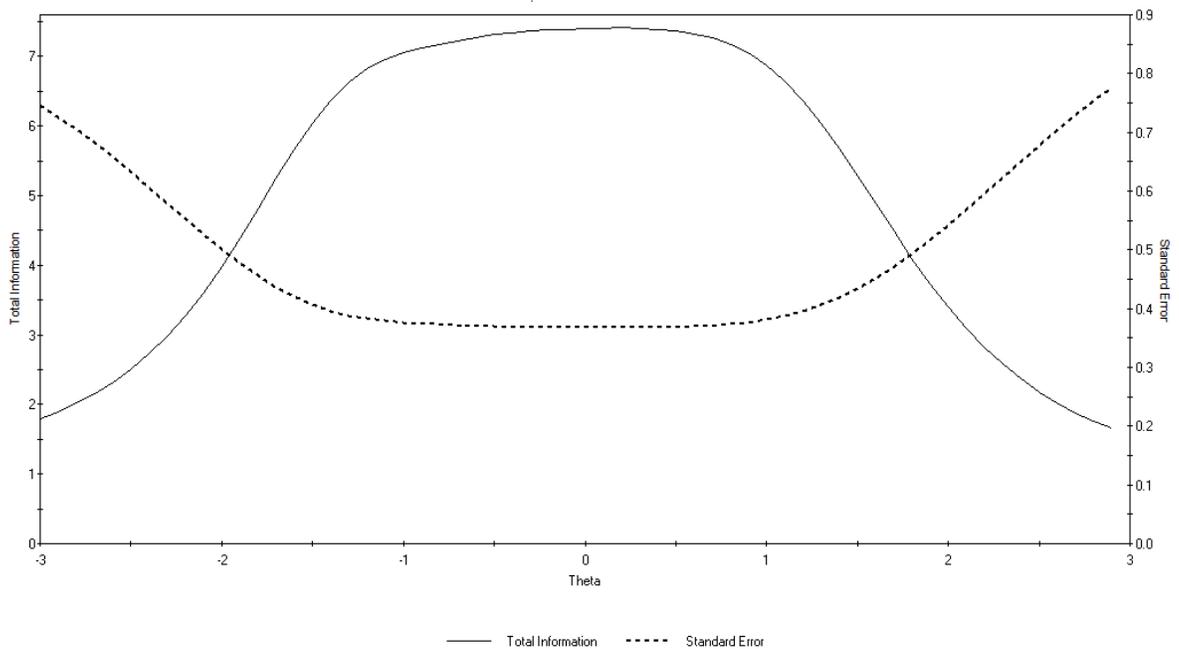
factor solution still remained optimal and the factor loadings remained relatively unchanged. The information curve for self-reported stability is presented in Figure 6.

Table 7. Slope and Threshold Parameters for Self-Reported Stability Scale

	<u>Slope</u>	<u>Threshold 1</u>	<u>Threshold 2</u>	<u>Threshold 3</u>	<u>Threshold 4</u>
Item 3	.85	-2.18	-.85	.36	1.47
Item 8	1.08	-2.31	-1.24	.06	1.07
Item 9	2.24	-1.10	-.26	.46	1.24
Item 10	2.63	-1.32	-.51	.19	.86
Item 11	2.09	-1.26	-.41	.35	1.15
Item 14	1.64	-1.11	-.23	.52	1.23

Note: Thresholds scaled by θ scores (i.e., true scores)

Figure 6. Total Information Curve for Self-Reported Stability



The two factor solution that emerged was unexpected, particularly how the two factors are largely uncorrelated with each other. For the remainder of the analyses, when examining associations relating to self-reported variability, I scored the measures as two

scales. The first scale was composed of the positively scored items and labeled ‘self-reported variability.’ The second scale was composed of the reverse scored items and labeled ‘self-reported stability.’ For the sake of clarity and the label given to self-reported stability, the reverse coding was returned to the original coding such that higher scores indicate more self-reported stability.

Aim 2: Associations Between VRC Methods

All participants completed the same measure of situational VRC and self-reported VRC. Participants who were not in relationships completed a measure of baseline commitment based on their most recent relationship which was used to calculate interitem VRC. Additionally, only participants who were in relationships have a score for observed VRC. The means and standard deviations for all four measures of VRC as well as baseline commitment are presented in Table 8. Additionally, this table presents *t*-tests between participants in relationships and participants who are currently single. Participants reflecting on their previous relationship reported lower commitment ($t_{80} = -4.56, p < .001$). Participants in relationships reported a higher situational VRC ($t_{89} = -2.87, p = .005$) and lower self-reported variability ($t_{89} = 5.10, p < .001$). There were no significant differences when examining self-reported stability or interitem variability.

Table 8. Means, Standard Deviations, and *t*-Tests of VRC Types

	Combined	Currently in relationship	Currently single	Test between single and relationship
	M (SD)	M (SD)	M (SD)	<i>t</i> (<i>p</i>)
Baseline Commitment	5.45 (1.88)	5.78 (1.73)	4.41 (1.96)	-4.56 (<.001)
Self-Reported Variability	2.34 (.92)	2.19 (.88)	2.86 (.86)	5.10 (<.001)
Self-Reported Stability	2.92 (.96)	2.91 (1.04)	2.94 (.67)	.21 (.83)
Situational VRC	26.42 (11.29)	27.64 (11.17)	22.70 (10.90)	-2.87 (.005)
Interitem VRC	3.04 (2.45)	3.00 (2.43)	3.17 (2.42)	.46 (.65)
Observed VRC	N/A	5.20 (4.15)	N/A	N/A

Independent sample *t*-tests were conducted to determine whether mean differences existed between participants who completed the study online versus on a hard copy (see Table 9). Participants who completed the paper and pencil tests displayed higher self-reported stability ($t = -3.36, p = .002$) and lower situational VRC ($t = 5.36, p < .001$).

Table 9. Means, Standard Deviations, and *t*-Tests of VRC types by Test Administration.

	Online	Hard Copy	Test Between Online and Hard Copy
	M (SD)	M (SD)	<i>t</i> (<i>p</i>)
Baseline Commitment	5.50 (1.89)	5.13 (1.83)	1.03 (.31)
Self-Reported Variability	2.34 (.94)	2.35 (.78)	-.11 (.91)
Self-Reported Stability	2.84 (.96)	3.39 (.81)	-3.36 (.002)
Situational VRC	27.78 (11.12)	18.43 (8.73)	5.36 (<.001)
Interitem VRC	2.96 (2.44)	3.55 (2.29)	-1.33 (.19)

Independent sample *t*-tests were also conducted to determine whether mean differences existed between men and women on the measures of VRC. The means, standard deviations and tests of significance are presented in table 10. Men reported more self-reported variability ($t = -2.65, p = .01$) and lower situational VRC ($t = 2.55, p = .01$).

Table 10. Means, Standard Deviations, and *t*-Tests of VRC Types by Gender

	Men	Women	Test between Male and Female
	M (SD)	M (SD)	<i>t</i> (<i>p</i>)
Baseline Commitment	5.34 (1.58)	5.49 (1.93)	.43 (.67)
Self-Reported Variability	2.68 (.80)	2.28 (.93)	-2.65 (.01)
Self-Reported Stability	2.94 (.78)	2.92 (.99)	-.17 (.86)
Situational VRC	22.28 (10.31)	27.21 (11.32)	2.55 (.01)
Interitem VRC	2.03 (2.03)	3.13 (2.49)	1.45 (.15)
Observed VRC	4.01 (3.62)	5.43 (4.29)	.69 (.52)

Correlation matrices are provided in Table 11 for both groups combined, Table 12 for participants in romantic relationships, and Table 13 for participants not currently in romantic relationships. Interestingly, none of the measures were correlated with other measures.

Table 11. Correlation Table for all Participants Combined (N=219)

	1	2	3	4	5	6
1. Baseline Commitment	--					
2. Self-Reported Variability	-.39**	--				
3. Self-Reported Stability	.01	.11	--			
4. Situational VRC	.21**	-.04	.01	--		
5. Interitem VRC	-.31**	-.05	.12	.05	--	
6. Observed VRC	-.38	.19	-.25	-.01	.06	--

Note: * <.05, **<.01; Significance values determined from bootstrapped confidence interval

Table 12. Correlation Table for Participants Currently in Romantic Relationships (N=165)

	1	2	3	4	5	6
1. Baseline Commitment	--					
2. Self-Reported Variability	-.34**	--				
3. Self-Reported Stability	.03	.10	--			
4. Situational VRC	.27**	-.00	-.02	--		
5. Interitem VRC	-.34**	-.07	.12	.08	--	
6. Observed VRC	-.35	.17	-.28	-.02	.06	--

Note: * <.05, **<.01; Significance values determined from bootstrapped confidence interval

Table 13. Correlation Table for Single Participants (N=54)

	1	2	3	4	5
1. Baseline Commitment	--				
2. Self-Reported Variability	-.26	--			
3. Self-Reported Stability	-.03	.21	--		
4. Situational VRC	-.16	.12	.15	--	
5. Interitem VRC	-.24	-.04	.10	-.01	--

Note: * <.05, **<.01; Significance values determined from bootstrapped confidence interval

Aim 3: Associations with Other Concepts

A number of associations were tested between different measures of VRC and various theoretically related relationship and personality constructs. It is important to point out that these results are cross-sectional and thus, directionality cannot be inferred.

A number of parallel tests are presented in this section: these results present the association between measures of VRC and related constructs controlling for commitment level and, in the case of situational VRC and self-reported variability, relationship status.

All associations between constructs and VRC measures are coalesced in Table 14 for ease of viewing.

Theoretical Predictors. Associations between constructs thought to create VRC were tested using the SEM model portrayed in Figure 1.

Relationship Length. For participants currently in relationships, relationship length was associated with lower self-reported variability ($\beta = -.16$, 95% CI[-.28,-.03]), but was not associated with self-reported stability ($\beta = -.05$, 95% CI[-.28,.14]). Additionally, relationship length was not associated with situational VRC ($\beta = -.02$, 95% CI[-.28,.19]), interitem VRC ($\beta = .02$, 95% CI[-.14,.13]), or observed VRC ($\beta = -.20$, 95% CI[-.88,.39]).

Associations with previous relationship length and VRC were examined for single participants. There were no associations between previous relationship length and self-reported variability ($\beta = .04$, 95% CI[-.16,.43]), self-reported stability ($\beta = -.07$, 95% CI[-.27,.06]), situational VRC ($\beta = -.19$, 95% CI[-.47,.10]), or interitem VRC ($\beta = -.19$, 95% CI[-.46,.05]).

Attachment Styles. Avoidant attachment was related to higher self-reported variability ($\beta = .14$, 95% CI [.07, .27]), but was not related to self-reported stability ($\beta = -.03$, 95% CI [-.17, .11]). Avoidant attachment was also related to lower interitem variability ($\beta = -.17$, 95% CI [-.28, -.04]). There were not significant associations between situational VRC ($\beta = .04$, 95% CI [-.10, .18]) or observed VRC ($\beta = -.28$, 95% CI [-.79, .05]). While not significant, the association between observed VRC and avoidant attachment was marginal (90% CI[-.70, -.01]).

Anxious attachment was related to higher self-reported variability ($\beta = .25$, 95% CI [.15, .37]) but not to self-reported stability ($\beta = .06$, 95% CI [-.10, .21]). Higher anxious attachment was related to lower interitem variability ($\beta = -.19$, 95% CI [-.30,-

.05]). However, there were no significant relationships observed between anxious attachment and situational VRC ($\beta = .00$, 95% CI [-.14,.15]) or observed VRC ($\beta = .01$, 95% CI[-.25,.33]).

Neuroticism. Neuroticism was not related to any of the VRC constructs: self-reported variability ($\beta = .09$, 95% CI [-.01, .21]); self-reported stability ($\beta = -.03$, 95% CI [-.15, .10]); situational VRC ($\beta = -.07$, 95% CI [-.21, .07]); interitem VRC ($\beta = -.00$, 95% CI [-.14, .14]); observed VRC ($\beta = .03$, 95% CI [-.26, .38]).

RCSE. RCSE was related to higher self-reported variability ($\beta = .23$, 95% CI [.09, .36]). RCSE was not related to any of the other measures of VRC: self-reported stability ($\beta = -.06$, 95% CI [-.22, .09]); interitem VRC ($\beta = -.07$, 95% CI [-.21, .07]); situational VRC ($\beta = .09$, 95% CI [-.05, .23]); observed VRC ($\beta = -.03$, 95% CI [-.42, .30]).

Self-Determined Motivations. More self-determined reasons for being in a relationship were associated with lower self-reported variability ($\beta = -.50$, 95% CI [-.65, -.35]) but was not associated with self-reported stability ($\beta = .03$, 95% CI [-.14, .20]). More self-determined motivation for being in a relationship was also associated with higher interitem variability ($\beta = .34$, 95% CI [.17, .50]). There were no associations between relationship motivation and situational VRC ($\beta = .04$, 95% CI [-.12, .09]) or observed VRC ($\beta = -.14$, 95% CI [-.76, .61])

Theoretical Outcomes. Associations between constructs thought to be caused by VRC were tested using the SEM model portrayed in Figure 2.

Need Satisfaction in Relationships. Self-reported variability was associated with lower relationship need satisfaction ($\beta = -.46$, 95% CI [-.58, -.34]). Self-reported stability was not related to need satisfaction ($\beta = .02$, 95% CI [-.11, .16]). Interitem VRC

was associated with higher need satisfaction in relationships ($\beta = .32$, 95% CI [.18, .45]). Situational VRC was not associated with need satisfaction ($\beta = -.00$, 95% CI [-.14, .12]). Observed VRC was also not associated with need satisfaction ($\beta = -.26$, 95% CI [-.1.12, .09]).

Former Partner Communication. Logistic models were tested to determine if participants with higher VRC were more likely to communicate with former partners. There were no significant effects for self-reported variability (OR = .75, 95% CI [.55, 1.02]), self-reported stability (OR = .75, 95% CI [.56, 1.00]), interitem (OR = 1.00, 95% CI [.75, 1.34]), situational VRC (OR = 1.11, 95% CI [.83, 1.47]), or observed VRC (OR = 1.11, 95% CI [.47, 2.64]).

A similar pattern of non-association occurred when using VRC to predict the amount that individuals talk to their former partners. There were no associations with former partner communication and self-reported variability ($\beta = .05$, 95% CI [-.12, .23]), self-reported stability ($\beta = -.13$, 95% CI [-.34, .07]), interitem VRC ($\beta = -.06$, 95% CI [-.26, .14]), situational VRC ($\beta = .03$, 95% CI [-.12, .22]), or observed VRC ($\beta = .06$, 95% CI [-.67, 1.44]).

Table 14. Combined Results of Associations of VRC Measures with Other Concepts

	Association between predictors and different measures of VRC				
	Self-Reported Variability	Self-Reported Stability	Situational VRC	Interitem VRC	Observed VRC
Relationship Length	-.16*	-.05	-.02	.02	-.20
Prev. Rel. Length	.04	-.07	-.19	-.19	NA
Avoidant Attachment	.14*	-.03	.04	-.17*	-.28 [†]
Anxious Attachment	.25*	.06	.00	-.19*	.01
Neuroticism	.09	-.03	-.07	.00	.03
RCSE	.23*	-.06	.09	-.07	-.03
Self-Determined Mot.	-.50*	.03	.04	.34*	-.14
	Associations between different measures of VRC and Outcomes				
	Self-Reported Variability	Self-Reported Stability	Situational VRC	Interitem VRC	Observed VRC
Need Satisfaction	-.46*	.02	.00	.32*	-.26 [†]
Former Partner Communication (yes/no)	.75	.75	1.11	1.00	1.11
Rate of Former Partner Communication	.05	-.13	.03	-.06	.06

Note: $p < .10$ [†] $p < .05$ *; all significance values determined from bootstrapped confidence intervals; Standardized regression coefficients are presented for all analyses except for analyses predicting former partner communication. Odds ratios are presented here.

Discussion

The most important result of Study 1 was the creation of the scale measuring self-reported variability. The self-reported VRC items factored into two largely orthogonal factors based on whether the item was coded positively or reverse coded. These two factors were called self-reported variability and self-reported stability, respectively.

When both factors were entered into a model, self-reported variability performed much

better than self-reported stability. The associations found with self-reported variability were in the proposed direction (with the exception of the positive association between avoidant attachment and self-reported variability). Also of note is how strong these associations were even after including commitment as a covariate. For example, the standardized path between autonomous motivation and situational VRC was $-.50$. One aspect of the design that may have enhanced these associations is that self-reported variability is measured in the same manner as the associated concepts so shared method variance may be partially responsible for this association.

A conceptual problem emerges in that self-reported stability was not related to self-reported variability. The two factors are orthogonal despite the fact that several of the items are set up the same way with the exception of the word ‘not’ added before ‘change.’ Additionally, self-reported stability was not associated with any of the related concepts. One possibility is that, for participants, mentally reversing an already cognitively complex question made the item harder to answer accurately. Another possibility is that participants invoke different cognitions and feelings when answering questions about stability versus variability. These cognitions and feelings may be unrelated to relationships. Along these lines, social desirability may also influence individuals’ answers differently on these questions. Questions about stability may be more or less affected by social desirability than questions about variability.

Self-reported variability is definitely tapping into an important relationship concept as can be seen from the associations found with relationship concepts. However, it is also likely that self-reported variability is, at least to a degree, assessing a general VRC concept. First, the items of self-reported variability have strong face validity. Self-

reported variability is also moderately associated with observed VRC. Despite a correlation of .19, the association between the two concepts was not significant because of the small number of participants who provided longitudinal records. The items for self-reported variability may be a viable option as a cross-sectional measure of VRC, but more research with a larger sample would be necessary to accurately determine the association with observed VRC as well as to examine the structure of the scale more fully (e.g., testing for differential item functioning between participants in relationships and single participants).

In contrast to the positive findings of self-reported variability, the situational VRC scale did not perform adequately. It was not associated with any of the concepts tested and was almost completely unrelated to observed VRC ($r = -.01$). Although the scale did not function well in the current sample, it may be of use to employ this scale in future research. One problem may have been the diversity of the item contents. I noticed that participants often responded very differently to different items. Some participants who were generally reactive to items were unperturbed by the item implying potential infidelity, which was typically the strongest negative item. In another example, some participants who were largely unreactive to the majority of the scale were very reactive to the item about family acceptance. These (admittedly anecdotal) examples lead me to believe that a more complete scale would have many more vignettes than the eight contained in the current study. Additionally, the content of these vignettes would ideally be balanced by topic with one (or more) positive vignette and a similar number and valence of negative vignettes. This would require determining commitment relevant

situation categories. In addition to being helpful for measuring situational VRC, such a bank of vignettes may be helpful for studying other concepts as well.

Interitem VRC did not perform as VRC was expected to perform. Ultimately, the method was developed as an indicator for individuals who have high VRC, but it has never been tested as directly as it was in Study 1. Although interitem VRC had significant associations with relationship relevant concepts, the direction of these associations were often in an unexpected direction. However, Study 2 will replicate these analyses to re-test whether the pattern of results is opposite of what was expected.

The largest disappointment with Study 1 was the poor participation rate in the longitudinal phase. The number of participants for this phase lagged throughout the study and by the time that I collected the proposed sample, the longitudinal sample was drastically low. I had hoped that the promise of five hours of SONA credit would entice most students who were eligible to participate. Additionally, I emphasized to each participant who consented how they did not have to complete *every* timepoint in order to be eligible to receive credit. Several things may have contributed to the poor recruitment. Many participants attempted to receive credit immediately before the end of the semester. This created a situation in which participants who were not psychology majors had no incentive to participate in the study because the credit could not be applied to their current class and participants were not planning to take another psychology class. Second, the morning and evening collection times are different than the majority of longitudinal studies conducted at University of Houston. Although the twice daily recording has been conducted successfully before (e.g., Foster et al., 2007), perhaps missing timepoints in the morning caused participants to feel helpless and not continue.

Lastly, with regard to participants not beginning the study, I talked with each participant in person to recruit them for the longitudinal phase. This may have created a situation in which participants felt obligated to agree to consent, despite not actually wishing to participate.

The small sample size for Study 1 has several ramifications. First, the associations tested between observed VRC and constructs in Study 1 were not significant despite the effort to use bootstrapping to increase power. These associations were tested again in Study 2 in a dyadic context with more power. Second, the associations between the scales developed and VRC cannot be established definitively. This is of most concern for self-reported variability because that scale is the only developed scale that appears to be relating to concepts as expected. However, even if observed VRC and self-reported variability are unrelated, both are associated with important concepts (actual variability and perceived variability, respectively) and so both represent important measures of VRC.

Study 2

Study 2 is a secondary analysis of a dataset collected for my master's thesis. This dataset was collected with the aim of examining the predictors of and the results of sacrifices in romantic relationships. This study involved collecting data from both members of a couple over two weeks. One of the longitudinal constructs collected was commitment. Observed VRC is determined from the longitudinal measurement of relationship commitment. Additionally, interitem VRC can be calculated from a standard deviation from a baseline measure.

Study 2 attempted to replicate the associations tested in Study 1, specifically the associations involving interitem VRC and observed VRC. As mentioned earlier, Study 2 also provided a stronger test of associations between observed VRC and related constructs.

Study 2 goes beyond the findings from Study 1 in that Study 2 examines the dyadic structure and tests for partner effects of VRC. It is likely that one's own VRC influences one's partner. Additionally, it is also likely that the actions, attributes, and behaviors of one's partner will affect the magnitude and frequency of fluctuations in relationship commitment. Thus, Study 2 tested for potential partner effects between related constructs and VRC.

Methods

Participants.

Couples were recruited from the University of Houston psychology research pool through advertisements posted on doors within the psychology program as well as research assistants attending classes in order to directly advertise to students. Students who participated were given five hours of research credit which could be applied to course credit per their instructors' policies. As most psychology students do not have a partner that is also a psychology student, partners who could not use course credit were offered a drawing in a raffle for six \$50 VISA cards. To be eligible for the study, all participants had to be at least 18 years old, have a partner who was also willing to participate, and have been dating for at least three months. Otherwise there were no other requirements.

Fifty-two couples completed the initial questionnaire and orientation. Of these couples, one did not record any records, one admitted to not actually dating their partner on the follow-up measure, and two couples admitted on the follow-up measure to having only one person completing the records for both partners yielding a final sample of 48 eligible couples. One member of three couples failed to complete any diary records, but these couples were not dropped from analysis because the member recording sacrifices could be used for testing effects that do not cross couples, such as those for hypothesis 1. Some participants completed more than one record for a given day. When this happened the record completed closer to the night of the correct day was selected and the other records were deleted. Additionally, some participants completed additional records after the two week period. These records were included in the analysis to maximize power.

Generally, participants were young (mean age=23.5, SD=6.1) and ethnically diverse with 32% White, 20 % Hispanic, 12% African American, 28% Asian, 10% of another race. Couples had been in their relationship for an average of 31.6 months (SD=30.6 months). Consistent with the average time dating, couples considered themselves to be in relatively serious relationship: 18.6% were married, 6.9% were engaged, 65.1% were dating seriously and 9.3% were dating casually. All but one couple (97.6%) reported exclusively dating their partner, one couple disagreed about whom was dating others with one partner reporting that neither dated others and one partner reporting that their partner dated others but they did not.

Overall, 1060 diary records were completed. A 10 AM cutoff was created to eliminate the well-being data of the more egregiously late records. Of the completed records, 36 records were recorded past 10am the following morning. Participants

completed an average of 11.75 (SD=3.53) records. Thirty-seven participants (39%) completed at least 14 records and nine (10%) completed more than 14 records.

Procedure.

Participants initially completed an online questionnaire assessing the status of their relationship and baseline relationship and personal well-being. Each participant was telephoned individually and given an orientation session over the phone. Participants were walked through a sample questionnaire and any questions they had were answered. Participants were also instructed not to discuss the study while it was ongoing and to try to complete the records away from their partner to ensure the privacy of their answers.

Once both members of a couple had gone through orientation, they began recording diary records nightly for two weeks. This questionnaire was mainly focused on the sacrifices that participants perform for each other, but as part of the study participants responded to the seven relationship commitment items. If a participant missed a session he/she was reminded the following morning through e-mail, text message, or phone call. Participants reminded in this way were still encouraged to complete a record. If participants completed a record after 10am the following day, the record was marked as missing. Upon completing the two week diary, participants responded to a follow-up questionnaire which was mainly focused on questions not pertinent to the current topic. However, this measure also double checked whether participants were truly eligible to participate in the study.

Measures.

Commitment and VRC. Participants answered the seven commitment items from the investment inventory scale both in the baseline packet and each day of the diary study

(Rusbult et al., 1998). Interitem VRC was calculated from the standard deviation within the baseline measure of commitment. Observed VRC was calculated by taking the standard deviation of all the timepoints reported for each participant. Alphas for commitment at baseline were .90 and .89 for men and women, respectively.

Attachment dimensions. Attachment was measured using the Experiences in Close Relationships-Revised questionnaire (Fraley, Waller, & Brennan, 2000). This questionnaire has two factors that describe the non-optimal forms of attachment styles (anxious and avoidant). Alphas for anxious attachment were .94 and .94 for men and women, respectively. Alphas for avoidant attachment were .91 and .94 for men and women, respectively.

Basic need satisfaction in relationships. Basic need satisfaction in relationships was measured in the same way as in Study 1. Alphas for need satisfaction were .93 and .92 for men and women, respectively.

Former partner communication. Former partner communication was measured with a single item assessing presence of absence of former partner communication as in Study 1. Participants who indicated that they did communicate with their former partner were asked to provide an estimate of how often in an open ended format. The frequency item was too sparse to use in the current study due to participants leaving the open ended response blank or providing information that could not be coded as in Study 1 (e.g., “too much”).

Relationship contingent self-esteem. RCSE was measured in the same way as in Study 1. Alphas for RCSE were .87 and .86 for men and women, respectively.

Neuroticism. Neuroticism was measured in the same manner as in Study 1. Correlations between items for neuroticism were .19 for men and .52 for women, respectively.

Autonomous motivation. Motivation for being in the relationship was measured in the same method as in Study 1. Alphas for autonomous motivation were .88 and .86 for men and women, respectively.

Data Analysis Plan

Aim 1. The first aim of Study 2 was to examine the dyadic nature of VRC. SEM was used to model the correlation matrix between men and women's measures of interitem and observed VRC. The correlations between interitem VRC and observed VRC display the concordance of methods of measuring VRC for men and women. The correlations between interitem VRC for men and women display the degree to which interitem VRC is a dyadic phenomenon and likewise for the correlation between men and women's observed VRC scores. If correlations between men and women begin to approach 1.0, it suggests that VRC is an increasingly dyadic phenomenon.

Aim 2. I wanted to repeat the analyses conducted in Study 1. As non-independence exists between partners, models were tested within an APIM framework with the partner effects restricted to be zero and commitment controlled as in Study 1. Also as in Study 1, these analyses were conducted in an SEM framework using bootstrapped samples of 5000. This provides a parallel replication of the results from Study 1.

Aim 3. The third aim of Study 2 was to examine partner effects of VRC. As in Study 1, associations were examined in isolation from the other constructs examined in

this project. However, models of theoretical predictors are based upon an APIM structure (see Figure 7) as are models of theoretical outcomes (see Figure 8). As the sample is exclusively heterosexual couples, sex can be treated as a distinguishing role within relationships (i.e., each relationship has one male and one female). SEM was used to empirically test whether gender should be used to differentiate partners within relationships by comparing a model in which paths, variances, and means are restricted to be equal between genders and a model in which these components are allowed to vary (Kenny, Kashy, & Cook, 2006). If the chi-square goodness of fit test comparing these models is significant, it indicates that gender is important to include within the model through the inclusion of separately estimated means, variances, and actor and partner effects. If the test reveals partners to be indistinguishable, actor and partner effects will be restricted to be equal between men and women. Relationship length was not examined as a dyadic predictor because the value should be the same for each member of the couple (a between-dyad variable), and thus, no partner effects are possible, but a model in which length predicts VRC will be run.

Figure 7. APIM model for VRC as an outcome

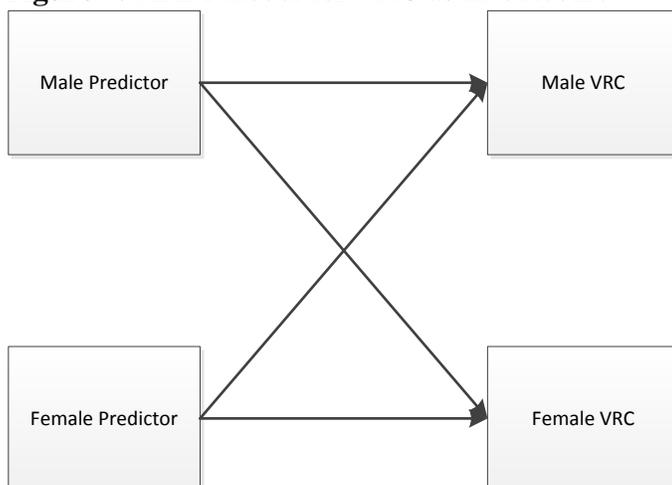
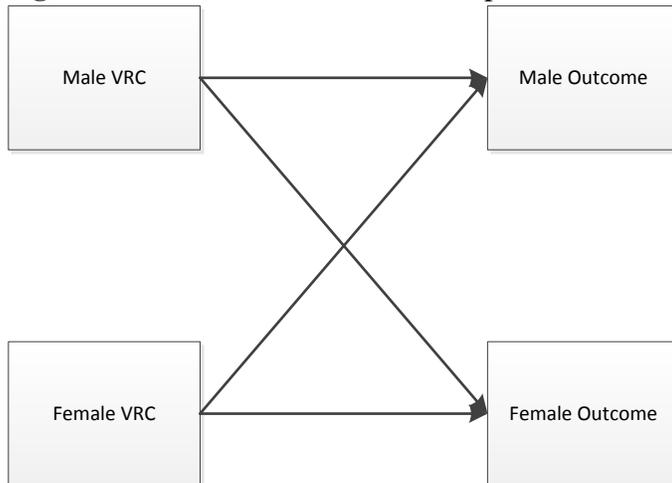


Figure 8. APIM model for VRC as a predictor



Results

Aim 1: Dyadic Structure of VRC

The first aim of Study 2 was to examine the dyadic structure of observed and interitem variability. Means and standard deviations for men and women for interitem VRC and observed VRC can be found in Table 15. Additionally, correlations were calculated between men and women and between types of VRC (see Table 16). The observed VRC correlation between men and women was not significant ($.24$, 95% CI $[-.09, .46]$), but the correlation between men and women for their interitem VRC was significant, ($r = .43$, 95% CI $[.10, .74]$). Additionally, men's interitem VRC was related to their observed VRC ($r = .49$, 95% CI $[.16, .94]$).

Table 15. Means and Standard Deviations of Men and Women

	Men	Women
	<u>M (SD)</u>	<u>M (SD)</u>
Observed VRC	.57 (.45)	.46 (.35)
Interitem VRC	.90 (1.05)	1.07 (1.26)

Table 16. Correlations Between VRC Types

	1	2	3	4
1. Female Observed VRC	--			
2. Female Interitem VRC	.19	--		
3. Male Observed VRC	.24	.10	--	
4. Male Interitem VRC	.13	.43**	.50**	--

*Note: ** <.001; All significance values calculated from bootstrapped sample

Aim 2: Replicating Study 1 Findings

All the effects between measures of VRC and predictors and outcomes have been repeated in Table 17 with results from interitem VRC and Table 18 with results from observed VRC for ease of viewing.

Theoretical predictors.

Relationship length. Because relationship length is a between-couples variable, it was tested using a latent variable derived from both male and female reports of relationship length predicting interitem VRC. The indistinguishable model was the optimal model ($\chi^2(8) = 14.08, p = .08$). Relationship length did not predict interitem VRC ($\beta = .11, 95\% \text{ CI } [-.09, .30]$).

Relationship length was tested for distinguishability in the same way as before, but using observed VRC. The optimal model for distinguishability was an

indistinguishable model ($\chi^2(8) = 7.10, p = .53$). Relationship length did not predict observed VRC ($\beta = .11, 95\% \text{ CI } [-.11, .35]$).

Attachment styles. Avoidant attachment was tested for distinguishability when predicting interitem VRC and the distinguishable model emerged as the optimal model ($\chi^2(8) = 19.18, p = .01$). Avoidant attachment was related to interitem variability for men ($\beta = .54, 95\% \text{ CI } [.28, .82]$) but only marginally for women ($\beta = .27, 95\% \text{ CI } [-.05, .58]$).

The model testing avoidant attachment predicting observed VRC was tested for distinguishability and the indistinguishable model emerged as the optimal model ($\chi^2(8) = 12.95, p = .11$). There was a significant association between higher avoidant attachment and higher observed VRC ($\beta = .48, 95\% \text{ CI } [.12, .83]$).

Anxious attachment was tested for distinguishability when predicting interitem VRC and the indistinguishable model emerged as the optimal model ($\chi^2(8) = 7.86, p = .45$). Anxious attachment was not related to interitem variability ($\beta = -.16, 95\% \text{ CI } [-.06, .40]$).

When using observed VRC as an outcome being predicted by anxious attachment, an indistinguishable model emerged as the optimal model for distinguishability ($\chi^2(8) = 9.86, p = .27$). Anxious attachment was related to higher observed VRC ($\beta = .40, 95\% \text{ CI } [.06, .67]$).

Neuroticism. Neuroticism was tested for distinguishability when predicting interitem VRC and the distinguishable model emerged as the optimal model ($\chi^2(8) = 22.93, p = .003$). Neuroticism was related to higher interitem VRC for men ($\beta = .27, 95\% \text{ CI } [.01, .47]$) but not for women ($\beta = .12, 95\% \text{ CI } [-.07, .33]$).

Neuroticism was tested for distinguishability when predicting observed VRC and the distinguishable model emerged as the optimal model ($\chi^2(8) = 30.54, p < .001$).

Neuroticism was related to higher observed VRC for men ($\beta = .47, 95\% \text{ CI } [.16, .82]$) but not for women ($\beta = .14, 95\% \text{ CI } [-.25, .47]$).

Self-determined motivations. Self-determined motivation was tested for distinguishability when predicting interitem VRC and the distinguishable model emerged as the optimal model ($\chi^2(8) = 28.15, p < .001$). Motivation to be in a relationship was associated with men's interitem variability ($\beta = -.48, 95\% \text{ CI } [-.75, -.22]$), but not women's interitem variability ($\beta = -.03, 95\% \text{ CI } [-.36, .27]$).

An indistinguishable model emerged as optimal when testing for distinguishability of the model in which self-determined motivation predicted observed VRC ($\chi^2(8) = 15.10, p = .06$). Observed variability was not significantly associated with motivation to be in a relationship ($\beta = -.24, 95\% \text{ CI } [-.53, .04]$).

RCSE. The model in which RCSE is used as a predictor for interitem VRC was tested for distinguishability and the indistinguishable model emerged as optimal ($\chi^2(8) = 7.75, p = .45$). There was not an association between RCSE and interitem VRC ($\beta = .03, 95\% \text{ CI } [-.11, .12]$).

The model in which RCSE is used as a predictor for observed VRC was tested for distinguishability and the indistinguishable model emerges as the optimal model ($\chi^2(8) = 8.65, p = .37$). RCSE was not related to observed VRC ($\beta = .02, 95\% \text{ CI } [-.15, .15]$).

Theoretical outcomes.

Need satisfaction in relationships. The model in which interitem VRC was used as a predictor of relationship need satisfaction was tested for distinguishability and the

indistinguishable model emerged as the optimal model ($\chi^2(8) = 13.44, p = .10$).

Interitem variability was not associated with relationship need satisfaction ($\beta = -.04, 95\%$ CI [-.27, .17]).

The model in which observed VRC was used as a predictor for relationship need satisfaction was tested for distinguishability and the indistinguishable model emerged as the optimal model ($\chi^2(8) = 12.62, p = .13$). Observed variability was related to lower need satisfaction in relationship ($\beta = -.32, 95\%$ CI [-.52, -.10]).

Former partner communication. A probit model in which interitem VRC was used to predict whether or not participants communicate with former partners was tested for distinguishability and the distinguishable model fit better ($\chi^2(7) = 14.39, p = .04$). There was no association between former partner communication and interitem VRC for females (estimate = -.01, 95% CI [-.77, .79]), but men with higher interitem VRC were more likely to communicate with former partners (estimate = .79, 95% CI [.12, 2.13]).

A probit model in which observed VRC was used to predict whether or not participants communicate with former partners was tested for distinguishability and the distinguishable model fit better ($\chi^2(7) = 12.31, p = .09$). Observed VRC was not associated with a higher likelihood to communicate with former partner (estimate = -.14, 95% CI [-.87, .39]).

Table 17. Replication of Study 1 with Interitem VRC

	Type of Analysis	Male Interitem VRC	Female Interitem VRC
Relationship Length	Indistinguishable	.11	
Avoidant Attachment	Distinguishable	.54*	.27
Anxious Attachment	Indistinguishable	-.16	
Neuroticism	Distinguishable	.27*	.12
Autonomous Motivations	Distinguishable	-.48*	-.03
RCSE	Indistinguishable	.03	
Need Satisfaction	Indistinguishable	-.04	
Former Partner Communication ^a	Distinguishable	.79*	-.01

Note: * $p < .05$, ^a Model is conducted with probit estimates

Table 18. Replication of Study 1 with Observed VRC

	Type of Analysis	Male Observed VRC	Female Observed VRC
Relationship Length	Indistinguishable	.11	
Avoidant Attachment	Indistinguishable	.48*	
Anxious Attachment	Indistinguishable	.40*	
Neuroticism	Distinguishable	.47*	.14
Autonomous Motivations	Indistinguishable	-.24	
RCSE	Indistinguishable	.02	
Need Satisfaction	Indistinguishable	-.32*	
Former Partner Communication ^a	Indistinguishable	-.14	

Note: * $p < .05$, ^a Model is conducted with probit estimates

Aim 3: Looking for Partner Effects

For ease of viewing, all effects relating to VRC for the following models are presented in Table 19 for interitem VRC and Table 20 for observed VRC.

Theoretical predictors.

Attachment styles

A distinguishable model emerged as optimal when avoidant attachment was used as a predictor of interitem VRC ($\chi^2(10) = 19.42, p = .04$). For men, actor avoidant

attachment was associated with one's own higher interitem VRC ($\beta = .58$, 95% CI [.30, .91]). There were no significant actor effects for women ($\beta = .19$, 95% CI [-.31, .64]). Partner avoidant attachment was not associated with interitem VRC for men ($\beta = -.06$, 95% CI [-.38, .26]) or women ($\beta = .10$, 95% CI [-.34, .60]).

An indistinguishable model emerged as the optimal model when avoidant attachment was used as a predictor of observed VRC ($\chi^2(10) = 17.63$, $p = .06$). Actor avoidant attachment was associated with higher observed VRC ($\beta = .60$, 95% CI [.30, .93]). Partner avoidant attachment was marginally associated with lower observed VRC ($\beta = -.29$, 95% CI [-.62, .04]).

An indistinguishable model emerged as optimal when anxious attachment was used as a predictor of interitem VRC ($\chi^2(10) = 8.50$, $p = .58$). Neither actor anxious attachment ($\beta = .14$, 95% CI [-.05, .40]) nor partner anxious attachment ($\beta = -.12$, 95% CI [-.35, .09]) were significantly associated with interitem VRC.

An indistinguishable model also fit best when using anxious attachment to predict observed VRC ($\chi^2(10) = 11.64$, $p = .31$). Actor anxious attachment was associated with observed VRC ($\beta = .42$, 95% CI [.11, .71]) but partner anxious attachment was not ($\beta = -.09$, 95% CI [-.34, .17]).

Neuroticism. A distinguishable model was the better fitting model when examining neuroticism as a predictor of interitem VRC ($\chi^2(10) = 24.35$, $p = .007$). Neither actor ($\beta = .07$, 95% CI [-.12, .32]) nor partner ($\beta = .03$, 95% CI [-.41, .29]) neuroticism was associated with interitem VRC for women. For men, actor neuroticism was associated with higher interitem VRC ($\beta = .25$, 95% CI [.01, .53]). Partner neuroticism was not associated with interitem VRC ($\beta = .07$, 95% CI [-.16, .31]).

A distinguishable model was the better fitting model when examining neuroticism as a predictor of observed VRC ($\chi^2(10) = 33.75, p < .001$). Actor effects emerged for men such that higher neuroticism was associated with higher observed VRC ($\beta = .51, 95\% \text{ CI } [.20, .86]$). Women's neuroticism did not affect men ($\beta = -.10, 95\% \text{ CI } [-.47, .29]$). Women did not have an actor effect of neuroticism ($\beta = -.13, 95\% \text{ CI } [-.54, .42]$), but there was a partner effect of men's neuroticism ($\beta = .48, 95\% \text{ CI } [.04, .88]$).

Self-determined motivations. A distinguishable model was the better fitting model when examining self-determined motivation as a predictor of interitem VRC ($\chi^2(10) = 28.31, p = .002$). An actor effect for men emerged where higher self-determined motivation predicted lower interitem VRC ($\beta = -.45, 95\% \text{ CI } [-.74, -.19]$). There were no significant partner effects for men ($\beta = -.11, 95\% \text{ CI } [-.33, .11]$), or actor ($\beta = .04, 95\% \text{ CI } [-.30, .35]$) or partner ($\beta = -.14, 95\% \text{ CI } [-.45, .08]$) for women.

A distinguishable model was the better fitting model when examining self-determined motivation as a predictor of observed VRC ($\chi^2(10) = 18.61, p = .045$). There were no significant actor effects of motivation for men ($\beta = -.28, 95\% \text{ CI } [-.74, .16]$) or women ($\beta = -.20, 95\% \text{ CI } [-.54, .24]$). Additionally, there were no significant partner effects of motivation for women ($\beta = .17, 95\% \text{ CI } [-.44, .66]$) or men ($\beta = .05, 95\% \text{ CI } [-.41, .57]$).

RCSE. An indistinguishable model was the better fitting model when examining RCSE as a predictor of interitem VRC in a dyadic context ($\chi^2(10) = 10.15, p = .44$). There were no actor ($\beta = .03, 95\% \text{ CI } [-.10, .14]$) or partner effects ($\beta = -.01, 95\% \text{ CI } [-.20, .17]$) of RCSE on interitem VRC.

An indistinguishable model was the better fitting model when examining RCSE as a predictor of observed VRC in a dyadic context ($\chi^2(10) = 14.06, p = .17$). There were no actor ($\beta = .02, 95\% \text{ CI } [-.13, .16]$) or partner effects ($\beta = -.13, 95\% \text{ CI } [-.34, .05]$) of RCSE on observed VRC.

Theoretical outcomes.

Need satisfaction in relationships. A distinguishable model was a better fitting model when examining interitem VRC as a predictor of need satisfaction in relationships ($\chi^2(10) = 19.87, p = .03$). There were no actor effects for men ($\beta = -.04, 95\% \text{ CI } [-.51, .28]$) or women ($\beta = .09, 95\% \text{ CI } [-.42, .33]$) of interitem VRC on relationship need satisfaction. There were no partner effects for men ($\beta = -.03, 95\% \text{ CI } [-.42, .27]$) or women ($\beta = -.20, 95\% \text{ CI } [-.76, .28]$) of interitem VRC on relationship need satisfaction.

An indistinguishable model was a better fitting model when examining observed VRC as a predictor of relationship need satisfaction ($\chi^2(10) = 17.10, p = .07$). There was an actor effect of observed VRC such that higher observed VRC predicted of need satisfaction ($\beta = -.31, 95\% \text{ CI } [-.48, -.14]$). There was not a significant partner effect ($\beta = -.05, 95\% \text{ CI } [-.27, .15]$).

Former partner communication. Former partner communication was tested using a probit model. An indistinguishable model was a better fitting model when examining interitem VRC predicting the likelihood that one would communicate with former partners ($\chi^2(9) = 14.84, p = .09$). There was not an actor (estimate = .20, 95% CI [-1.64, .78]) or partner (estimate = .14, 95% CI [-.69, 1.55]) effect of interitem VRC on likelihood to communicate with former partners.

An indistinguishable model was a better fitting model when examining observed VRC predicting the likelihood that one would communicate with former partners ($\chi^2(9) = 13.22, p = .15$). There were no actor (estimate = $-.15$, 95% CI $[-.92, .37]$) or partner (estimate = $.05$, 95% CI $[-.38, .96]$) effects of observed VRC.

Table 19. Actor and Partner Effects Relating to Interitem VRC

	Type of Analysis	Male Actor Interitem VRC	Female Actor. Interitem VRC	Male Partner Interitem VRC	Female Partner. Interitem VRC
Avoidant Attachment	Dist.	.58*	.19	-.06	.10
Anxious Attachment	Indist.	.14		-.12	
Neuroticism	Dist.	.25*	.07	.07	.03
Autonomous Motivations	Dist.	-.45*	.04	-.11	-.14
RCSE	Indist.	.03		-.01	
Need Satisfaction	Dist.	-.04	.09	-.03	-.20
Former Partner Communication ^a	Indist.	.20	.14		

Note: * $p < .05$, ^a Model is conducted with probit estimates

Table 20. Actor and Partner Effects Relating to Observed VRC

	Type of Analysis	Male Actor Obs. VRC	Female Actor. Obs. VRC	Male Partner Obs. VRC	Female Partner. Obs. VRC
Avoidant Attachment	Indist.	.60*		-.29	
Anxious Attachment	Indist.	.42*		-.09	
Neuroticism	Dist.	.51*	-.10	-.13	.48*
Autonomous Motivations	Dist.	-.28	-.20	.17	.05
RCSE	Indist.	.02		-.13	
Need Satisfaction	Indist.	-.31*		-.05	
Former Partner Communication ^a	Indist.	-.15		.05	

Note: * $p < .05$, ^a Model is conducted with probit estimates

Discussion

Study 2 provided estimates of the association between observed VRC and associated concepts in a much more powerful context than in Study 1. While the effect sizes seen in Study 1 were large, Study 2 replicated many of these effects and in addition was able to obtain statistically significant results for many of these associations. This is an important step in that it displays the usefulness of VRC as it has been traditionally measured.

Study 2 also examined the associations between interitem VRC and related constructs tested in Study 1. The results of Study 2 indicate that interitem VRC may indeed be functioning similar to how the measure was proposed. Interitem variability seems to be especially important for men within relationships. Men also demonstrated a strong correlation between their observed VRC and their interitem VRC which was not found for women.

Partner effects were also examined in Study 2. Surprisingly, most of the partner effects were not significant (with the exception of male neuroticism on female observed VRC). This suggests that VRC is a construct that largely affects oneself only and not necessarily one's partner. One possibility for this emerging is that individuals either subliminally or explicitly attempt to hide their changing commitment from his or her partner either to protect the partner or the relationship. Alternatively, individuals may be displaying VRC, but partners are not affected by these or they do not notice.

The major limitation of Study 2 was that it did not contain all the measures of VRC contained in Study 1 because it was a reanalysis of an existing dataset. Thus, the dyadic nature of the self-reported variability scale could not be tested and replicated. However, Study 2 demonstrates the feasibility of incorporating VRC into the relationship

literature quickly as previously collected studies can be used to test hypotheses about VRC. Additionally, interitem VRC performed as expected in this sample. This may indicate that interitem VRC could be used in cross-sectional samples as a proxy for VRC. However, more research would need to be conducted before this could be done.

General Conclusion

This dissertation outlines the theoretical underpinnings for the study of variability in relationship commitment. VRC and partner VRC are associated with stay-leave behaviors within relationships beyond simple level of commitment (Arriaga et al., 2006). Further, commitment that changes versus commitment that remains stable describes implicitly different relationships, but without examining the variability of relationship commitment in addition to its level, these differences cannot be captured statistically.

The current dissertation had two primary aims. The first was to develop the idea of variability in relationship commitment. Prior work had examined variability with regards only to breakup and depression, but never as a potentially programmatic focus within relationship research (Arriaga et al., 2006; Arriaga, 2001; Whitton & Whisman, 2010). Furthermore, the idea of what constitutes variability in relationship commitment was narrowly defined, and there had been no attempts to capture VRC in different ways. Although important findings (i.e., depression and stay-leave behavior) had been revealed from examining variability in relationship satisfaction, there were not ongoing efforts to examine variability as an important predictor. The current studies expand the idea of VRC to include cognitive variability (self-reported variability) and potential variability in commitment (situational VRC), and even item-level variability (interitem variability).

The second overarching aim of the current studies was to provide tools and reveal potential avenues for future research. Several of the measures examined in Study 1 are not suitable for use in research (at least not in their current state). However, one measure—self-reported variability—performed well and demonstrated several strong associations beyond the effect of commitment level. This measure may provide a way to study variability without expending the additional resources and effort required to collect a longitudinal study.

The current studies also focused on the association between VRC and a number of diverse personality and relationship constructs. These concepts may provide a starting point for bringing VRC into mainstream relationship research.

Several of the constructs studied did not demonstrate a large association with VRC, specifically former partner communication, RCSE, and neuroticism. These null findings are surprising for RCSE and neuroticism because the relationship between these two constructs and VRC seem clear. With neuroticism, one reason for this may be because neuroticism was measured as a global trait and the global trait may not have been specific enough to relationships to be related. With RCSE, I assumed that individuals' relationship commitment would fluctuate in the same manner as their self-esteem and affect. However, as these individuals place strong importance on their relationships, it may be that they never allow their commitment to the relationship to falter.

The results of the studies seem to generically imply that VRC is a negative attribute. As hypothesized, VRC was positively associated with higher anxiety, less self-determined motivations for being in a relationship, and less relationship need satisfaction. One hypothesis was that avoidant attachment styles would be associated with lower

VRC, but the results came out in the opposite direction further supporting the negativity of VRC.

Limitations and Future Directions

The main limitation of the current studies is the small longitudinal sample size in Study 1. This prevented the estimation of a stable correlation between self-reported variability and observed VRC. This was an important subpiece of the current dissertation in that it allowed for connections between an established form of VRC and the developed measure. The lack of this connection prevents self-reported variability from being used as a proxy for a longitudinal study. However, the pattern of association between self-reported variability and different constructs in Study 1 was similar to the pattern found with regards to observed VRC in Study 2. This lends plausibility to the idea that both measures are tapping into the same latent construct. Future studies should examine this with a larger longitudinal sample.

However, if the constructs are not related, it would not invalidate the scale developed in Study 1. This scale asks participants to assess their own variability and so it may simply be tapping into cognitions that have little relation to the behavioral target (i.e., fluctuations in commitment). If this were the case, the associations in Study 1 would indicate that these cognitions are important to relationships and merit further study in their own right.

The second limitation of the current studies is by design. The associations examined are little more than correlations controlling for level of relationship commitment. As there is little information about VRC in the literature, I chose to examine a large number of constructs in order to provide basic associations to inform

future studies. Future research should attempt to integrate VRC into theoretical processes relating to these constructs. For example, anxious attachment styles are often associated with negative relationship outcomes. It is possible and testable to examine whether this effect is mediated by VRC.

With regards to observed and interitem VRC, measuring the standard deviation without a large number of observations or items leads to low reliability of the measure of standard deviation. This may be the root cause of many of the non-significant findings regarding these measures. Future studies should examine the psychometric properties of these items using simulations. Additionally, I did not attempt to use person-fit IRT statistics to identify participants who answered in atypical manners. Participants who answer all questions with the same number may have high interitem VRC (if answering at the lowest or highest point) or no interitem VRC (if answering at the middle point).

Further, future studies should attempt to determine directionality between these constructs and VRC. With observed VRC, determining causal direction is more difficult than with other constructs because a panel design involving multiple longitudinal phases would need to be constructed. The creation of the scale assessing self-reported variability may make this a simpler design in that no longitudinal designs would be needed, and a simple panel design could be used. Future research should also examine the behavior and interaction between VRC and commitment level. For self-esteem, only people with high, stable self-esteem exhibit optimal well-being. A similar pattern may also emerge when examining VRC and commitment.

The current studies provide many of the beginning steps for establishing VRC as an important concept within relationship research. A research program focused on VRC

would be almost completely novel in relationship research and thus, have potential to be incredibly fruitful. Although the current research provides tools and a guide for future research, much research is still needed on the concept of VRC before it can enter into mainstream theories. However, if the observed effect sizes are any indication, VRC has the potential to add a substantial amount to the current literature.

References

- Acitelli, L. K., Douvan, E., & Veroff, J. (1993). Perceptions of conflict in the first year of marriage: How important are similarity and understanding? *Journal of Social and Personal Relationships, 10*(1), 5–19. doi:10.1177/0265407593101001
- Aronson, E., Wilson, T. D., & Akert, R. M. (2010). *Social psychology*. Upper Saddle River, NJ: Prentice Hall.
- Arriaga, X. B. (2001). The ups and downs of dating: Fluctuations in satisfaction in newly formed romantic relationships. *Journal of Personality and Social Psychology, 80*(5), 754–765. doi:10.1037/0022-3514.80.5.754
- Arriaga, X. B., & Agnew, C. R. (2001). Being committed: Affective, cognitive, and conative components of relationship commitment. *Personality and Social Psychology Bulletin, 27*(9), 1190–1203. doi:10.1177/0146167201279011
- Arriaga, X. B., Reed, J. T., Goodfriend, W., & Agnew, C. R. (2006). Relationship perceptions and persistence: Do fluctuations in perceived partner commitment undermine dating relationships? *Journal of Personality and Social Psychology, 91*(6), 1045–1065. doi:10.1037/0022-3514.91.6.1045
- Baumeister, R. F., & Tice, D. M. (1988). Metraits. *Journal of Personality, 56*(3), 571–598. doi:10.1111/j.1467-6494.1988.tb00903.x
- Baxter, L. A., Braithwaite, D. O., & Nicholson, J. H. (1999). Turning points in the development of blended families. *Journal of Social and Personal Relationships, 16*(3), 291–313. doi:10.1177/0265407599163002
- Baxter, L. A., & Bullis, C. (1986). Turning points in developing romantic relationships. *Human Communication Research, 12*(4), 469–493. doi:10.1111/j.1468-2958.1986.tb00088.x

- Baxter, L. A., & Erbert, L. A. (1999). Perceptions of dialectical contradictions in turning points of development in heterosexual romantic relationships. *Journal of Social and Personal Relationships, 16*(5), 547–569. doi:10.1177/0265407599165001
- Baxter, L. A., & Pittman, G. (2001). Communicatively remembering turning points of relational development in heterosexual romantic relationships. *Communication Reports, 14*(1), 1–17. doi:10.1080/08934210109367732
- Bingham, W. V. (1932). Reliability, validity, and dependability. *Journal of Applied Psychology, 16*(2), 116–122. doi:10.1037/h0075022
- Blais, M. R., Sabourin, S., Boucher, C., & Vallerand, R. J. (1990). Toward a motivational model of couple happiness. *Journal of Personality and Social Psychology, 59*(5), 1021–1031. doi:10.1037/0022-3514.59.5.1021
- Bush, A. L., Rodriguez, L. R., & Knee, C. R. (Unpublished Data). A Longitudinal Examination of Former Partner Communication.
- Campbell, W. K., Bosson, J. K., Goheen, T. W., Lakey, C. E., & Kernis, M. H. (2007). Do narcissists dislike themselves “deep down inside?” *Psychological Science, 18*(3), 227–229. doi:10.1111/j.1467-9280.2007.01880.x
- Cann, A., & Baucom, T. R. (2004). Former partners and new rivals as threats to a relationship: Infidelity type, gender, and commitment as factors related to distress and forgiveness. *Personal Relationships, 11*(3), 305–318. doi:10.1111/j.1475-6811.2004.00084.x
- Cassidy, J., & Kobak, R. R. (1988). Avoidance and its relation to other defensive processes. In J. Belsky & T. Nezworski (Eds.), *Clinical implications of attachment*. (pp. 300–323). Hillsdale, NJ England: Lawrence Erlbaum Associates, Inc.

- Chabrol, H., Rousseau, A., & Callahan, S. (2006). Preliminary results of a scale assessing instability of self-esteem. *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement*, 38(2), 136–141. doi:10.1037/cjbs2006003
- Collins, N. L., & Read, S. J. (1990). Adult attachment, working models, and relationship quality in dating couples. *Journal of Personality and Social Psychology*, 58(4), 644–663. doi:10.1037/0022-3514.58.4.644
- Crocker, J., & Wolfe, C. T. (2001). Contingencies of self-worth. *Psychological Review*, 108(3), 593–623. doi:10.1037/0033-295X.108.3.593
- Dailey, R. M., Rossetto, K. R., Pfiester, A., & Surra, C. A. (2009). A qualitative analysis of on-again/off-again romantic relationships: “It’s up and down, all around.” *Journal of Social and Personal Relationships*, 26(4), 443–466. doi:10.1177/0265407509351035
- Dautovich, N. D., Kay, D. B., Perlis, M. L., Dzierzewski, J. M., Rowe, M. A., & McCrae, C. S. (2012). Day-to-day variability in nap duration predicts medical morbidity in older adults. *Health Psychology*, 31(5), 671–676. doi:10.1037/a0027374
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268. doi:10.1207/S15327965PLI1104_01
- Drigotas, S. M., Safstrom, C. A., & Gentilia, T. (1999). An investment model prediction of dating infidelity. *Journal of Personality and Social Psychology*, 77(3), 509–524. doi:10.1037/0022-3514.77.3.509
- Feeney, J. A., & Noller, P. (1990). Attachment style as a predictor of adult romantic relationships. *Journal of Personality and Social Psychology*, 58(2), 281–291. doi:10.1037/0022-3514.58.2.281

- Foster, J. D., Kernis, M. H., & Goldman, B. M. (2007). Linking Adult Attachment of Self-Esteem Stability. *Self and Identity*, 6(1), 64–73. doi:10.1080/15298860600832139
- Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology*, 78(2), 350–365. doi:10.1037/0022-3514.78.2.350
- Gable, S. L., & Nezlek, J. B. (1998). Level and instability of day-to-day psychological well-being and risk for depression. *Journal of Personality and Social Psychology*, 74(1), 129–138. doi:10.1037/0022-3514.74.1.129
- Gosling, S. D., Rentfrow, P. J., & Swann, W. B. J. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality*, 37(6), 504–528. doi:10.1016/S0092-6566(03)00046-1
- Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, 52(3), 511–524. doi:10.1037/0022-3514.52.3.511
- Hazan, C., & Shaver, P. R. (1994). Attachment as an organizational framework for research on close relationships. *Psychological Inquiry*, 5(1), 1–22. doi:10.1207/s15327965pli0501_1
- Heller, D., Watson, D., & Ilies, R. (2004). The Role of Person Versus Situation in Life Satisfaction: A Critical Examination. *Psychological Bulletin*, 130(4), 574–600. doi:10.1037/0033-2909.130.4.574
- Heppner, W. L., Kernis, M. H., Nezlek, J. B., Foster, J., Lakey, C. E., & Goldman, B. M. (2008). Within-person relationships among daily self-esteem, need satisfaction, and authenticity. *Psychological Science*, 19(11), 1140–1145. doi:10.1111/j.1467-9280.2008.02215.x

- Joel, S., MacDonald, G., & Shimotomai, A. (2011). Conflicting pressures on romantic relationship commitment for anxiously attached individuals. *Journal of Personality*, 79(1), 51–74. doi:10.1111/j.1467-6494.2010.00680.x
- Kelly, H.H & Thibaut, J. W. (1978). *Interpersonal Relations : A Theory of Interdependence*. New York: Wiley.
- Kenny, D. A. (1996). Models of non-independence in dyadic research. *Journal of Social and Personal Relationships*, 13(2), 279–294. doi:10.1177/0265407596132007
- Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic Data Analysis* (1st ed.). The Guilford Press.
- Kernis, M. H. (2003). Toward a Conceptualization of Optimal Self-Esteem. *Psychological Inquiry*, 14(1), 1–26. doi:10.1207/S15327965PLI1401_01
- Kernis, M. H. (2005). Measuring self-esteem in context: The importance of stability of self-esteem in psychological functioning. *Journal of Personality*, 73(6), 1569–1605. doi:10.1111/j.1467-6494.2005.00359.x
- Kernis, M. H., Cornell, D. P., Sun, C.-R., Berry, A., & Harlow, T. (1993). There's more to self-esteem than whether it is high or low: The importance of stability of self-esteem. *Journal of Personality and Social Psychology*, 65(6), 1190–1204. doi:10.1037/0022-3514.65.6.1190
- Kernis, M. H., & Goldman, B. M. (2006). Assessing Stability of Self-Esteem and Contingent Self-Esteem. In M. H. Kernis (Ed.), *Self-esteem issues and answers: A sourcebook of current perspectives*. (pp. 77–85). New York, NY US: Psychology Press.

- Kernis, M. H., Grannemann, B. D., & Barclay, L. C. (1992). Stability of self-esteem: Assessment, correlates, and excuse making. *Journal of Personality, 60*(3), 621–644. doi:10.1111/j.1467-6494.1992.tb00923.x
- Kernis, M. H., & Waschull, S. B. (1995). The interactive roles of stability and level of self-esteem: Research and theory. In M. P. Zanna (Ed.), *Advances in experimental social psychology, Vol. 27*. (pp. 93–141). San Diego, CA US: Academic Press.
- Kernis, M. H., Whisenhunt, C. R., Waschull, S. B., Greenier, K. D., Berry, A. J., Herlocker, C. E., & Anderson, C. A. (1998). Multiple facets of self-esteem and their relations to depressive symptoms. *Personality and Social Psychology Bulletin, 24*(6), 657–668. doi:10.1177/0146167298246009
- Knee, C. R., Canevello, A., Bush, A. L., & Cook, A. (2008). Relationship-contingent self-esteem and the ups and downs of romantic relationships. *Journal of Personality and Social Psychology, 95*(3), 608–627. doi:10.1037/0022-3514.95.3.608
- La Guardia, J. G., Ryan, R. M., Couchman, C. E., & Deci, E. L. (2000). Within-person variation in security of attachment: A self-determination theory perspective on attachment, need fulfillment, and well-being. *Journal of Personality and Social Psychology, 79*(3), 367–384. doi:10.1037/0022-3514.79.3.367
- Le, B., & Agnew, C. R. (2003). Commitment and its theorized determinants: A meta-analysis of the investment model. *Personal Relationships, 10*(1), 37–57. doi:10.1111/1475-6811.00035
- Le, B., Dove, N. L., Agnew, C. R., Korn, M. S., & Mutso, A. A. (2010). Predicting nonmarital romantic relationship dissolution: A meta-analytic synthesis. *Personal Relationships, 17*(3), 377–390. doi:10.1111/j.1475-6811.2010.01285.x

- Lopez, F. G., & Gormley, B. (2002). Stability and change in adult attachment style over the first-year college transition: Relations to self-confidence, coping, and distress patterns. *Journal of Counseling Psychology, 49*(3), 355–364. doi:10.1037/0022-0167.49.3.355
- Miller, R., & Perlman, D. (2008). *Intimate Relationships*. McGraw-Hill Companies, Incorporated.
- Miller, R. S. (1997). Inattentive and contented: Relationship commitment and attention to alternatives. *Journal of Personality and Social Psychology, 73*(4), 758–766. doi:10.1037/0022-3514.73.4.758
- Murray, S. L., & Holmes, J. G. (2011). *Interdependent minds: The dynamics of close relationships*. New York, NY US: Guilford Press.
- Murray, S. L., Holmes, J. G., & Collins, N. L. (2006). Optimizing assurance: The risk regulation system in relationships. *Psychological Bulletin, 132*(5), 641–666. doi:10.1037/0033-2909.132.5.641
- Newman, L. S., & Wadas, R. F. (1997). When stakes are higher: Self-esteem instability and self-handicapping. *Journal of Social Behavior & Personality, 12*(1), 217–232.
- Paradise, A. W., & Kernis, M. H. (2002). Self-esteem and psychological well-being: Implications of fragile self-esteem. *Journal of Social and Clinical Psychology, 21*(4), 345–361. doi:10.1521/jscp.21.4.345.22598
- Rusbult, C. E. (1980). Commitment and satisfaction in romantic associations: A test of the investment model. *Journal of Experimental Social Psychology, 16*(2), 172–186. doi:10.1016/0022-1031(80)90007-4
- Rusbult, C. E., Johnson, D. J., & Morrow, G. D. (1986). Determinants and consequences of exit, voice, loyalty, and neglect: Responses to dissatisfaction in adult romantic involvements. *Human Relations, 39*(1), 45–63. doi:10.1177/001872678603900103

- Rusbult, C. E., Kumashiro, M., Kubacka, K. E., & Finkel, E. J. (2009). "The part of me that you bring out": Ideal similarity and the Michelangelo phenomenon. *Journal of Personality and Social Psychology*, *96*(1), 61–82. doi:10.1037/a0014016
- Rusbult, C. E., Martz, J. M., & Agnew, C. R. (1998). The Investment Model Scale: Measuring commitment level, satisfaction level, quality of alternatives, and investment size. *Personal Relationships*, *5*(4), 357–391. doi:10.1111/j.1475-6811.1998.tb00177.x
- Samejima, F. (1969). Estimation of latent ability using a response pattern of graded scores. *Psychometrika Monograph Supplement*, *34*(4, Pt. 2).
- Saucier, G. (1994). Mini-Markers: A Brief Version of Goldberg's Unipolar Big-Five Markers. *Journal of Personality Assessment*, *63*(3), 506–516. doi:10.1207/s15327752jpa6303_8
- Shaikh al arab, A., Guédon-Moreau, L., Ducrocq, F., Molenda, S., Duhem, S., Salleron, J., ... Vaiva, G. (2012). Temporal analysis of heart rate variability as a predictor of post traumatic stress disorder in road traffic accidents survivors. *Journal of Psychiatric Research*, *46*(6), 790–796. doi:10.1016/j.jpsychires.2012.02.006
- Simpson, J. A., Rholes, W. S., Campbell, L., & Wilson, C. L. (2003). Changes in attachment orientations across the transitions to parenthood. *Journal of Experimental Social Psychology*, *39*(4), 317–331. doi:10.1016/S0022-1031(03)00030-1
- Snijders, T. A. B., & Bosker, R. (1999). *Multilevel Analysis: An Introduction to Basic and Advanced Multilevel Modeling* (1st ed.). Sage Publications Ltd.
- Solomon, D. H., & Knobloch, L. K. (2004). A model of relational turbulence: The role of intimacy, relational uncertainty, and interference from partners in appraisals of irritations. *Journal of Social and Personal Relationships*, *21*(6), 795–816. doi:10.1177/0265407504047838

- Specht, J., Egloff, B., & Schmukle, S. C. (2011). Stability and change of personality across the life course: The impact of age and major life events on mean-level and rank-order stability of the Big Five. *Journal of Personality and Social Psychology, 101*(4), 862–882. doi:10.1037/a0024950
- Sprecher, S. (1999). “I love you more today than yesterday”: Romantic partners’ perceptions of changes in love and related affect over time. *Journal of Personality and Social Psychology, 76*(1), 46–53. doi:10.1037/0022-3514.76.1.46
- Surra, C. A. (1985). Courtship types: Variations in interdependence between partners and social networks. *Journal of Personality and Social Psychology, 49*(2), 357–375. doi:10.1037/0022-3514.49.2.357
- Surra, C. A., Arizzi, P., & Asmussen, L. A. (1988). The association between reasons for commitment and the development and outcome of marital relationships. *Journal of Social and Personal Relationships, 5*(1), 47–63. doi:10.1177/0265407588051003
- Surra, C. A., & Hughes, D. K. (1997). Commitment processes in accounts of the development of premarital relationships. *Journal of Marriage and the Family, 59*(1), 5–21. doi:10.2307/353658
- Surra, C. A., & Longstreth, M. (1990). Similarity of outcomes, interdependence, and conflict in dating relationships. *Journal of Personality and Social Psychology, 59*(3), 501–516. doi:10.1037/0022-3514.59.3.501
- Swami, V., & Allum, L. (2012). Perceptions of the physical attractiveness of the self, current romantic partners, and former partners. *Scandinavian Journal of Psychology, 53*(1), 89–95. doi:10.1111/j.1467-9450.2011.00922.x

- Tellegen, A. (1988). The analysis of consistency in personality assessment. *Journal of Personality, 56*(3), 621–663. doi:10.1111/j.1467-6494.1988.tb00905.x
- Thompson, E. R. (2008). Development and Validation of an International English Big-Five Mini-Markers. *Personality and Individual Differences, 45*(6), 542–548. doi:10.1016/j.paid.2008.06.013
- Vallerand, R. J., Blais, M. R., Brière, N. M., & Pelletier, L. G. (1989). Construction et validation de l'échelle de motivation en éducation (EME). *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement, 21*(3), 323–349. doi:10.1037/h0079855
- Van Lange, P. A. M., Rusbult, C. E., Drigotas, S. M., Arriaga, X. B., Witcher, B. S., & Cox, C. L. (1997). Willingness to sacrifice in close relationships. *Journal of Personality and Social Psychology, 72*(6), 1373–1395. doi:10.1037/0022-3514.72.6.1373
- Whitton, S. W., & Whisman, M. A. (2010). Relationship satisfaction instability and depression. *Journal of Family Psychology, 24*(6), 791–794. doi:10.1037/a0021734
- Wickham, R. E., & Knee, C. R. (2012). Interdependence theory and the actor–partner interdependence model: Where theory and method converge. *Personality and Social Psychology Review, 16*(4), 375–393. doi:10.1177/1088868312447897
- Wieselquist, J. (2009). Interpersonal forgiveness, trust, and the investment model of commitment. *Journal of Social and Personal Relationships, 26*(4), 531–548. doi:10.1177/0265407509347931
- Wieselquist, J., Rusbult, C. E., Foster, C. A., & Agnew, C. R. (1999). Commitment, pro-relationship behavior, and trust in close relationships. *Journal of Personality and Social Psychology, 77*(5), 942–966. doi:10.1037/0022-3514.77.5.942

Zeigler-Hill, V. (2006). Discrepancies Between Implicit and Explicit Self-Esteem: Implications for Narcissism and Self-Esteem Instability. *Journal of Personality*, 74(1), 119–143.

doi:10.1111/j.1467-6494.2005.00371.x

Appendix A

Original Self-Reported VRC Items

The following questions refer to how feelings about your relationship or partner can *change* from day-to-day.

1. From one day to the next, my willingness to put in effort to make my relationship work changes.
2. From one day to the next, how attached I am to my partner changes.
3. From one day to the next, my confidence in my ability to find another partner does not change.
4. From one day to the next, how upset I think I would be if my relationship ended changes.
5. From one day to the next, how much I love my partner changes.
6. From one day to the next, how nice I think it would be to date someone else changes.
7. From one day to the next, my satisfaction with my relationship changes.
8. From one day to the next, my desire to spend time with others rather than my partner remains consistent.
9. From one day to the next, my feelings about how much effort I have put into my relationship do not change.
10. From one day to the next, how many problems I think would occur if my relationship ended does not change.
11. From one day to the next, how ideal I think my relationship is does not change.
12. From one day to the next, my feelings about how my relationship compares to other peoples' change.
13. From one day to the next, my feelings about how long I want my relationship to last changes.
14. From one day to the next, how much I feel I have invested in my relationship does not change.
15. From one day to the next, my feelings about how good my relationship is change.
16. From one day to the next, my desire to spend time with my partner changes.

Appendix B

Situational VRC Scale

The following short passages describe different hypothetical relationship situations. Some of these situations are positive and others are negative. Please read through each passage and take a moment to imagine that you experienced the interaction in the passage with your partner. Then please make a mark on the scale presented below to indicate how your feelings would change.

Each vignette will be followed with four questions presented below. Each question will have individuals reply on a continuous scale.

How much would your commitment to your relationship change if this happened?

I would feel
much less
committed

I would feel
much more
committed

How much would your positive emotions change if this happened?

I would feel
much less
positive
emotions

I would feel
much more
positive
emotions

How much would your negative emotions change if this happened?

I would feel
much less
negative
emotions

I would feel
much more
negative
emotions

How much would your satisfaction with your relationship change if this happened?

I would feel
much less
satisfied

I would feel
much more
satisfied

1. Your partner's friend who you don't know well sent you a message to tell you that they have never seen your partner as happy as he/she is in your relationship.
2. Your partner was supposed to pick you up from the airport to take you home. You arrived and came out of the terminal but didn't see them. After thirty minutes you call to see if he/she is there and it turns out your partner forgot they needed to pick you up. Your partner is very apologetic and leaves immediately to pick you up.
3. You have been having a hard day at work and nothing seems to be working out in your favor. When you get home, your partner has arranged to have your favorite meal ready for you to try to make you feel better.
4. Your partner rents a movie that he/she knows you have already seen before and wants you watch it with them even though you don't want to.
5. You and your partner go out with your friends. Your partner gets in a loud argument with one of your friends that night about something unimportant. The next day both your partner and your friend tell you they have not forgiven each other.
6. You take your partner to meet your family for the first time. Everyone in your family seems to get along really well with your partner and your partner seems to like everyone in your family.
7. One night your partner went out with a group of friends. You unfortunately could not go, but you knew most of the people who were there. A few days later one of your mutual friends mentioned how your partner spend most of the night talking to an ex. You and your partner talked about the night before but he/she did not mention an ex.
8. Your partner is a little stressed so you decide to help them out by doing some chores they were putting off. When your partner finds out, he/she looks really happy and tells you how much they appreciated your gesture.

