

Individual Differences in Three Types of Motive Congruence:  
Normative, Configural and Temporal

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## COMPLIANCE PAGE

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## ABSTRACT PAGE

The implicit and explicit components of the human motivational system are typically considered to be distinct but related, with varying implicit–explicit congruence across individuals. However, prior research has only measured a particular type of individual congruence, which I term normative congruence. Individuals who are normatively congruent have similar levels of explicit and implicit motivation as measured on a scale centered at the sample mean. I propose two new ways to model congruence. First, temporal congruence can be modeled by longitudinally measuring motives and examining the extent to which implicit and explicit motivation covary across occasions. In this type of congruence, occasions are the units of analysis. Second, configural congruence can be modeled by measuring motives in the achievement, affiliation and power domains and measuring covariation across domains. In this type of analysis, motive contents are the units of analysis. In two weekly-diary studies, I measured well-being and all three types of congruence. Analyses indicated that temporal and configural congruence were negatively related to each other. Normative congruence was not consistently related to well-being, configural congruence was a highly robust predictor of greater well-being, whereas temporal congruence was a moderately robust predictor of lower well-being. Configural congruence may be beneficial because it entails having one’s identity aligned with one’s strongest implicit motives, an alignment which drives the adoption of life goals that one is motivated to pursue. Temporal congruence may be detrimental because it predicts a lack of compensatory processes to maintain explicit goal pursuit on occasions when implicit motivation lags. Thus, implicit–explicit congruence is not a unitary construct; there are different types of congruence that have unique implications for well-being.

## **Dedication**

To my cats Piper and Phoebe, my faithful, funny, and affectionate companions for the last 11 years. Because of my allergies, I had to bid them farewell during the summer I wrote this thesis, and Phoebe passed away in a car accident shortly thereafter.

## **Acknowledgments**

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**Three Types of Motive Congruence: Normative, Configural and Temporal**

The human motivational system comprises an implicit component and an explicit component (McClelland, Koestner, & Weinberger, 1989; Spangler, 1992). The implicit component is not accessible to the conscious mind and its contents must be elicited through indirect means (McClelland et al., 1989; Smith, 1992; Winter, 1973). The explicit component is accessible to the conscious mind and its contents can be elicited through verbal self-report instruments (McClelland, 1980; McClelland et al., 1989). One of the enduring enigmas in research on these two systems is that implicit–explicit motive congruence within individuals tends to be weak—most people have implicit motives that only weakly correspond with their explicit motives (Thrash, Cassidy, Maruskin, & Elliot, 2010; Thrash, Maruskin, & Martin, 2012).

Compounding this enigma is the puzzling finding that motive congruence does not have a consistent relationship with well-being (Thrash et al., 2012). Even though theory on motivation predicts that people would experience greater subjective well-being if their explicit pursuits were aligned with their implicit motives (because of the subsequent affective rewards) research has shown that for such well-being to ensue, congruence is necessary but not always sufficient (Brunstein, 2010).

Although it is certainly possible that psychologists should amend their theory in light of these two issues, I present another possibility in this thesis, namely that these two issues arise from the problematic method of measuring motive congruence in a particular and arbitrary way, resulting in a type of congruence that I hereafter call *normative congruence*. This measurement technique entails measuring explicit and implicit motives

across persons, and classifying an individual as congruent if he or she has similar standing on both variables relative to others' standing on these variables. As alternatives to normative congruence, I propose two other forms of congruence: *temporal congruence* (covariation of implicit and explicit motives across time) and *configural congruence* (similarity of implicit and explicit motive profiles across content domains). I present two studies of how the three types of congruence are inter-related, and how each contributes to the prediction of well-being.

### **Implicit and Explicit Motives**

Motives represent inclinations to seek out certain types of experiences, outcomes, and rewards. Implicit motives orient, select and energize behavior by causing the perceptual system to weigh opportunities and rewards based upon their alignment with the motive in question (Schultheiss, Rösch, Rawolle, Kordin, & Graham, 2010). Such motives arise from a system that primarily receives input and produces output non-verbally. It is appropriate that when two early motive researchers, David McClelland and John Atkinson, first tested a variant of the Thematic Apperception Test (TAT; Morgan & Murray, 1935) to measure implicit motives, the independent variable which they manipulated was hunger. The manner in which hunger immediately operates—changing the degree to which people seek, notice, and respond to food—is analogous to the way in which implicit motives operate. Just as food provides immediate bodily satisfaction when people are hungry, motive-correspondent goals provide an immediate affective reward when they are reached.

Implicit motives also engender specific profiles of threat sensitivity. If a goal is

aligned with an aroused implicit motive, then threats and obstacles that impede progress toward the goal are affectively potent, while unrelated threats and obstacles are less so (Hall, Stanton, & Schultheiss, 2010).

There are a limited number of implicit motives, and they are typically classified into three domains: achievement, power, and affiliation. Individuals high in the implicit need for achievement (*nAch*) strive to achieve exceptional performance or produce works of outstanding quality in their pursuits, especially in their chosen line of work (McClelland, Atkinson, Clark, & Lowell, 1953; Pang, 2010). Individuals high in implicit need for power (*nPow*) strive to attain positions in which can exert influence on the greatest number of people, while being subject to the influence of the fewest number of people (Winter, 1973; Fodor, 2010). Individuals high in implicit need for affiliation (*nAff*) strive to create and maintain close, intimate relationships with people, and fear the dissolution of these relationships (Heyns, Veroff, & Atkinson, 1958; Weinberger, Cotler, & Fishman, 2010).

Although each of these motives can be temporarily aroused in any person through manipulation or deprivation, people who are consistently high in a single motive domain are consistently sensitive to pertinent incentives. Consequently, implicit motives predict major trends in one's life trajectory, such as choice of career, career success, and choice of romantic partner (Fodor, 2010; Winter, 1991; Winter, 2010). For instance, individuals high in implicit *nPow* have been shown to choose careers in which they can deeply influence others—they tend to become surgeons, psychotherapists, teachers, or pastors (Winter, 2010).

In contrast with implicit motives, explicit motives are measurable through questionnaires and other verbal self-report instruments. In fact, the term *explicit motive* came about in part because McClelland and others argued that when psychologists who unwittingly tried to measure implicit motives using self-report instruments and obtained reliable results by doing so, these psychologists were really measuring motives that arose from a non-implicit system, one whose defining characteristic was its accessibility to the verbal system (McClelland et al., 1989). Explicit motives are also typically classified as belonging to the achievement domain, the power domain, or the affiliation domain. Unlike implicit motives, explicit motives do not predict major life choices, and people do not evince sensitivity at the neuronal level to incentives that correspond to explicit motives. Explicit motives do, however, predict controlled and verbally framed forms of behavior, such as responses to specific social expectations (McClelland et al., 1989), particularly when verbally transmitted incentives are at stake (Spangler, 1992).

### **The Implicit–Explicit Correlation**

In early motive research, the two types of motivation were found to be uncorrelated (see Thrash et al., 2012), but in later work the two types of motivation were found to be weakly related after corrections were applied for two primarily methodological weaknesses. The first weakness was that the measures of implicit and explicit motives that were used did not correspond to one another in terms of content. When this flaw was corrected—when participants were evaluated with content-correspondent measures—people showed much higher congruence than what was typically found otherwise (Thrash, Elliot, & Schultheiss, 2007).

The second weakness was that measurement error hindered accurate calculation of congruence—unreliability in implicit measures became compounded with unreliability in explicit measures. When measurement error was corrected by using latent factor analysis (e.g. Thrash et al., 2010) or by dividing the correlation by the product of the measures' internal consistencies (e.g. Thrash et al., 2012), the implicit-explicit correlation was significantly higher. A more detailed review of these and other methodological weaknesses in the history of implicit-motive research can be found in Thrash et al. (2012).

### **Implicit–Explicit Congruence**

The weak correlation between implicit and explicit motives in a given domain implies that there are considerable individual differences in motive congruence—across individuals there is variance in consistency between the levels of implicit and explicit motives. As traditionally defined, congruent individuals have similar levels of implicit and explicit motives within a given domain, whereas incongruent individuals have dissimilar levels. I refer to this traditional operationalization of congruence as *normative congruence*, because it is the normative distributions of scores on both variables that determine whether an individual is congruent.

The most basic method of computing congruence scores has been to use z-score differences. One can compute a difference score by subtracting the explicit motive z-score from the implicit motive z-score and taking the absolute value of this difference (e.g. Kehr, 2004). Individuals with low difference scores are considered congruent, and those with high difference scores are considered incongruent. Thus, a person who is at the sample mean for explicit motivation and also at the sample mean for implicit

motivation is highly congruent, but a person who is at the sample mean for explicit motivation and one standard deviation *above* the sample mean for implicit motivation is somewhat incongruent.

Other ways have also been used to model congruence normatively. For instance, some researchers have used polynomial regression with response surface analysis (e.g. Kazén & Kuhl, 2011), or tested whether one motive moderates the effect of the other (e.g. Hofer, Chasiotis et al., 2006). If moderators are of interest, another strategy is salient—testing moderation of the implicit–explicit relationship using the cross-product moderation test (e.g. Thrash & Elliot, 2002). What is consistent across all of these methods is that congruence is defined in terms of whether one's relative standing on the implicit motive is similar to one's relative standing on the explicit motive. It is assumed that the study sample has an adequate range of individuals, and that a metric based on this range is appropriate for every individual in the sample.

### **Traits Related to Implicit–Explicit Congruence**

The recognition of considerable individual differences in motive congruence led researchers to search for traits and other variables that moderate the implicit–explicit motive relation. Several such moderators have been discovered in recent decades, and Thrash et al. (2007) have argued that these moderators are catalysts for three different processes: communication, integration, and resistance. The communicative factors may open channels of information transmission between the two motivational systems, leading to greater congruence. Two such factors that have received empirical support are private body consciousness (Thrash et al., 2007), and referential competence (Schultheiss,

Patalakh, Rawolle, Liening, & MacInnes, 2011). Private body consciousness refers to sensitivity to bodily states and changes, and referential competence refers to the ability to quickly translate between non-verbal and verbal stimuli. If these processes are indeed causes of greater congruence, it is plausible that physiological signals are being sent from the implicit system to the explicit system, and the sensitivity of the recipient system moderates the signal's impact. The integrative factors may unify the implicit and explicit motivational systems. These factors include preference for consistency (Thrash et al., 2007), identity status (Hofer, Busch, Chasiotis, & Kiessling, 2006) and self-determination (Thrash & Elliot, 2002; Hofer et al., 2010). The factors pertaining to resistance help the individual resist external pressure to change their explicit motives in directions that diverge from their implicit motives. Self-monitoring, which refers to the monitoring of others' expectations and values, predicts the *lack* of such resistance. Accordingly, low self-monitoring predicts high congruence (Thrash et al., 2007).

### **Motive Congruence and Well-Being**

One would expect a straightforward relationship between motive congruence and subjective well-being. After all, a person who is highly congruent would more frequently set the kinds of goals that provide potent affective rewards, thus reaping more of those affective rewards. Such a hypothesis would cohere with telic theories of well-being, which predict that satisfaction is the result of goal-oriented striving and success (Diener, 1984; Diener, Suh, Lucas, & Smith, 1999). Such theories rely on the assumption that a person's affective states are tied to what a person is trying to achieve, whether a person is achieving it, and whether a person is treating the achievement in question as a reference



standard for success (Brunstein, 2010).

Some of the literature on motive congruence tends to show this positive, linear association between congruence and well-being. For instance, two studies have shown that incongruence predicts lower levels of subjective well-being (Baumann et al., 2005; Kehr, 2004). In another study, it was found that congruence predicted greater life satisfaction, a finding which was replicated across three cultures (Hofer, Chasiotis, and Campos, 2006). Others have found that a low-high discrepancy in the power domain—one in which implicit strength was high and explicit strength was low—was predictive of lower levels of well-being and higher levels of stress among managers, who are likely to be high in implicit *nPow* (Kazén and Kuhl, 2011).

Consistency in such findings, however, has been lacking. At least one study has shown a null relationship between congruence and well-being (McAuley, Bond, & Ng, 2004). Other studies have found a weak relationship or a moderated relationship. In the study by Hofer and colleagues (2006) mentioned earlier, congruence in the power domain predicted well-being, but congruence in the affiliation domain did not. In addition, the ill effects of motive incongruence have been found to be ameliorated when a person uses emotional disclosure as a coping strategy (Langan-Fox, Sankey, & Cauty, 2009; Schüler, Job, Fröhlich, & Brandstätter, 2008) and when a person is high in self-directedness or internal locus of control (Langan-Fox et al., 2009). The beneficial effects of motive congruence have been found to be more evident when a person is engaging in goal-directed activity (Schüler et al., 2008) and when a person perceives progress (Brunstein, 2010). On one hand, such lack of consistency may be explained by positing a more robust

theory to explicate the relationship between congruence and well-being (Brunstein, 2010).

On the other hand, this problem suggests that congruence might need to be operationalized in a more effective way.

### **Types of Congruence**

My goal in the current paper is to examine three types of congruence: normative, temporal and configural. Normative congruence, as presented earlier, is a measure of congruence that relies on the sample distribution as the reference standard for motive measurement and congruence calculation, and it does not consistently predict well-being. It also has other weaknesses as an individual-difference measure. First, a normative-congruence score inadequately handles the separation of people in diagonally opposite quadrants of the data distribution. Those in the top right quadrant and the bottom left quadrant are both congruent, but high–high congruence has different properties from low–low congruence. Similarly, those in the top left quadrant and the bottom right quadrant are both incongruent, but each type of incongruence also has specific properties (Langan-Fox & Canty, 2010). Thus, the use of normative congruence also requires that one have quadrant information or that one use response surface analysis. Although this complexity is not necessarily a weakness—using the factor-and-quadrant approach to classification may be theoretically optimal—it leaves room for a more parsimonious single-factor approach.

Second, the calculation of normative congruence scores relies on the assumption that the sample is representative of the population at large. If one's sample is drawn from an undergraduate pool at a highly selective college, then the sample's range of scores on

either the implicit or explicit achievement motive might be restricted to an abnormally high range. Third, normative congruence is arbitrary because it treats the sample norm as a valid reference point for everyone even though individual differences may necessitate unique reference points for each individual. Given these weaknesses, it is worth considering two other way of measuring congruence: configurally (across motive domains) and temporally (across occasions) (Thrash et al., 2010).

Configural congruence is an indicator of whether motive contents covary within an individual as one moves from one domain to the next. Such congruence represents a sensitivity to each domain's strength and an apportioning of explicit motivation in a way that corresponds to variation between domains at the implicit level. If a person is weak in achievement, moderate in affiliation, and strong in power motivation at the implicit level, then he or she will be configurally congruent if he or she is also proportionately weak in achievement, moderate in affiliation, and strong in power motivation at the explicit level. In simpler terms, a person who is configurally congruent has implicit–explicit profile similarly. People who are more configurally congruent may have attained such congruence by reaching a state of identity achievement (Marcia, 1966), a developmental state in which one is no longer exploring life options to find satisfaction, but rather has settled on a trajectory that provides fulfillment.

Temporal congruence is an indicator of how strongly a person's explicit motives (in particular domains) track his or her implicit motives (in corresponding domains) across time. Such congruence represents a greater sensitivity to daily or weekly variations in implicit-motive strength, such that each variation is communicated to the explicit

system faithfully and quickly. Certainly, the communication may be in the opposite direction—from the explicit system to the implicit system—but given the fundamental, unconscious nature of the implicit motive system, it is more plausible that signals travel from the implicit system to the explicit system. Temporal congruence may vary across persons due to attributes like trait mindfulness, because mindfulness engenders greater sensitivity to implicit processes (Thrash et al., 2010).

The modeling of configural congruence is similar in some respects to the modeling of two measures that pertain to Big Five trait profiles, namely profile stability and within-time normativeness (see Furr, 2008; Klimstra, Luyckx, Hale, Goossens, & Meeus, 2010). Profile stability refers to the within-person correspondence of a person's trait profile from time 1 to time 2. Within-time normativeness refers to the similarity of a person's trait profile at a given occasion to the normative profile (estimated from that person's peer group) on that occasion. These constructs bear some similarity to configural congruence because configural congruence refers to the within-person correspondence of a person's motive profile from the implicit level to the explicit level. However, profile stability and within-time normativeness are calculated using  $q$ -correlations (on the basis of ranks), whereas configural congruence is calculated using slopes (on the basis of continuous scales). Rank-ordering could have been used as the basis of configural-congruence derivation in the current study, but the way in which implicit motives and explicit motives were measured allowed the use of continuous measures, which are more precise. Furthermore, within-time normativeness refers to person–group congruence, where the group attribute, i.e. the group mean, is computed and fixed.

However, configural congruence refers to implicit-self–explicit-self congruence, where both the implicit attribute and the explicit attribute may vary across individuals.

The modeling of temporal congruence is similar in some respects to the modeling of tracking accuracy in dyadic research (e.g. Overall, Fletcher, & Kenny, 2012). Tracking accuracy refers to the precision with which actual temporal variation in person A is perceived by person B. If such variation is tracked with consistency, then tracking accuracy exists. However, such tracking accuracy is a measure of temporal correspondence between persons in a dyad, whereas temporal congruence is a measure of temporal correspondence between motivational systems in a single individual.

Normative, configural and temporal congruence all represent correspondence between implicit and explicit motives at the level of individual differences, but they are conceptually distinct and may be empirically distinct as well. Normative congruence represents similarity between one's explicit and implicit motives relative to the normative distributions of both variables. Configural congruence represents similarity of domain profiles between one's explicit system and one's implicit system. Temporal congruence represents the extent to which an individual's implicit motive covaries with the corresponding explicit motive across time.

My goal in measuring each type of congruence in the current study is to compare three ways of thinking about individual differences in congruence and individual differences in well-being. Although longitudinal data can also be used to measure within-person variations in congruence, such variations are not the focus of the current study. Rather the goals of the current study are to measure the average congruence in each of the

three types, the distinctness of the three types, the between-person variation in each type, and the association of each type with levels and change in well-being. I am interested in what it means to be a congruent person, and I aim to show that it can mean different things, depending on which type of congruence one is talking about.

### **Hypotheses**

First, I hypothesized that the three types of congruence are distinct. I expected the correlations between the three types of congruence to be low or moderate. Second, I proposed a set of hypotheses concerning the relationship between each congruence and well-being. I predicted that all three types of congruence would positively predict well-being, but the nature of each relationship would be unique.

Normative congruence was expected to be a positive but weak or inconsistent predictor of well-being because of its weak theoretical underpinnings and its dependence on arbitrary distributions of scores in particular samples. The current samples are drawn from college students at a competitive college, so the normative level of explicit achievement motivation scores in these samples will probably have a higher mean and less variance than scores obtained from a general population sample, a limitation which will constrain the validity of the sample's normative-congruence scores in the achievement domain. Similar problems may constrain the meaningfulness of normative congruence in other domains as well.

Configural congruence was expected to be a robust predictor of well-being, because a configurally congruent person tends to allocate a great amount of explicit effort to goals related to strong implicit needs, and a small amount of explicit effort to goals

related to weak implicit needs. Such congruence implies an attainment of internal correspondence between motive profiles, an attainment which predicts that larger life goals, such as those pertaining to one's education, career and family, will be set and prioritized based on upon which goals provide dispositional affective rewards.

Temporal congruence was also expected to be a predictor of well-being because a temporally congruent person is aware of the ebbs and flows of his or her implicit motives, and therefore tends to engage in pursuits on the occasions when those pursuits are most affectively rewarding, and to drop those pursuits when they are less rewarding.

According to the hierarchical model of motivation (Elliot & Church, 1997; Thrash & Hurst, 2008), one could conceive of a temporally congruent person as being energized by his or her implicit motives, appropriately channeling such energy on the occasions when it is available.

Although congruence of all three types is expected to be beneficial, there is a duality to incongruence that must be noted. In some persons, incongruence may indicate flexibility rather than dysfunction, because it could denote the regulatory ability to cognitively focus on pursuing certain goals regardless of implicit motivation levels, thus increasing the likelihood of goal attainment (Kehr, 2004). The flexibility interpretation may be most plausible in the case of temporal congruence. At the temporal level, such flexibility may be useful in the long run, because it causes one's implicit and explicit systems to aim at consistent goals in aggregate, even though implicit motivation may lag on certain occasions. Such consistency may derive from greater volitional strength, which allows greater self-regulation when implicit motivation is weak (see Muraven &

Baumeister, 2000).

In contrast, at the configural and normative levels, incongruence is more likely to represent dysfunction than flexibility, because the individual's implicit and explicit motives would be fundamentally divergent or chronically discrepant. These considerations raise an alternative hypothesis regarding temporal congruence—that it is a negative rather than positive predictor of well-being.

### **Overview of Present Study**

The current study used a weekly diary method to gather data from multiple individuals at multiple time points regarding three motive domains. This design enabled the operationalization of all three forms of congruence, and the modeling of both mean well-being and growth in well-being. Any type of congruence that predicts growth of well-being over time can be considered a more robust correlate of—and even a cause of—greater well-being. Data were analyzed using latent curve growth models in order to model both mean well-being and growth in well-being as dependent measures. Latent curve growth models were more advantageous than lagged analyses because they entailed the estimation of overall growth or decline in well-being rather than the aggregation of separate instances of growth in well-being without regard to overall trends.

The diary method was not only beneficial in gathering data at multiple time points, but it also removed some of the reactance and demand characteristics associated with the laboratory. However, the collection of data at multiple time points was primarily needed to calculate temporal congruence accurately, and these data cannot sufficiently address the question of causality, which would require many more time points.



Researchers in the hedonic tradition have posited that subjective well-being (SWB) comprises not only positive affect (PA) and negative affect (NA) but also satisfaction with life (SWLS) (Diener, Emmons, Larsen, & Griffin, 1985). Meanwhile, researchers in the eudaimonic tradition have posited that well-being comprises variables that are related to psychological flourishing, such as vitality and self-actualization (Ryan & Deci, 2001; Ryff & Keyes, 1995). To measure these diverse forms of well-being, I measured well-being in the present study with facets from both the hedonic tradition, which emphasizes pleasure and satisfaction, and the eudaimonic tradition, which emphasizes optimal functioning.

## **Method**

### **Participants**

Participants were undergraduates enrolled in an introductory psychology class, who participated in this study to satisfy a research participation requirement.

In Sample 1, data were collected from 164 students. One participant's data was excluded for not completing the preliminary questionnaire. Five participants' data were excluded because they filled fewer than three weekly questionnaires on time. The final sample comprised 159 participants, of whom 39.8% were male. The age range of participants was 18 to 23 years and the median age was 19.

In Sample 2, data were collected from 158 students. There were two cohorts of participants; the second cohort began the diary portion of the study one week after the first. One participant's data was excluded because he or she completed fewer than three weekly questionnaires on time. Seven participants' data were excluded because their data

appeared to be invalid. The final sample comprised 150 participants, of whom 40% were male. The age range of participants was 17 to 45 years, and the median age was 18.

### **Procedure**

Informed consent was obtained from all participants. The experimenters collected trait data from all participants using paper-and-pencil measures at the beginning of the study. The experimenters then informed participants that they would receive weekly invitations to participate in an online study with a unique URL embedded in the invitation email. Participants were told that these invitations would be sent out every Wednesday with a deadline specified in the e-mail.

The experimenters then began the collection of weekly diary-data collection over an eight-week period, which began at the approximate midpoint of an academic semester and concluded one week before final examinations. The trait data were collected for other purposes and will not be discussed here. For the weekly-diary portion of the study, participants received e-mail invitations each Wednesday and were requested to fill out an electronic survey at a time of their convenience between noon and 6 p.m. on that day. The electronic surveys were administered with *Opinio*, a web-based data-collection tool. On the basis of a previous diary study (Thrash & Elliot, 2003), 5:00 AM on Thursday was treated as the natural cut-off point between Wednesday and Thursday. Thus, data submitted after 5:00 AM were treated as late and excluded from analysis.

### **Measures**

As recommended for diary studies (Nezlek, 2012), I used abbreviated measures. The brevity of these measures reduced survey fatigue and promoted honest answering.

The internal consistency for all diary measures was calculated by running an unconditional analysis in a three-level hierarchical linear model with measurement items at level one as recommended by Nezlek (2012) and Bryk and Raudenbush (1992), a method which produces the functional equivalent of Cronbach's alpha (Nezlek, 2011). The variables below were measured weekly.

**Implicit motives.** A modified version of the Multi-Motive Grid (short version) (MMG-S; Sokolowski, Schmalt, Langens, & Puca, 2000) was used to measure implicit needs for achievement, affiliation, and power (see Appendix A). The MMG-S is an implicit measure, derived from the Picture Story Exercise (PSE; Koestner & McClelland, 1992) and its predecessor, the Thematic Apperception Test (TAT; Morgan & Murray, 1935). Like the PSE and TAT, the MMG-S comprises a series of pictures of one or more persons engaged in an ambiguous activity, and it requires projective interpretation on the part of the participants. The MMG-S contains features of implicit motive measures (pictures) and features of explicit measures (questions) but it is typically regarded as an implicit measure (e.g. Kehr, 2004; Schüler et al., 2008). I used the MMG-S instead of the PSE because reliability and validity are likely to be compromised when the PSE is repeated for several weeks. Such repetition of the PSE leads to deliberate efforts to modify one's stories (Lundy, 1985; Winter & Stewart, 1977). In contrast the MMG-S has high test-retest reliability (Schultheiss, Liening, & Schad, 2008).

Unlike the PSE and TAT, the MMG-S does not require participants to write a freeform story about their interpretation of each picture. Instead, participants are instructed to put themselves in the position of one of the pictured persons, and are then

presented with statements about how people in the picture might feel or think. These statements are oriented toward the achievement, affiliation and power motives. Examples of statements are “Feeling good about meeting other people,” “Trying to influence other people”, and “Feeling good about one’s competency.” The MMG-S does not measure intimacy motivation, a fourth domain (McAdams, 1989, 1992), whose similarity with affiliation motivation has led to its conflation with affiliation motivation (Weinberger et al., 2010). To be consistent with the tradition of implicit motive research in the last decade, I did not measure intimacy motivation in the current study.

In the original MMG-S, participants are presented with the options *yes* and *no*. To measure variability more precisely, these options were expanded to a seven-point numbered scale in the current study, where 1 indicated *no* and 7 indicated *yes*. Eleven pictures from the original MMG-S were used and the total number of statements was trimmed from 72 to 49 so that participants would not be burdened with an exceptionally long task, a burden which would have compromised validity. Specifically, most of the avoidance motive items and all filler items were deleted. The picture order was randomized every week but the order of statements beneath each pictures remained consistent. I only scored statements pertaining to the approach aspect of the motive, because I only wanted to measure approach motivation.

The MMG-S involved assessing participants’ perceptions at the time the survey was taken. In Sample 1, the internal consistency was .24 for achievement, .23 for power, and .02 for affiliation. In Sample 2, the internal consistency was .09 for achievement, .16 for power, and .01 for affiliation. Such levels of consistency are common in implicit

measures of motivation (McClelland et al., 1953; Lowell, 1953; Schultheiss, Lienesch, & Schad, 2008) because each picture exerts a different degree of motive pull, and elicits situation-specific motivation (e.g. education-related achievement, work-related achievement), which is not consistent in strength across situations (Mischel & Shoda, 1995). Nevertheless, test–retest reliability and criterion validity are typically satisfactory in the MMG (Schultheiss et al., 2008; Schultheiss & Pang, 2007). In Sample 1, the median test-retest reliability based on pairs of tests from consecutive weeks was .701 for achievement, .766 for power, and .731 for affiliation. In Sample 2, it was .818 for achievement, .831 for power, and .810 for affiliation.

**Explicit motives.** A measure of explicit motives was derived from a need-satisfaction measure created by Sheldon, Elliot, Kim, and Kasser (2001), which suited the current study because of its brevity and content validity (see Appendix B). The original measure was created to confirm that events are felt as satisfying if they fulfill the three needs postulated by self-determination theory (SDT; Deci & Ryan, 1985), namely autonomy, competence, and relatedness. Two of these needs are isomorphic with motive domains: competence corresponds to achievement and relatedness to affiliation. The original measure also measured the factor *popularity–influence* with three items, and these items were used to measure explicit need for power in the current study.

The sentence stems were modified to assess motivations during the given week. For instance, the statement “During this event I felt very capable in what I did” was changed to “This week I have felt an impulse or desire to feel capable in what I do.” Three items were included for each motive domain. Participants rated their agreement on

a scale from 1 (*not at all*) to 5 (*very much*). For Sample 1, the internal consistency was .42 for achievement, .32 for power, and .69 for affiliation. For Sample 2, the internal consistency was .53 for achievement, .34 for power, and .66 for affiliation. In Sample 1, the median test-retest reliability based on pairs of tests from consecutive weeks was .543 for achievement, .594 for power, and .682 for affiliation. In Sample 2, it was .462 for achievement, .616 for power, and .546 for affiliation.

**Well-Being.** All well-being measures made reference to how the participant was thinking or feeling on that particular day.

***Positive and negative affect.*** Positive affect (PA) and negative affect (NA) were assessed with the 20-item Positive Affect and Negative Affect Schedule (PANAS) (Watson, Clark, & Tellegen, 1988; see Appendix C). The PA scale comprises 10 mood adjectives such as *enthusiastic* and *proud*, and the NA scale comprises 10 adjectives such as *scared* and *hostile*. Items were rated from 1 (*very slightly or not at all*) to 5 (*extremely*). Evidence of the reliability and validity of the PANAS scales can be found in Watson et al. (1988). In Sample 1, the internal consistency was .79 for PA and .75 for NA. In Sample 2, the internal consistency was .78 for PA and .74 for NA.

***Satisfaction with life.*** Participants completed the 5-item Satisfaction with Life Scale (SWLS; Diener et al., 1985; see Appendix D). The SWLS measures life satisfaction with statements such as “I am satisfied with my life.” These were rated from 1 (*strongly disagree*) to 7 (*strongly agree*). Responses were summed to compute a life satisfaction score. For reliability and validity of the SWLS, see Pavot, Diener, Colvin, and Sandvik (1991). Internal consistency was .43 for Sample 1 and .51 for Sample 2.

**Vitality.** Participants completed the Subjective Vitality scale (Ryan & Fredrick, 2007), a 7-item scale with statements such as “I have energy and spirit” and “I am looking forward to each new day” that were rated from 1 (*not at all true*) to 7 (*very true*) (see Appendix E). After recoding a reversed item, a vitality score was computed by summing across responses. For reliability and validity of this measure, see Ryan and Fredrick (1997). Internal consistency was .78 for Sample 1 and .79 for Sample 2.

**Self-actualization.** Participants completed a self-actualization scale by Sheldon et al. (2001) (see Appendix F). This 3-item scale comprises statements such as “Today, I feel a deeper understanding of myself and my place in the universe” that were rated from 1 (*not at all*) to 5 (*very much*). For evidence of prior reliability and validity, see Sheldon et al. (2001). Internal consistency was .69 for Sample 1 and .75 for Sample 2.

### **Computation of Normative, Configural, and Temporal Congruence Indexes**

Based on the weekly data, I derived a normative-congruence score, a configural-congruence score and a temporal-congruence score for each participant. For all variables that were derived in the analyses below, I examined skewness and kurtosis. Data transformations were applied as appropriate to reduce skewness and kurtosis to a range between -2 and 2. In cases where data were standardized, all z scores below -3.29 and above 3.29 were deemed outliers and modified to -3.29 and 3.29 respectively, after which standardized scores were re-computed (see Tabachnick & Fidell, 2012).

**Normative Congruence.** To calculate the normative-congruence score, I first aggregated all variables across time by computing individuals’ mean levels of implicit and explicit *nAch*, *nPow*, and *nAff* across eight weeks. I verified that I could reliably

treat each week's score as though it were a single item in an eight-item measure by running an unconditional multilevel analysis, nesting weeks within persons, with the weekly score as the dependent variable. The intraclass coefficients (ICC) in such analyses indicate how much variance is at the between-person level. In sample 1, the ICCs in the implicit motive measure were .59 for achievement, .67 for affiliation and .66 for power, and in the explicit motive measure were .46 for achievement, .56 for affiliation, and .51 for power. In sample 2, the ICCs in the implicit motive measure were .59 for achievement, .65 for affiliation and .66 for power, and in the explicit motive measure were .44 for achievement, .52 for affiliation, and .57 for power. Thus, with the exception of explicit *nAch*, all ICCs indicated that there was greater variance at the between-person level than the within-person level, implying that aggregate means were moderately reliable as dispositional measures.

The aggregate means were converted to z scores, and the implicit-motive z score was subtracted from the explicit-motive z score to derive discrepancy scores. These three discrepancy scores were converted into absolute values, and the average of the three scores was computed. It was then reflected, so that it would indicate congruence rather than incongruence. This procedure produced a raw normative-congruence score.

**Configural Congruence.** To calculate the configural-congruence score, the aggregate score of implicit motive strength and explicit motive strength per participant was once again derived by taking the average across weeks of scores on the implicit-motive and the explicit-motive measure. To create a level-one file for a multilevel model of domains nested within person, each case was then separated into three cases based on



the three domains. Thus each person was represented by three cases in the data file, one case per domain. Each of these cases had a variable for the person's implicit-motive score in a specific domain and the person's explicit-motive score from the same domain. Using this table of motives as level-one of a two-level hierarchical data structure, I conducted a multilevel analysis, nesting motives within persons, with the following model:

Motive-domain Level (level 1):

$$\text{Explicit}_{ti} = \pi_{0i} + \pi_{1i}(\text{Implicit}_{ti}) + e_{ti}$$

Person Level (level 2)

$$\pi_{0i} = \beta_{00} + r_{0i}$$

$$\pi_{1i} = \beta_{10} + r_{1i}$$

$\text{Explicit}_{ti}$  is the explicit-motive score of person  $i$  in domain  $t$  and  $\text{Implicit}_{ti}$  is the implicit-motive score of person  $i$  in domain  $t$ . The explicit motive was used as the dependent variable because motivational theory suggests that the direction of causality is from implicit motives to explicit motives (Thrash et al., 2010). The implicit-motive score was entered group-mean centered at level 1. From this analysis, a residual file was generated, from which the estimated slope coefficient ( $\pi_{1i}$ ) for each participant was extracted. Because the slopes were allowed to vary randomly at level 2, this slope was unique for each participant, and represented the degree to which that participant was congruent across domains. This was the participant's raw configural-congruence score.

**Temporal Congruence.** To calculate a temporal-congruence score, I conducted a multilevel analysis for each domain, nesting weeks within persons, with the following model:

Week Level (level 1):

$$\text{Explicit}_{ti} = \pi_{0i} + \pi_{1i}(\text{Implicit}_{ti}) + e_{ti}$$

Person Level (level 2):

$$\pi_{0i} = \beta_{00} + r_{0i}$$

$$\pi_{1i} = \beta_{10} + r_{1i}$$

$\text{Explicit}_{ti}$  is the explicit-motive score of person  $i$  in week  $t$  and  $\text{Implicit}_{ti}$  is the implicit-motive score of person  $i$  in week  $t$ . The implicit motive was entered group-mean centered at level 1. From this analysis, I generated a residual file, from which I extracted the estimated slope ( $\pi_{1i}$ ) for each participant. Because the slopes were allowed to vary randomly at level 2, this slope was unique for each participant, and represented the degree to which a participant's explicit motive accurately tracked his or her implicit motive across time. I then repeated this analysis for the affiliation domain and the power domain. I then averaged a participant's slope across all three domains to derive that participant's raw temporal-congruence score.

**Score Standardization.** Because configural and longitudinal congruence scores were derived in a similar fashion, a single-unit difference in configural-congruence scores was comparable to a single-unit difference in temporal-congruence scores. However, normative-congruence scores were computed using a different method, making a single-unit difference in normative-congruence scores mean something different from a single-unit difference in the other two types. Raw scores on all three types of congruence were therefore standardized. After standardization, a single-unit difference on any type of score consistently indicated a difference of one standard deviation.

## Results

### Mean Levels and Inter-Correlations of the Three Congruence Types

Based on the z-score model and the two hierarchical linear models described above, I begin by reporting the mean levels of normative, configural and temporal congruence, because these mean levels indicate whether people were congruent or incongruent on average in each type of congruence. For normative congruence, the mean discrepancy score (unreflected and unstandardized) was significantly different from zero in Sample 1,  $t(149) = 23.458, p < .001$ , and Sample 2,  $t(159) = 23.981, p < .001$ . The minimum discrepancy scores in Samples 1 and 2 were .15 and .17 respectively, which indicates that some participants were highly congruent, although no participant reached the perfect congruence score of 0. The maximum discrepancy scores in Samples 1 and 2 were 2.87 and 2.97 respectively, which indicates that some participants were highly incongruent, although no participants reached the outer bound of approximately 6.58, which is the greatest possible discrepancy score given a z-score range of -3.29 to 3.29. These results are unsurprising, and they replicate what previous studies have found. Note that these discrepancy scores were reflected and standardized to derive the normative-congruence scores which were used in further analyses.

For configural congruence, the average relationship between explicit motive and implicit motives across domains was negative (Sample 1:  $\beta_{10} = -0.092, t = -4.139, p < .001$ ; Sample 2:  $\beta_{10} = -.160, t = -9.072, p < .001$ ), indicating that the average participant was configurally incongruent. His or her explicit-motive configuration was significantly negatively correlated with his or her implicit-motive configuration. Thus, the typical

configural condition is one of opposition in ranking and proportionality between one's explicit motive profile and one's implicit motive profile.

For temporal congruence, implicit and explicit motives tended to vary positively across time in all three domains: the achievement domain (Sample 1:  $\beta_{10} = .061$ ,  $t = 5.24$ ,  $p < .001$ ; Sample 2:  $\beta_{10} = .046$ ,  $t = 3.23$ ,  $p = .002$ ), the affiliation domain (Sample 1:  $\beta_{10} = 0.061$ ,  $t = 5.42$ ,  $p < .001$ ; Sample 2:  $\beta_{10} = .026$ ,  $t = 2.18$ ,  $p = .031$ ), and the power domain (Sample 1:  $\beta_{10} = 0.046$ ,  $t = 4.32$ ,  $p < .001$ ; Sample 2:  $\beta_{10} = .045$ ,  $t = 3.47$ ,  $p < .001$ ). These results indicate that for the average participant, explicit motives accurately tracked implicit motives across time.

Inter-correlations between the types of congruence were then computed to determine the distinctness of each type. The three types of congruence were only weakly inter-correlated, and some of these correlations were negative. Configural congruence was negatively related to temporal congruence in both sample 1 ( $r = -.36$ ,  $p < .001$ ) and sample 2 ( $r = -.28$ ,  $p < .001$ ). Configural congruence was positively related to normative congruence in sample 1 ( $r = .20$ ,  $p = .014$ ) and marginally so in sample 2 as well ( $r = .14$ ,  $p = .093$ ).

### **Latent Growth Curve Analyses of Well-Being**

A latent growth curve model was used to examine whether the three types of congruence predicted mean well-being and temporal growth in well-being. Data were examined using version 19 of IBM SPSS Amos. Latent growth curve models account for variations in missing data by giving added weight to data from participants who completed a greater number of valid submissions. Two sets of latent-curve models were

run, one in which the three congruence indexes were correlated with the well-being mean and slope latent variables, and another in which the three congruence variables were modeled as simultaneous predictors of those latent variables. The first set provided correlations between each congruence type and each measure of well-being. The second set provided standardized path coefficients that indicated the unique contribution of each congruence type to the prediction of well-being. The second set of analyses was run to determine whether each type of congruence made a significant contribution after the other types were controlled for.

Figure 1 illustrates the model used for the first set of analyses. Positive affect is the dependent variable in the figure, but this template was used for all five measures of well-being. The model estimates positive affect scores on particular weeks as a linear function of a mean (M) latent variable, a slope (S) latent variable, and a uniqueness (error) term. Weekly measurements of positive affect are indicated by the w1pa through w8pa variables. Whereas a standard growth curve model has loadings of 1,1,1...1 on an intercept factor and loadings of 0...1 on a slope factor, this model has loadings that are centered at 0 so as to estimate means instead of initial values. The double-headed arrows denote that the coefficients represent first-order correlations. Figure 2 illustrates the model used for the second set of analyses, in which the predictors were entered simultaneously, as in a multiple regression model. The single-headed arrows indicate this difference. The disturbance terms d1 and d2 indicate variance that is not meaningful for the estimation of the mean and slope.

The results of the first and second sets of analyses for PA, NA, satisfaction with

life, vitality, and self-actualization are reported in Table 1. In sample 2, positive affect and vitality had no variance in their slopes; the slope latent variables were trimmed in these two cases. Fit indices are reported in Table 2. The fit was adequate or good for all variables except NA, where it was only somewhat satisfactory.

Normative congruence inconsistently predicted mean well-being across the two samples, both in terms of correlations and standardized path coefficients. In sample 1, it was positively correlated with mean PA, SWLS, vitality and self-actualization, which accords with previous research, and all of these relationships were statistically significant. But in sample 2, its relationship with well-being was non-significant, except for one case of marginal significance, where it predicted mean self-actualization. It did not predict well-being slope in either study.

Configural congruence consistently predicted greater well-being in both samples both in terms of correlations and standardized path coefficients. It was a uniquely robust predictor of mean PA, SWLS, Vitality and self-actualization, reaching a significance level of less than .001 in all of these cases. In sample 1, it also predicted the slopes of PA, SWLS, vitality and self-actualization, and in sample 2 it predicted the slope of self-actualization, but not SWLS. (Due to insufficient variance, its relationship with PA slope and vitality slope could not be modeled in sample 2). The only unexpected finding pertaining to configural congruence was that it positively predicted NA slope in one sample, but this result was only marginally significant. Moreover, this unusual finding was not found in sample 1, and it is likely a random occurrence.

Temporal congruence consistently predicted *lower* well-being across both

samples in terms of correlations and standardized path coefficients. It predicted all indicators of well-being in the negative direction in sample 1, and this pattern of findings was replicated in sample 2, but some coefficients did not reach significance in the latter case. Uniquely among the congruence types, it positively and robustly predicted NA; it also negatively predicted the four measures of positive well-being. Although robust in sample 1, these findings were weak in sample 2, with four of the five coefficients reaching only marginal levels of significance. However, the pattern of temporal-congruence findings across both samples was identical with regard to the mean, and temporal congruence was a predictor of NA slope in sample 2 as well. The only discordant finding regarding temporal congruence was that it was weakly related to positive growth in SWLS in sample 2—but this finding was marginally significant and likely a coincidence.

In summary, normative congruence was inconsistent across the two samples, evincing a significant association with well-being only in sample 1. In contrast, configural congruence was strongly associated with greater average well-being and greater well-being growth in both samples, while temporal congruence was moderately associated with lower average well-being and—in one sample—with well-being decline.

### **Discussion**

The three types of congruence were distinct from one another, they had different average levels among participants, and they played different roles in predicting well-being. None of the types of congruence was highly correlated with any other type of congruence, and this distinctness suggests that there is little justification for researchers

to continue focusing on normative congruence. Indeed, normative congruence may be the least useful type, given that its relationship with well-being was inconsistent across samples. Researchers may benefit instead from focusing on configural congruence in cross-sectional studies, and both configural and temporal congruence in longitudinal studies.

### **Types of Congruence as Predictors of Well-Being**

All three types of congruence were predictors of mean well-being to some degree, but, in accordance with prior research, findings regarding normative well-being were inconsistent—in sample 1, it was positively related to well-being, but in sample 2 it had a null relationship with well-being. As noted earlier, the method for computing normative congruence has weaknesses which make it arbitrary and unreliable, evident in the varying coefficients pertaining to normative congruence across both samples in the current study. In contrast, the positive role of configural congruence and the negative role of temporal congruence were strikingly consistent.

Configural congruence had the most robust association with average well-being and growth in well-being. This association is consistent with the fact that configurally congruent persons have prioritized their explicit motives such that they are directing their greatest explicit motivational volition in accordance with their strongest dispositional implicit motive. The precision with which configural congruence predicts well-being may arise from the fact that configural congruence ignores information about one's cumulative amount of motivation. Some people may have less cumulative energy at the explicit level than average, and will therefore be low in normative congruence. However,



this explicit energy may be apportioned in accord with their implicit profiles, which would cause the highest amount of energy to be devoted to pursuits that correspond to the most compelling implicit needs. Because configural congruence captures this type of implicit–explicit correspondence while disregarding information about how much cumulative energy one has, it follows that configural congruence was a robust predictor of well-being. Given that configural congruence not only predicted well-being means but well-being slopes, our findings suggest that configural congruence was not merely a correlate, but also a cause of greater well-being.

Temporal congruence, in contrast, was a negative predictor of well-being. One reason for this contrast could be that temporal congruence does not represent sensitivity to *need means* but rather sensitivity to *need variations*, which are not the same thing. An aggregate sensitivity to need means is more likely to predict an implicit–explicit alignment, but sensitivity to need variation is merely likely to predict that everyday decisions will reflect the relative strength of the corresponding motive at the time the decision is made. Because major life choices have a greater impact than everyday decisions, it follows that temporal congruence did not positively predict well-being.

Temporal congruence may represent a maladaptive form of goal seeking in which one pays too much attention to goals in the local time frame and too little attention to goals in the global time frame. It may also represent an inefficient, unproductive diffusion of effort, given that time is being managed not strategically but impulsively. Such a diffusion of effort would predict goal-related failures, which would accord with the finding that temporal congruence alone predicted greater NA.

**Configural Congruence vs. Temporal Congruence**

Why did configural congruence starkly contrast with temporal congruence as a predictor of well-being? And why was configural congruence negatively correlated with temporal congruence? There are five possibilities to consider. First, people who are high in configural congruence may achieve goals more efficiently because they exert more sustained effort to achieve goals, whereas people who are high in temporal congruence only exert effort on occasions when they are implicitly motivated. Thus, cognitive self-management may help people who are high in configural congruence achieve their goals with greater efficiency and a higher rate of success.

Second, configural congruence and temporal congruence may arise through different psychological mediators. Theoretically, people who are configurally congruent have achieved the correct prioritization of their explicit goals such that they realize which explicit goals deserve the most attention. They may then commit to these explicit goals and strive to maintain steadiness in their goal pursuit even on the occasions when their implicit motive lags. Thus, they are likely to be higher in identity achievement and low in identity moratorium (Marcia, 1966), two factors which are plausible mediators between configural congruence and well-being. In contrast, people who are temporally congruent have the ability to notice fluctuations in implicit motive strength, an ability that may arise through mediational processes associated with mindfulness and private body consciousness. Although there is no theoretical basis for considering the first set of mediators (identity achievement and identity moratorium) to be opposed to the second set of mediators (mindfulness and private body consciousness), it is possible that if both sets

are operative, people who are high in identity achievement may not attend to the information they receive through mindfulness and private body consciousness, because they are cognitively focused on goals that outweigh temporarily arising needs. In contrast, people who are high in identity moratorium are constantly exploring alternatives, and greater awareness of temporarily arising needs may aggravate this exploratory tendency to an unhealthy degree.

Third, because temporal and configural congruence are independent, a large degree of temporal congruence cannot help individuals solve configural problems. In fact, temporal congruence maintains implicit–explicit relationships across time, so if a person has configural problems, those problems could be sustained by temporal congruence. In Figure 3, I have illustrated this effect by showing the time series of three hypothetical persons who differ from one another in their level of configural congruence or temporal congruence. This diagram at the top shows how a configural discrepancy can be maintained by high temporal congruence. In this person’s first motive domain, the explicit motive accurately tracks the implicit motive—rising in the same proportion across weeks—and in the second and third domains, motivation is stable. But this person never attains configural congruence because he or she was incongruent at the outset.

Fourth, people who are high in temporal congruence may not only be sensitive to need variation, but they may also arrive at a meta-awareness of their sensitivity to need variation. Thus, they may perceive themselves as having unstable identities, a self-perception that predicts lower well-being even on occasions when the perceived changes are positive (Keyes, 2000; Keyes & Ryff, 2000).

Fifth, the critical difference between configural congruence and temporal congruence could be their different average levels. The average level of configural congruence was negative in both samples, indicating that the baseline configural state was one in which congruence had yet to be achieved. Participants with higher configural-congruence scores had transcended this baseline state—possibly reaching the state of identity achievement—and were thus more likely than the remainder of the sample to experience greater well-being. The average level of temporal congruence, however, was positive in both samples. Thus, the baseline temporal state was one in which a moderate degree of temporal congruence had already been attained. Participants with higher temporal-congruence scores had not attained anything that the average participant was lacking.

Thus, temporal congruence may not be a desirable form of congruence, but rather a problematic lack of the flexibility one needs in daily life, where it is sometimes necessary to expend volitional energy in order to maintain explicit motivation levels. People who are high in temporal congruence may lack such volitional energy because they lack the kind of goal commitment that arises from the attainment of configural congruence, a hypothesis which accords with the fact that configural and temporal congruence are negative correlated.

### **Limitations and Conclusion**

Because the current study was an eight-week longitudinal study, each participant gave us data at eight (or fewer) time points about their explicit and implicit motives. Measurement on multiple occasions allowed the computation of an aggregate score on

each implicit and explicit motive that was more reliable than a datum from a single occasion. Such reliability enhanced the precision of the normative- and configural-congruence scores, but it did not enhance temporal-congruence scores; for temporal-congruence scores, the computation relied on only one datum per week. Thus, one limitation of our study is that temporal congruence was measured less reliably than normative and configural congruence, a limitation that is inherent to the construct of temporal congruence.

Another limitation of this study is that motivation was measured in only three domains, a restriction which decreased the reliability of configural congruence measurement. However, the use of these three domains accords with prior research in the field, an accordance which was particularly important given that our aim was to be methodologically corrective. The use of three domains was also limiting because each domain encompassed several facets that are undifferentiated in such a broad, tripartite classification schema. Thus, the inclusion of more domains would have increased precision.

Because prior research on motive congruence has relied on the normative measurement model, our findings suggest that a correction is needed in the accepted methodology for measuring congruence. Specifically, configural congruence, which proved to be much more robust, may be the ideal type of congruence to measure, not only for the prediction of well-being, but also for research into moderators of individual differences in congruence. In addition, future researchers would benefit from measuring temporal congruence—its association with poor well-being suggests that it may be a

dispositional causal factor as well.

Normative congruence, itself a normative method in past research, appropriately served as a norm against which two new forms of congruence could be compared and contrasted. The resulting contrasts point out that any method itself can serve as a metric against which new methods can be compared and contrasted. The results are also a reminder that a statistical model, once widely adopted, can lead to the persistent measurement of just one facet of a larger construct across several decades of research. The introduction of new models can shed light on the limitations of the former model, and not only drive statistical progress but also conceptual progress by revealing the construct's other facets.

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Table 1

*Correlations and Standardized Path Coefficients from Latent Growth Curve Analyses with the Three Types of Congruence as Predictors of Well-Being*

	Sample 1				Sample 2			
	Correlations		Standardized Path Coefficients		Correlations		Standardized Path Coefficients	
	Mean	Slope (r)	Mean	Slope ( $\beta$ )	Mean	Slope (r)	Mean	Slope ( $\beta$ )
Normative								
PA	.24**	-.15	.15*	-.24	.14		.03	
NA	-.05	-.20	-.06	-.12	-.07	.17	-.07	.10
SWLS	.24**	.21	.20**	.10	-.01	-.03	-.08	-.01
Vitality	.23**	.03	.16*	-.07	.11		.02	
Self-actualization	.31***	-.03	.31**	-.03	.15 <sup>†</sup>	.08	.07	.04
Temporal								
PA	-.36***	-.12	-.21**	.03	-.16 <sup>†</sup>		.05	
NA	.26**	.30 <sup>†</sup>	.28**	.18	.16 <sup>†</sup>	.32*	.16 <sup>†</sup>	.38**
SWLS	-.34***	-.21	-.27***	.00	-.21*	-.18	-.05	.19 <sup>†</sup>
Vitality	-.29**	-.29	-.18*	-.11	-.15 <sup>†</sup>		.02	
Self-actualization	-.21*	-.16	-.21*	-.16	-.16 <sup>†</sup>	-.09	.01	.00

Configural								
PA	.53***	.38*	.43***	.44*	.74***		.75***	
NA	-.04	-.44*	.07	-.35†	-.09	.16	-.04	.26†
SWLS	.34***	.58***	.20*	.56***	.58***	.02	.58***	-.04
Vitality	.40***	.53*	.30***	.51*	.63***		.63***	
Self-actualization	.43***	.39**	.43***	.39**	.64***	.34*	.63***	.33*

*Note. Empty cells in the slope column indicate cases where mean-only models were used due to lack of slope variance.*

$\dagger = .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$



Table 2

*Fit Indicators for Growth Curve Model Analyses*

	Chi-square	df	TLI	CFI	RMSEA
<b>Sample 1</b>					
PA	77.71	56	0.95	0.96	0.049
NA	116.31	56	0.85	0.87	0.082
SWLS	141.62	56	0.93	0.94	0.098
Vitality	59.07	56	0.99	0.99	0.019
Self-actualization	126.30	56	0.89	0.91	0.089
<b>Sample 2</b>					
PA	81.69	62	0.86	0.97	0.046
NA	98.85	56	0.87	0.89	0.071
SWLS	104.28	56	0.95	0.96	0.076
Vitality	98.03	62	0.93	0.93	0.063
Self-actualization	120.87	56	0.92	0.93	0.088

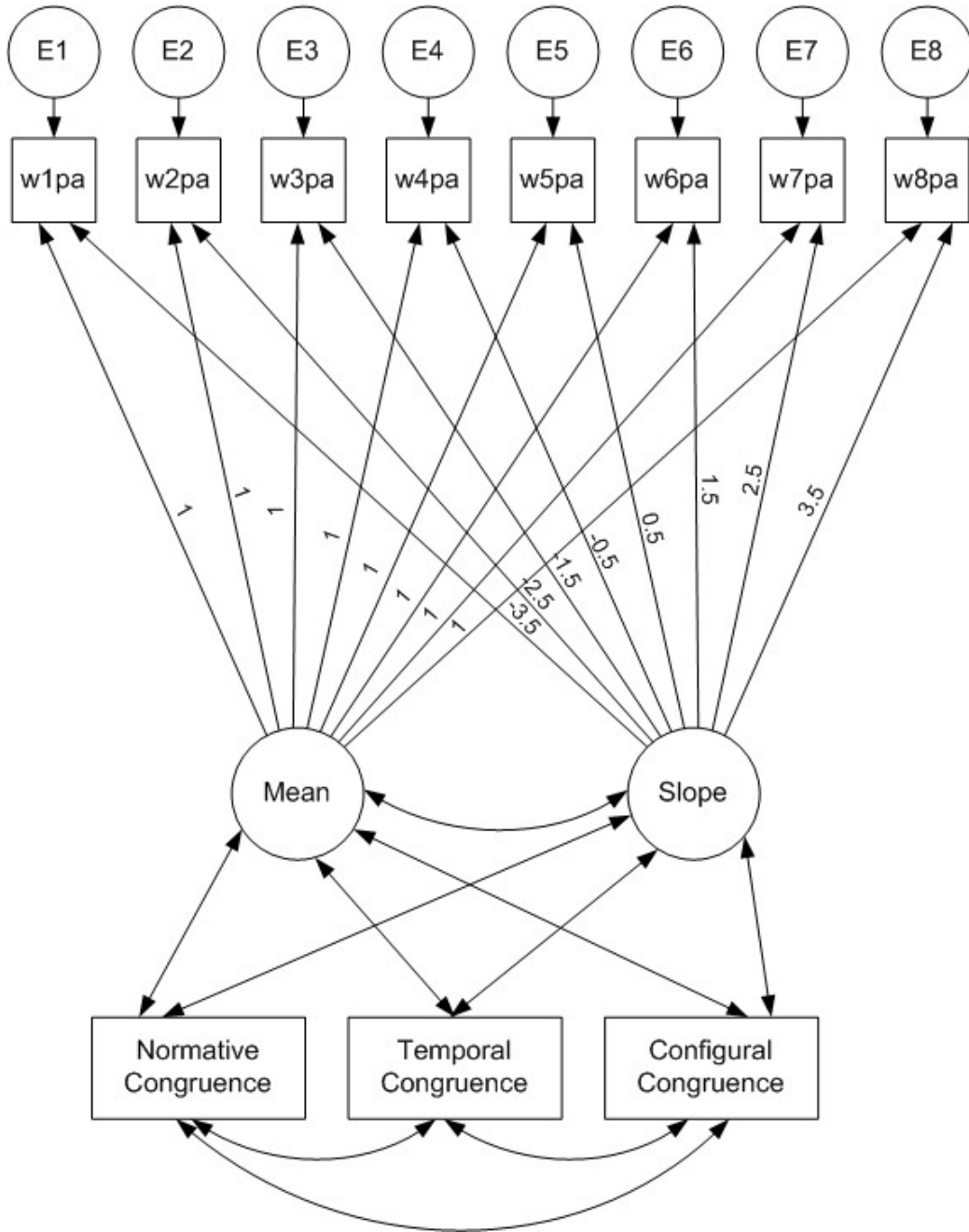


Figure 1. Model Used for Latent Growth Curve Analysis with Correlations. W1pa through W8pa denote weekly measures of positive affect. The weightings of the paths from the slope from -3.5 to 3.5 are to make the intercept represent the person mean.

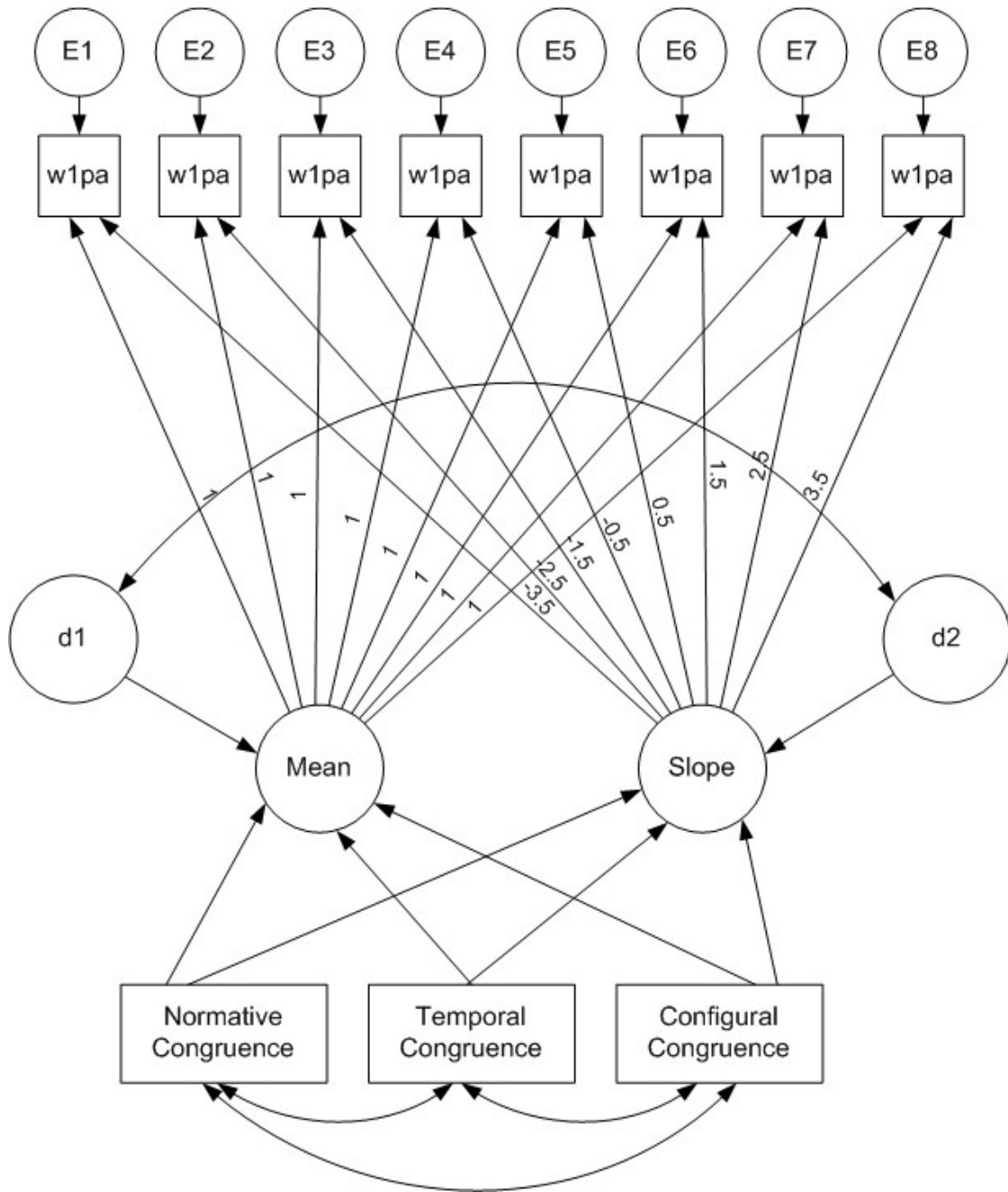


Figure 2. Model Used for Latent Growth Curve Analysis with Standardized Path Coefficients. W1pa through W8pa denote weekly measures of positive affect. The weightings of the paths from the slope from -3.5 to 3.5 are to make the intercept represent the person mean.

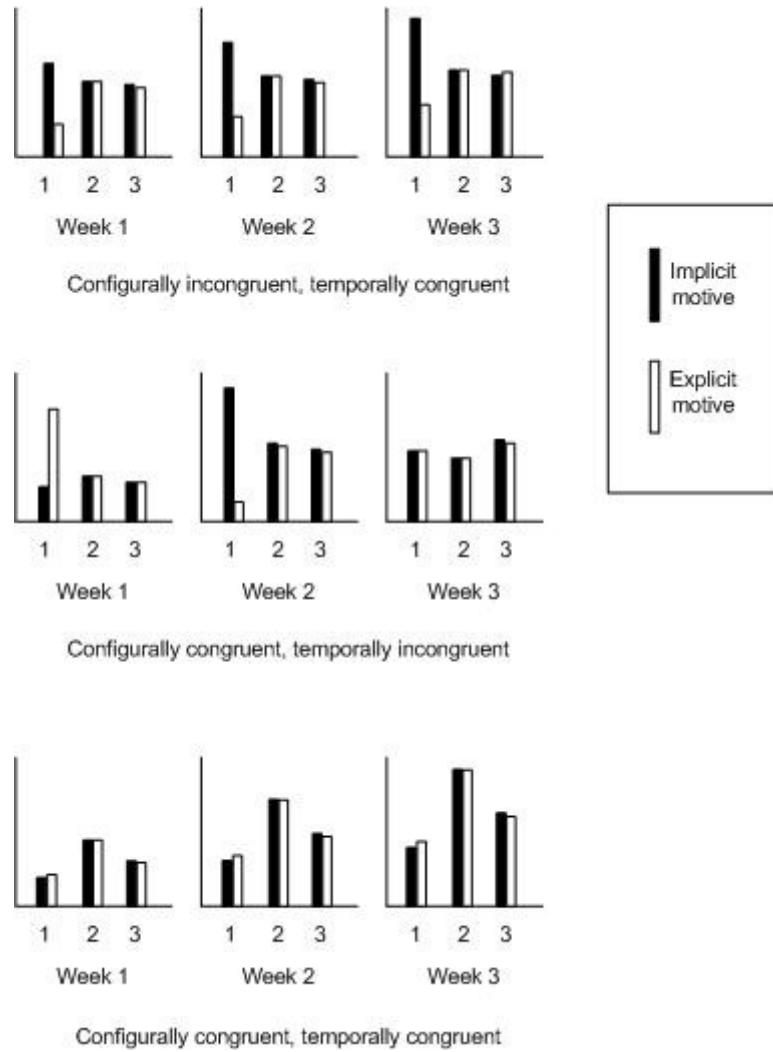


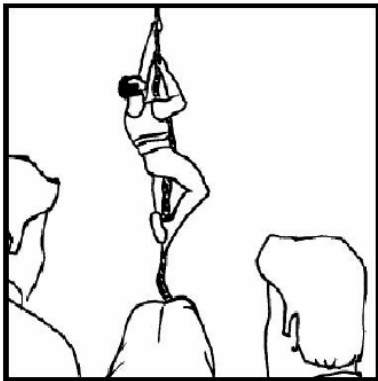
Figure 3. Hypothetical time-series of three persons with varying levels of temporal and configural congruence. Numbers on the X-axis indicate the three motive domains. Black and white bars represent implicit and explicit motives respectively.

## Appendix A

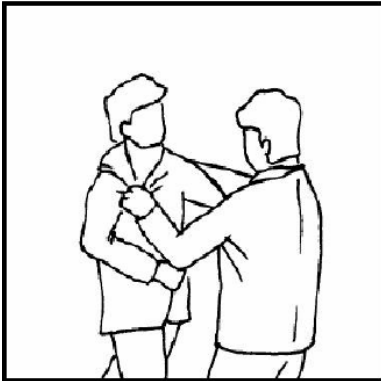
## Trimmed Version of Multi-Motive Grid (Short)(MMG-S; Sokolowski et al. 2000)

Note: Options below each statement were presented on a seven-point numbered scale from 1 (*no*) to 7 (*yes*).

On the following pages, you will see a set of pictures depicting all kinds of everyday situations. We did not choose very clear and detailed pictures because we want you to use your imagination in guessing what might be going on in these pictures. Please try to put yourself in the position of one of the persons who are shown in these pictures. Below these pictures, you will also find a set of statements describing the way people could think and feel in this situation. Please decide for each statement how well it describes this situation, and indicate your response by choosing a number from 1 (NO) to 7 (YES). Please do not think about a single statement too long and try to follow your spontaneous impression.



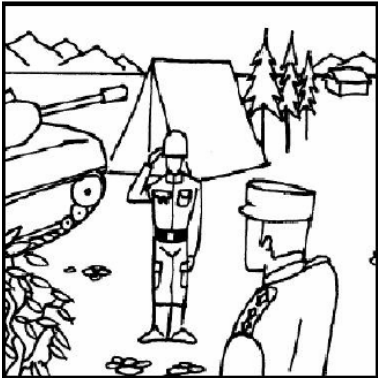
1. Feeling good about meeting other people
2. Being afraid of being overpowered by other people
3. Hoping to get in touch with other people



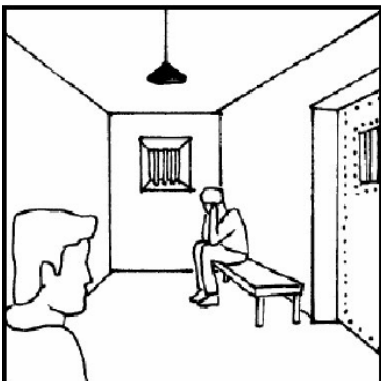
1. Feeling good about meeting other people
2. Anticipating to lose standing
3. Wanting to postpone a difficult task for a while
4. Hoping to get in touch with other people



1. Feeling confident to succeed at this task
2. Being afraid of being rejected by others
3. Feeling good about one's competency
4. Wanting to postpone a difficult task for a while



1. Feeling good about meeting other people
2. Thinking about lacking abilities at this task
3. Being afraid of being overpowered by other people
4. Hoping to get in touch with other people

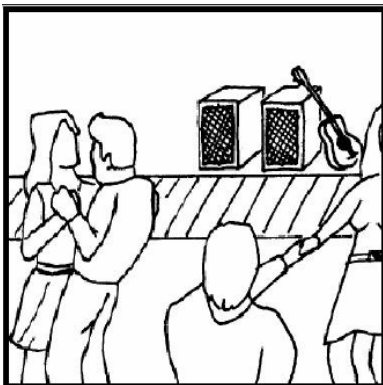


1. Feeling confident to succeed at this task
2. Being afraid of being rejected by others
3. Feeling good about one's competency
4. Being afraid of being boring to others



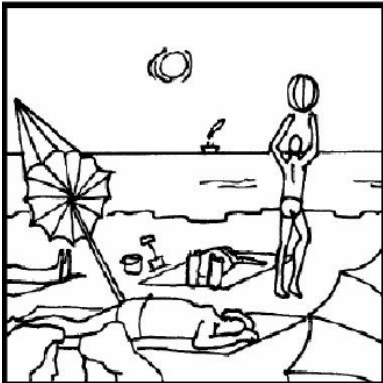
2

1. Feeling confident to succeed at this task
2. Thinking about lacking abilities at this task
3. Feeling good about one's competency
4. Trying to influence other people
5. Hoping to acquire a good standing



1. Feeling good about meeting other people
2. Feeling confident to succeed at this task
3. Feeling good about one's competency
4. Being afraid of being boring to others
5. Trying to influence other people
6. Hoping to get in touch with other people
7. Hoping to acquire a good standing





1. Feeling confident to succeed at this task
2. Being afraid of being rejected by others
3. Feeling good about one's competency
4. Trying to influence other people
5. Hoping to acquire a good standing



1. Feeling good about meeting other people
2. Trying to influence other people
3. Hoping to get in touch with other people
4. Hoping to acquire a good standing



1. Feeling confident to succeed at this task
2. Thinking about lacking abilities at this task
3. Feeling good about one's competency
4. Trying to influence other people
5. Hoping to acquire a good standing



1. Feeling good about meeting other people
2. Trying to influence other people
3. Hoping to get in touch with other people
4. Hoping to acquire a good standing

## Appendix B

## Measure of Explicit Motives (derived from Sheldon et al., 2001)

Note: Options below each item were presented on a five-point numbered scale from 1 (*not at all*) to 5 (*very much*).

This week, I have felt an impulse or desire to:

1. successfully complete difficult tasks and projects
2. have a sense of contact with people who care for me, and whom I care for
3. be a person whose advice others seek out and follow
4. take on and master hard challenges
5. be close and connected with other people who are important to me
6. strongly influence others' beliefs and behavior
7. be capable in what I do
8. have a strong sense of intimacy with the people I spend time with
9. have strong impact on what other people do

## Appendix C

## Positive and Negative Affect Schedule (PANAS; Watson et al., 1988)

Note: Options below each item were presented on a five-point scale with these five anchors: *very slightly or not at all, a little, moderately, quite a bit, extremely.*

This scale consists of a number of words that describe different feelings and emotions. Read each item and then indicate to what extent you feel this way today.

Today, I feel...

1. interested
2. distressed
3. excited
4. upset
5. strong
6. guilty
7. scared
8. hostile
9. enthusiastic
10. proud
11. irritable
12. alert
13. ashamed
14. inspired
15. nervous
16. determined
17. attentive
18. jittery
19. active
20. afraid

## Appendix D

## Satisfaction with Life Scale (SWLS; Diener et al., 1985)

Note: Options below each statement were presented on a seven-point numbered scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

Please indicate how strongly you agree or disagree with each of the following statements regarding how you feel today.

Today, I feel that...

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

Appendix E  
Subjective Vitality Scale (Ryan & Frederick, 2007)

Note: Options below each statement were presented on a five-point numbered scale from 1 (*not at all true*) to 5 (*very true*).

Please respond to the following items concerning how you feel today.

1. I feel alive and vital.
2. I don't feel very energetic.
3. I feel so alive I just want to burst.
4. I have energy and spirit.
5. I am looking forward to each new day.
6. I feel alert and awake.
7. I feel energized.

Appendix F  
Self-Actualization Scale (Sheldon et al., 2001)

Note: Options below each statement were presented on a five-point numbered scale from 1 (*not at all*) to 5 (*very much*).

Please respond to the following items in terms of how you feel today.

Today, I feel

1. that I am "becoming who I really am."
2. a sense of deeper purpose in life.
3. a deeper understanding of myself and my place in the universe.