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Alexander Cloudt
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Comparing Two Measures of Self-Role Integration in Their Prediction of Well-Being

by

Alexander Cloudt

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Date

Dr. Warren Reich

Signature

April 30, 2018

Date

Dr. Jason Young

Signature of Second Reader

Abstract

A previous study by Reich, Young, and Sangiorgio (2017) shows self-role integration (an aspect of self-structure) predicting well-being. The present study is a method comparison that used the data from Reich et al. (2017) to calculate the same predictor variable (self-role integration) to predict the same outcomes: life satisfaction and prosocial behavior. However, whereas Reich et al. (2017) operationalized self-role integration in terms of Hierarchical Classes Analysis (HICLAS, a discrete measure), the present study operationalized self-role integration in terms of Multidimensional Scaling (MDS, a continuous measure). Therefore, any differences in results should have been due to the only thing that varied between the two studies: the operationalization of the predictor variable (self-role integration). Unexpectedly, the MDS operationalization of self-role integration did not correlate with the HICLAS operationalization, nor did the MDS operationalization correlate with either life satisfaction or prosocial behavior.

Keywords: identity, self-structure, self-role congruence, self-role integration, well-being, life satisfaction, prosocial behavior, HICLAS, MDS

Comparing Two Measures of Self-Role Integration in Their Prediction of Well-Being

Previous research has firmly established that various aspects of personality relate to well-being. Many of these studies show well-being being predicted by various personality traits (DeNeve & Cooper, 1998). Other studies show well-being being predicted by various aspects of personality structure (Higgins, 1987; Reich, Harber, & Siegel, 2008; Reich, Kessel, & Bernieri, 2013). In line with the latter sort of finding, the present study adds to the results of a recent study (Reich, Sangiorgio, & Young, 2017) by attempting to show that well-being can be predicted using a different method of assessing an aspect of personality structure: namely, self-role integration.

Self-structure consists of a set of interrelationships among one's identities and traits (that describe one's typical experience in those identities). Regarding identities, there are at least two broad categories that are relevant to this paper: abstract identities and role identities. Abstract identities include – but are not limited to – one's actual self, ideal self, and undesired self. Higgins (1987, p. 320) defines the actual self as “your representation of the attributes that someone (yourself or another) believes you actually possess”. Reich et al. (2017, p. 6) define the actual self as “a generalized identity containing the traits that define who one takes oneself to ‘really’ be”. The ideal self can be thought of as an identity containing the traits that define who one would ideally desire to be. The undesired self can be thought of as an identity containing the traits that define who one would not desire to be. (Ogilvie, 1987).

Role identities have been defined as “the role (or character) people play when holding specific social positions in groups. It is relational, since people interact with each other via their own role identities.” (Andriot & Owens, 2012, April). These different identities are often primed by a combination of internal factors (such as how strongly one identifies with a certain identity)

and external factors (such as environmental cues or social circumstances) (Forehand, Deshpandé & Reed II, 2002). For example, one might identify as a son/daughter around one's parents, but as a parent around one's children.

Identities and their traits coalesce in unique ways that result in some degree of complexity. An identity might have traits that are rarely used, if ever, to describe other identities. For example, referring to Figure 3, we see that only 1/3 of Gregory's identities (his religious identity, and his identity with his parents) use the traits "committed" and "self-controlled". It is also likely that some traits will span across several or even all identities. For example, 2/3 of Gregory's identities use the traits "agreeable" and "excitable". When certain traits exist together across *multiple* identities, this might be due to these traits being related to one another somehow. Therefore, statistical procedures would likely cluster these two traits together. Likewise, when identities share trait clusters – making those identities descriptively similar to one another – statistical procedures would likely recognize this similarity and would consequently tend to cluster these *identities* together.

A person's unique array of identities, identity clusters, traits, and trait clusters all form a unique pattern. Statistically-determined visual representations of this pattern can reasonably be said to empirically represent what personality psychologists refer to as the self-structure. One aspect of self-structure is *integration*, which is the aspect the current study concerns.

Integration refers to the degree of overlap between one's various identities (Endnote 1). For our purposes, "overlap" refers to amount of shared traits between identities. In other words, the more traits two identities have in common, the more integrated they are. When exploring integration, abstract identities can be compared to other abstract identities. Examples of this include actual-ideal integration (comparing the actual self and ideal self) or actual-undesired

integration (comparing the actual self and undesired self). Abstract identities can also be compared to *role* identities. An example of this is actual self-role integration, which refers to the degree to which one's actual self is congruent with one's role identities. The current study concerns the latter form of integration.

Importantly for our purposes, self-role integration has been argued – on theoretical grounds – to be an important predictor of well-being such that as self-role integration goes up so does well-being (Lecky, 1945; Erikson, 1968; Rogers, 1961; Swann, Stein-Seroussi, & Giesler, 1992). Studies, too, have shown self-role integration to predict numerous aspects of well-being, such as role-specific satisfaction and commitment (Chassin, Zeiss, Cooper, & Reaven, 1985; North & Swann 2009; Reich 2000; Reich & Rosenberg 2004; Roberts & Donahue 1994; Sheldon, Ryan, Rawsthorne, & Ilardi, 1997), self-esteem and feelings of agitation (Alexander & Higgins 1993; Erickson & Ritter 2001; Leary, Haupt, Strausser, & Chokel, 1998), life satisfaction (Pavot, Fujita, & Diener, 1997), and general happiness (McGregor, McAdams, & Little, 2006).

Present Study

The present study is a reanalysis of data collected in a previous study by Reich, et al. (2017). Reich et al. (2017) show the unique value of self-role integration in helping to predict important aspects of well-being, namely life satisfaction and prosocial behavior. Participants completed a packet that asked them to describe various identities of theirs using a list of trait adjectives (Refer to “Self-Descriptive Task” under the “Method” section.).

Each participant's responses were then modeled using Hierarchical Classes (HICLAS) (de Boeck, Rosenberg, Mechelen, 1993). In the study, HICLAS sorted the identities and traits into clusters based on how frequently they co-occurred. If a participant tended to use a series of traits to describe various identities, those traits and the identities they describe would be clustered together based on their goodness of fit. Importantly, to improve goodness of fit, when HICLAS recognizes identities and traits that do not fit well with its model, HICLAS discounts these identities and traits from the model. Referring to our fictional example from earlier, Gregory used the traits "agreeable" and "excitable" when describing 2/3 of his identities. HICLAS would recognize that these three traits consistently appeared across numerous identities and, consequently, would likely cluster together these traits. Further, if other trait patterns appear across these identities, HICLAS would tend to cluster together these identities. HICLAS would discount non-applicable identities. So if we imagine Gregory does not have a spouse and never has, then he would not have selected and traits to describe this non-applicable identity. Consequently, HICLAS would discount this identity. Similarly, if we imagine that the traits "unorganized" and "accomplished" appeared in only one identity (Gregory at work, say), HICLAS would likely see these traits as a poor fit for its structure and would consequently discount these traits from the structure it would compose (See Figure 1).

Of particular interest to Reich et al. (2017) was the degree of similarity between the actual self and the other various role identities (actual self-role integration). If the actual self (an identity) and some other identity shared all of their trait clusters, then they were considered equivalent. Returning to our example of Gregory (Figure 3), we see that HICLAS shows Gregory's self as others see him as having the exact same trait pattern as his actual self (Keep in mind that they might have originally differed on a couple of poorly fitting traits that were

discounted by HICLAS). Reich et al. (2017) would have therefore considered these two identities to be equivalent (as demonstrated by both identities sharing the same box in the HICLAS self-structure in Figure 1). However, if an identity shared all of its trait clusters with the actual self but did not have every trait the actual self had, then that identity would be considered *subsumed* by the actual self. Referring to Figure 3, we see that Gregory described his actual self as “agreeable”, “excitable”, “sad”, and “distant”. Because all of the traits describing Gregory’s “work/student” and “with romantic partner/with closest male friend” identity clusters are also used to describe Gregory’s actual self, and because Gregory’s actual self has traits that those two trait clusters do not, those two trait clusters would be considered subsumed by Gregory’s actual self. Whereas if we look at Gregory’s self with his parents (Figure 3), though that identity cluster does share traits with Gregory’s actual self, that cluster also has traits that the actual self does not. Therefore, Reich et al. (2017) would not have considered that identity cluster as being subsumed by the actual self. Instead, that identity cluster would be considered disjunctive (See Figure 1 for a visual of a HICLAS self-structure showing identities that are equivalent, subsumed, and disjunctive relative to the actual self).

Reich et al. (2017) then determined the number of equivalent and subsumed identities of a participant relative to the total number of a participant’s identities (In other words, subsumed identities divided by total number of identities). For example, referring to Gregory’s HICLAS self-structure (Figure 1), we see that there are 5 identities that are either equivalent or subsumed by the actual self and there are 8 identities total. Gregory’s actual self-role integration score would therefore be $5/8$, which would be entered in SPSS as “.63”. Reich et al. (2017) used this ratio to mathematically define a participant’s degree of actual self-role integration, which Reich et al. (2017) refer to as *self-role integration*. The closer a participant’s self-role integration was

to 1, the more role identities were subsumed by their actual self, suggesting continuity between their various role identities and their actual self. For example, we can imagine if all 8 of Gregory's identities were either equivalent to or subsumed by his actual self, resulting in a ratio of 8/8 which would be entered in SPSS as "1" (a perfect actual self-role integration score).

In addition to completing the packet from which self-role integration was derived, Reich et al. (2017) also asked participants to complete other measures, two of which were covariate measures (One assessed optimism using the LOT-R, and another assessed psychological distress using the K10. Refer to methods section.), and two of which were the outcome measures (One assessed life satisfaction using The Satisfaction With Life Scale, and the other assessed prosocial behavior using The Generative Behavior Checklist. Refer to methods section).

Results from Reich et al. (2017) show that self-role integration significantly predicted life satisfaction beyond the covariate measures of optimism and psychological distress. Also, self-role integration was the only variable that significantly predicted self-reported prosocial behavior after a sixty day period. Reich et al. (2017) thus show the value of measure of a particular aspect of personality *structure* (i.e. self-role integration) in predicting important aspects of well-being (i.e. self-reported life satisfaction and prosocial behavior) beyond typical measures of personality *traits*. Importantly, the effects one's self-structure has on one's well-being are not entirely related to simply the *presence* of positively or negatively valenced traits; the actual *structure* matters as well Reich et al. (2017).

To summarize, Reich et al. (2017) showed that self-role integration – defined in terms of a *discrete* measure – was a significant predictor of well-being. If the present study can converge on the aforementioned results – but instead using a *continuous* measure of self-role integration – such would seem to have clinical implications. More accurate measures can be created so that

clinicians (e.g. clinical psychologists, life coaches, career coaches, etc.) can better assess their patient's degree of self-role integration to gain insight on those patients' well-being.

A Multidimensional Scaling Approach to Self-Role Integration

The present study is a method comparison whereby we attempt to replicate the general findings of Reich et al. (2017) but using a different measurement of self-role integration. In the current study, participant well-being was based on the same data from Reich et al. (2017). Recall that that data resulted from participants completing two covariate measures, two outcome measures, and a packet to attain identity and trait data. Recall that Reich et al. (2017) used HICLAS to organize the identity and trait data when elucidating participants' self-structures. Because of this, self-role integration was uniquely operationalized in terms of how HICLAS organized that data. Again, self-role integration was operationalized as the number of subsumed identities of a participant in proportion to the total number of a participant's identities. A participant who had a greater number of role identities subsumed by their actual self was said to have more actual self-role integration.

Unlike Reich et al. (2017), we did not organize the participants' identity and trait data with HICLAS, but we instead used Multidimensional Scaling (MDS). MDS essentially maps the data onto a multidimensional space (in our case, two dimensions), using this space as a means to show relationships between the data points (See Figure 2). The closer data points are to one another on this map, the more similar they are. Because we use MDS to sort the data, we operationally define self-role integration as a participant's average inter-role distance – or, the mean of the Euclidian distances between the actual self and each other identity. A participant who's role identities are closer on the map to his/her actual self would be expected to have

greater actual self-role integration than a participant whose role identities are farther from his/her actual self.

The most relevant difference between HICLAS and MDS is that HICLAS is a *discrete* measure whereas MDS is a *continuous* measure. HICLAS is a discrete measure because it *clusters/delineates* data and eliminates poorly fitting identities and traits from the self-structures it composes. MDS, on the other hand, is continuous because it does not discount any data but instead shows all data on a continuum where relative differences between data points can be assessed. In other words, when using HICLAS, you only see that identities are different from one another but you do not see *precisely how* different. When you are using MDS, however, you *do* see precisely how different data points are from one another.

The goal of the present study was to determine whether certain measures of well-being are better predicted by self-role integration when self-role integration is operationally defined in terms of HICLAS (a discrete measure) or when it is operationally defined in terms of MDS (a continuous measure). We have two predictions. First, we predicted that both the HICLAS and MDS operationalizations of self-role integration will strongly correlate with one another because they are reasoned to be two different ways of measuring the same thing (self-role integration), using the same data. Second, because MDS is a continuous, the MDS measures of self-role integration will be based on more information (because MDS does not eliminate any data – like HICLAS does – and because MDS shows more precise differences between identities). Consequently, the MDS measures should provide more accurate representations of one's self-role integration. Therefore, we predicted that well-being will be more strongly predicted by self-role integration when it is operationalized in terms of the more information-rich MDS than the less information-rich HICLAS.

Method

Participants

Two hundred twenty-three participants (171 female, age range = 18 – 61 years, $M = 20.97$ years, $SD = 5.91$ years) from City University of New York Hunter College (a large, urban, public university). 90% of the sample participated for course credit in their Introduction to Psychology course. The remaining 10% were not in an introductory psychology course but instead participated for \$10 at baseline and \$10 at follow up (136 participants – 61% – returned for the follow up.). Ethnic demographics were Asian (36%), White (26%), African-American (12%), Hispanic (15%), multiple ethnicities or “other” (10%).

Materials

Covariate Measures

Optimism. The LOT-R is a popular self-report personality questionnaire consisting of 10 questions, six of which address optimism while the other four are masks (Scheier, Carver, & Bridges, 1994).

Psychological Distress. Rather than use the longer K10, we used the shorter K6 because of concerns about participant fatigue. The K6 is a self-report questionnaire consisting of only six questions that assess anxiety and depression in the last thirty days (Kessler, Green, Gruber, Sampson, Bromet, Cuitan, . . . Zaslavsky, 2011).

Outcome Measures

Life Satisfaction. The Satisfaction With Life Scale is a very brief self-report questionnaire consisting of only five questions meant to assess one’s level of satisfaction with life, in general (Pavot & Diener, 2008).

Prosocial Behavior. The Generative Behavior Checklist is a self-report questionnaire consisting of fifty questions, forty of which assess generativity (e.g. “Contributed time or money to a political or social cause.”, “Donated blood.”) and ten of which are masks (McAdams & de St. Aubin, 1992).

Self-Descriptive Task

Participants completed a packet that cited an identity at the top of each page. Each identity was followed by the same list of eighty-six traits. For example, a participant would encounter a page with the *identity* “me with my parents”, followed by the list of *traits* that included “warm”, “cold”, “overwhelmed”, “agreeable”, “jealous”, “cautious”, “assertive”, “withdrawn”, “important”, “critical”, “strong”, etc. (Endnote 2). The participants were instructed to check off traits that they felt applied to that identity. Participants were allowed to check off as many traits as they wanted and to check off the same traits for different identities. For example, a participant might select the trait “warm” for both their identity “me with my mother” and their identity “me with my closest friend”, but might check off “jealous” for the identity “me with my closest sibling”. Participants could disregard identities that were inapplicable to their lives (Possible examples might be “me with my roommate”, or “me with my romantic partner”). Refer to the Appendix for a complete list of the identities and traits.

MDS Analysis of Self-Descriptive Data

The structure of each participant’s data was as follows. Identities were listed in rows, while traits were listed in columns. If a trait was used to describe an identity, that box would have a 1. If that same trait was *not* used to describe some other identity, then that box would have a 0 (Refer to Figure 3 for a hypothetical example of one participant’s data when it was in SPSS.)

Identities that had zero traits assigned to them were discarded (e.g., “roommate” for someone living alone). We did this because we felt it did not make sense to calculate the distance between an existing identity and a nonexistent identity. Similarly, if a participant did not use a trait to describe any of his/her identities, then that trait was discarded. Consequently, some participants had fewer than the maximum number of rows (listing identities) and/or fewer than the maximum number of columns (listing traits).

A separate multidimensional scaling (MDS) analysis was run for each participant’s data. MDS compared all possible pairs of identities by calculating the Euclidean distance between those identities. From the example in Figure 3, when MDS was calculating the Euclidean distance between Gregory’s actual self and his religious self, MDS referred to the column where the trait “committed” is represented. MDS then subtracted 1 (from the “religious self” row) from 0 (from the “actual self” row), getting -1. Then MDS squared this distance to achieve a positive distance of this trait between these two identities. Note that when identities used the same trait, the distance between the two of them would be $(1 - 1)^2 = 0$. When identities did *not* use the same trait, the distance between the two of them would be $(1 - 0)^2 = 1$, or $(0 - 1)^2 = 1$. MDS continued doing this till all traits had been compared to one another across these two identities. Then MDS would sum all of these 1s and 0’s. Then, MDS calculated the square root of that distance. When this was done, MDS achieved all pairwise distances between the two identities (Endnote 3). Finally, MDS plotted these distances on a two dimensional space (where distances between identities can be visually shown) and then scaled these distances by reworking the points until these new distances matched as closely as possible with the ratios of the raw data (Refer to Figure 2 for an example of Gregory’s MDS map.). When this was done, MDS also

shows these *scaled* distances, which represent all of the pairwise *scaled* distances between each identity (Refer to Figure 4 for a simplified hypothetical example of this output.).

Self-Role Integration

Self-role integration was operationally defined as the average scaled distance of each participant's actual self from his/her other identities. In other words, when the scaled data was achieved from the MDS analysis of each participant, it listed scaled distances indicating how far each identity was from each other identity (Refer to Figure 4). Focusing on a Gregory's *actual self*, for example, we took all of the distances of the other identities from that actual self and used those distances to calculate an *average* distance from that actual self. The smaller that average distance, the closer that participant's other identities were to his/her actual self, suggesting higher actual self-role integration.

We also calculated a second average distance from one's actual self, but *excluding one's undesired self* (Endnote 4). One's undesired self is typically described with traits that are not commonly used to describe most of one's other identities (Reich et al., 2017). This means the undesired self is typically rather different than one's other identities and including such a different identity would likely skew one's actual self-role integration score (calculated as an average, which can be skewed by large outliers). Therefore, we calculated this second average distance to the actual self, excluding the average distance between the actual self and the undesired self.

We also calculated a third self-role integration score: the average distance of one's identities from their *ideal self* (referred to as "Me at my best" in the packet the participants completed), minus the undesired self (The undesired self was assumed to be too far of an outlier from one's ideal self). We did this because we were curious to see how well ideal self-role

integration could predict well-being relative to actual self-role integration. We excluded the undesired self from this average for the same reasons just mentioned in the previous paragraph. In total, we therefore had self-role integration measures for each of these three abstract selves: the actual self, the actual self minus the undesired self, and the ideal self minus the undesired self. Using these three kinds of abstract self-role integration, we attempted to predict well-being (as measured by the 5-item Satisfaction with Life Scale and the Generative Behavior Checklist).

Results

Addressing our first prediction (that both the HICLAS and MDS operationalizations of self-role integration will strongly correlate with one another), we began with a simple correlation analysis. Unexpectedly, Table 1 shows these correlations to be extremely small and very statistically insignificant. HICLAS actual self-role integration was not related to MDS actual self-role integration, nor with MDS actual self-role integration minus the undesired self. HICLAS ideal self-role integration was not related to MDS ideal self-role integration.

Notably, Table 1 shows that HICLAS actual self-role integration was significantly related to HICLAS ideal self-role integration. Importantly, this relationship was *positive*. This was expected because other research shows the ideal self as tending to share some traits with the actual self (Reich, 2018, personal communication). In other words, one's ideal self tends to share traits with one's actual self, making them somewhat similar. Therefore, if one's role identities show high integration/integration with one's actual self, then we should expect those role identities to also show some degree of integration/integration with one's ideal self. Conversely, if one's role identities show *little* integration/integration with one's actual self, then we should also expect those role identities to show little integration/integration with one's ideal self. Either way, the relationship is *positive*. MDS actual self-role integration also showed a

small but significant relationship to MDS ideal self-role integration minus the undesired self. Unexpectedly though, this relationship was *negative*. It seems possible that this small negative relationship might have been due to MDS actual self-role integration including the undesired self while the ideal self-role integration did not include the undesired self. One's undesired self and one's ideal self can be thought of as opposites. Further, the undesired self can be thought of as an outlier because it tends to contain traits that few other identities – including the actual self – do (Reich, 2018, personal communication). Therefore, we reasoned that because this personality outlier (the undesired self) was represented in actual self-role integration but not in ideal self-role integration, actual self-role integration and ideal self-role integration – which are normally similar – became rather dissimilar. In other words, when we included the undesired self in the calculating of actual self-role integration but not in the calculating of ideal self-role integration, we might have caused this small but statistically significant negative relationship. To control for this possibility, we also calculated MDS actual self-role integration *without* the undesired self and then correlated this measure with our MDS ideal self-role integration measure. Unexpectedly, the relationship was still negative but was slightly smaller and also now statistically insignificant, $r = -.10$, $p = .12$.

In short, when the undesired self was not included when calculating MDS actual self-role integration, the relationship between the MDS measure of actual self-role integration and the MDS measure of ideal self-role integration was unexpectedly insignificant and still slightly negative. These results stand counter to the expected significant and positive correlation between the HICLAS actual self-role integration measure and the HICLAS ideal self-role integration measure.

Addressing our second prediction (that the MDS measure of self-role integration would be a better predictor of well-being than the HICLAS measure of self-role integration), we began with simple correlations. As expected, Table 2 shows that there was a significant and positive relationship between the HICLAS measure of actual self-role integration and the two covariate measures: optimism and psychological distress (Endnote 5). As expected, there was also a significant relationship between the HICLAS measure of actual self-role integration and the two well-being measures: prosocial behavior and life satisfaction. Unexpectedly, there were no significant relationships between any of the three MDS measures of abstract self-role integration and either of the two covariate measures or either of the two well-being measures.

Finally, because the simple correlation analyses showed no significant relationship between any of our three abstract self-role integration measures and any of the other measures, there was no use in running multiple regression analyses (to determine prediction levels) because they would not have achieved statistical significance.

Discussion

Previous research has shown that various traits can predict well-being (DeNeve & Cooper, 1998). Reich et al. (2017) show that the *structure* of these traits – and the structure of the identities they describe – can also predict well-being. Reich et al. (2017) focused on a particular aspect of self-structure called integration. Integration refers to the degree of similarity between compared identities. Reich et al. (2017) showed that participants with higher integration were more likely to self-report higher levels of life satisfaction and prosocial behavior. Importantly, Reich et al. (2017) operationalized integration in terms of HICLAS – a *discrete* measure. The current study was a method comparison whereby we attempted to generally replicate the findings of Reich et al. (2017), but while operationally defining self-role

integration using a *continuous* measure: MDS. We formulated two predictions. One, both the HICLAS and MDS measures of self-role integration would correlate with one another. Two, because the MDS measure is continuous, it would be a better predictor of well-being than the HICLAS measure.

Contrary to our first prediction, the 3 MDS measures of self-role integration did not correlate with the 2 HICLAS measures of self-role integration. Contrary to our second prediction, the 3 MDS measures of self-role integration did not correlate with (and therefore could not predict) either of the two trait-level measures or either of the two outcome measures.

The significant correlations that we did achieve might be revealing to these ends. Recall that HICLAS actual self-role integration correlated *positively* – as expected – with HICLAS ideal self-role integration (As one went up, the other went up, and as one went down, the other went down.). This was likely due to the similarity between these two identities; the actual self tends to contain some traits that are shared by the ideal self (Reich, 2018, personal communication). Unexpectedly, the relationship between the MDS measure of actual self-role integration and ideal self-role integration was *negative* (As one went up, the other went down. Refer to table 1.). We predicted that this unexpected negative relationship was due to us having included the undesired self in our calculation of MDS actual self-role integration. When we then controlled for this by excluding the undesired self from a new calculation of MDS actual self-role integration, the relationship was no longer significant but it was still negative. It is possible that this unexpected finding was due to the undesired self *still* been unintentionally represented, but *further down the line of computations*. Recall that our measure of MDS self-role integration was based on the average scaled distance between the target identity (either the actual self, or the ideal self) and each other identity. Unfortunately, these scaled distances were determined by

MDS with the undesired self being represented in those calculations. In other words, when MDS calculated all pairwise distances between every identity of a given participant, MDS also calculated the pairwise distances between each identity in comparison to the undesired self. Consequently, even though we attempted to eliminate the influence of the undesired self by excluding its scaled distance from the average scaled distance to the target identity, *all* of the scaled distances were already distorted by MDS having included the undesired self in its calculation of those scaled distances in the first place.

HICLAS, on the other hand, likely would not have included the undesired self in its composition of self-structures because HICLAS *automatically* discounts identities and traits that do not fit well with the model of the self-structure that HICLAS is constructing. Because of this, our HICLAS measures of actual self-role integration for each participant were significantly less likely to be skewed by the personality outlier that is the undesired self. This would have meant that the expected similarity between the HICLAS measures of actual self-role integration and ideal self-role integration would be preserved in most cases, resulting in the expected significant and positive correlation we found.

There appear to be at least three possible explanations for the results. One, an average MDS scaled distance is *not* a valid measure of self-role integration. Two, MDS is a valid means of measuring self-role integration, but self-role integration does not predict well-being, implying that a HICLAS measure of self-role integration is *not* a valid measure of self-role integration and predicts well-being for some reason other than it being a supposed measure of self-role integration. Three, MDS *is* a valid means of measuring self-role integration and likely would have predicted well-being if we had not included the outlier of the undesired self in our MDS analyses. Because previous theoretical research (Lecky, 1945; Erikson, 1968; Rogers, 1961;

Swann et al. 1992) and empirical research (Pavot et al. 1997; McGregor et al., 2006) suggest that self-role integration is an important predictor of well-being, and because we believe that a properly conducted MDS measure of self-role integration would be a valid operationalization of integration, we believe that the third explanation is most likely correct. Therefore, future research should attempt to predict well-being using properly conducted measures of MDS self-role integration.

We are also considering the possibility of the first potential explanation, that MDS is not useful for accurately measuring self-role integration. MDS has long been used by consumer psychologist for mapping preferences for consumer goods (Cooper, 1983). MDS also has a history in research on perception (Jaworska & Chupetlovska-Anastasova, 2009) and has even been used to study personality impressions (Rosenberg, Nelson, & Vivekananthan, 1968). However, though MDS might be useful for measuring certain psychological constructs, MDS might not be able to accurately represent other psychological constructs, such as self-role integration. It seems possible that self-role integration is organized in a more discrete fashion in the brain, which would explain why a discrete measure (such as that operationalized in terms of HICLAS) of self-role integration is more likely to predict well-being as it is expected to, whereas a continuous measure (such as that operationalized in terms of MDS) fails to correlate with well-being.

It is important to note, though, that self-role integration does not much predict well-being in East Asian participants. Recall that self-role integration results when one's abstract identities do not share many traits with one's role identities. Such self-role integration tends to relate to a decrease in well-being in Western participants. Several researchers hypothesize that dissonance is the mechanism responsible for this relationship (Reich et al. 2008; Reich et al. 2013).

However, research suggests that East Asians do not seem to experience as much dissonance from having incongruent identities. Expectedly, East Asians with incongruent identities do not experience the same depreciation in well-being as do Westerners with incongruent identities. In other words, the relationship between self-role integration and well-being appears to be a phenomenon of individualist cultures (Cross, Gore, & Morris, 2003; Suh, 2002).

The present study attempted to determine whether a discrete measure or a continuous measure of self-role integration would better predict life satisfaction and prosocial behavior in a Western sample. Future research should continue along these lines so that we might add to our battery of measures that predict well-being. This would seem to particularly useful for clinicians looking for a way to measure this important aspect of personality as it relates to their patients' well-being.

Endnotes

1. The term “identity” is sometimes referred to as “selves” or “self-aspects”. Consistent with Rosenberg (1997), the present study uses the term “identity”.
2. We selected trait adjectives that we felt represent a broad variety of interpersonal experiences, some of which are positively valenced while others are negatively valenced.
3. The more traits two identities shared, the smaller the total Euclidean distance was between those two identities, whereas the fewer traits were shared by two identities the larger the total Euclidean distance was between those two identities.
4. The undesired self was referred to as “Me at my worst” in the packet the participants completed. We calculated a separate average excluding this identity because a person’s undesired self is not usually close to one’s actual self and would therefore tend to be an outlier, skewing the averages for many participants.).
5. Typically, a higher score on the K6 would indicate higher levels of psychological distress. Consequently, we would expect a higher score on the K6 to correlate, negatively, with a higher level of self-role integration. However, because we rescaled the K6 so that a higher score indicates lower levels of psychological distress (i.e. *better* mental health), we achieved the expected result of higher scores on the K6 correlating, positively, with higher levels of self-role integration.

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Table 1

Simple Correlations between Predictors

| | HICLAS Actual Self- Role Integration | HICLAS Ideal Self- Role Integration | MDS Actual Self-Role Integration | MDS Actual Self-Role Integration Minus Undesired Self | MDS Ideal Self-Role Integration Minus Undesired Self |
|--|---|--|--|--|---|
| HICLAS Actual Self- Role Integration | | | | | |
| HICLAS Ideal Self- Role Integration | .244** | | | | |
| MDS Actual Self-Role Integration | .025 | -.081 | | | |
| MDS Actual Self-Role Integration Minus Undesired Self | .015 | -.070 | .997** | | |
| MDS Ideal Self-Role Integration Minus Undesired Self | .070 | -.018 | -.135* | -.101 | |

** $p < .01$. * $p < .05$.

Table 2

Simple Correlations between Predictors and Outcomes

| | Optimism | Psychological Distress | Life Satisfaction | Prosocial Behavior |
|---|----------|---------------------------|----------------------|-----------------------|
| HICLAS Actual Self-Role Integration | .153* | .146* | .200** | .197** |
| HICLAS Ideal Self-Role Integration | .252** | .198** | .153* | .193** |
| MDS Actual Self-Role Integration | .099 | .054 | .020 | .027 |
| MDS Actual Self-Role Integration Minus Undesired Self | .091 | .056 | .018 | .036 |
| MDS Ideal Self-Role Integration Minus Undesired Self | -.011 | .058 | .017 | .006 |

** $p < .01$. * $p < .05$.

Visual of Self-Structure

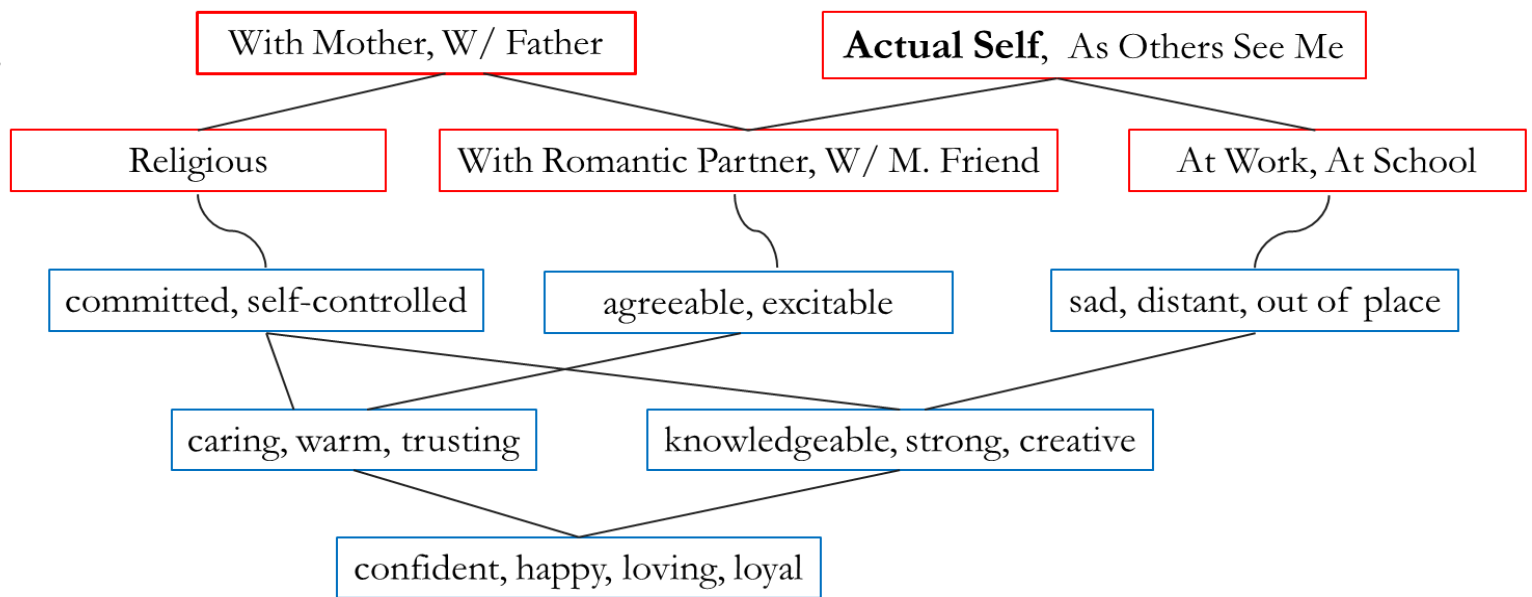


Figure 1. An abbreviated HICLAS output for one participant.

Note.. Actual self contains five of the eight identities in the structure: with romantic partner, with closest male friend, at work, at school, and as others see me. Actual self-role integration is therefore $5 / 8 = .63$.

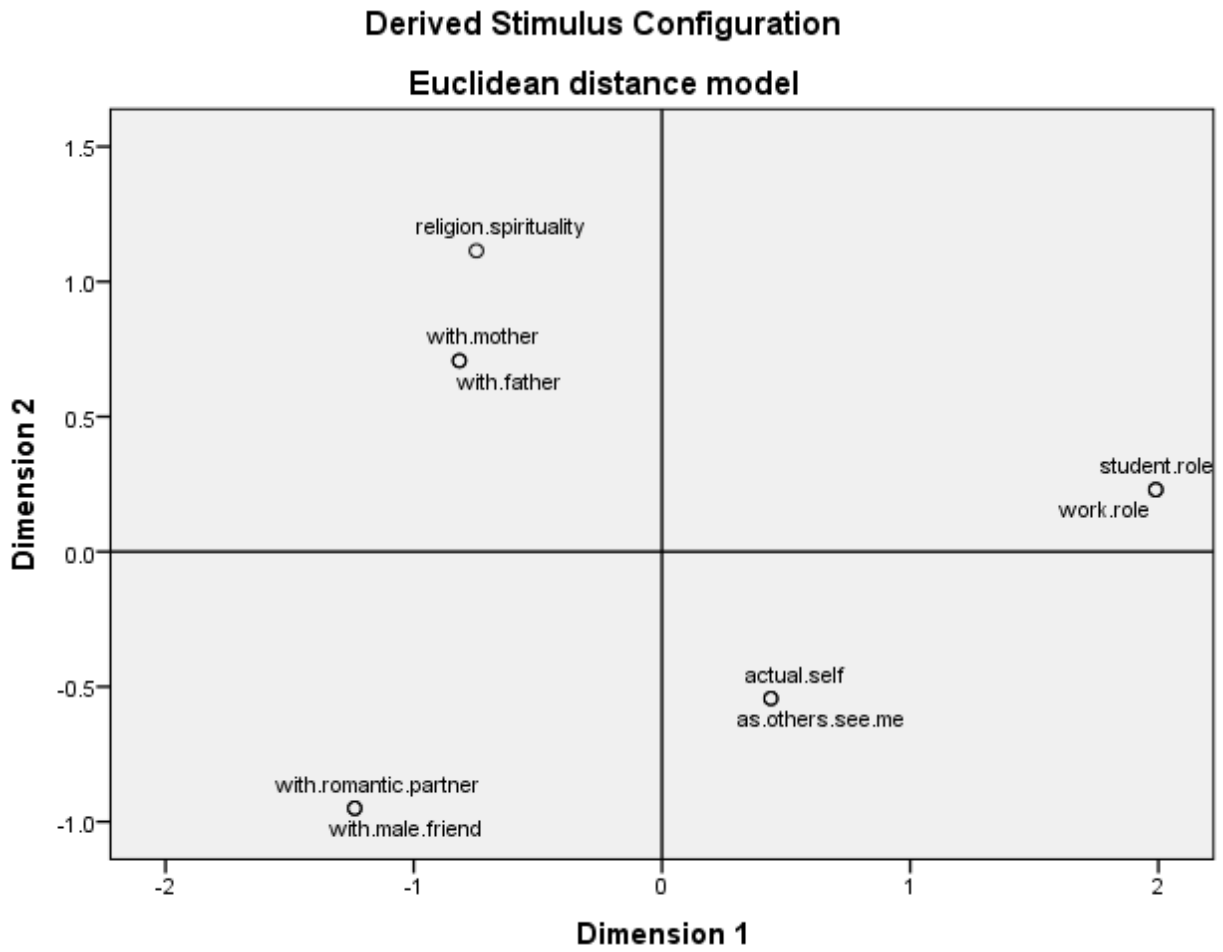


Figure 2. Gregory’s MDS map.

Note. The spatial distance between identities indicates how similar or dissimilar they are in terms of their traits. Note how some pairs of identities overlap one another; this is because those identities share the same exact traits with each other.

| Identities | Committed | Self-Controlled | Agreeable | Excitable | Sad | Distant |
|--------------------------|-----------|-----------------|-----------|-----------|-----|---------|
| Actual | 0 | 0 | 1 | 1 | 1 | 1 |
| As Others See Me | 0 | 0 | 1 | 1 | 1 | 1 |
| Religious-Spiritual | 1 | 1 | 0 | 0 | 0 | 0 |
| With Romantic Partner | 0 | 0 | 1 | 1 | 0 | 0 |
| With Closest Male Friend | 0 | 0 | 1 | 1 | 0 | 0 |
| Work | 0 | 0 | 0 | 0 | 1 | 1 |
| Student | 0 | 0 | 0 | 0 | 1 | 1 |
| With Mother | 1 | 1 | 1 | 1 | 0 | 0 |
| Wither Father | 1 | 1 | 1 | 1 | 0 | 0 |

Figure 3. Example of some of a participant’s data in Excel after HICLAS sorted it. We refer to this participant as Gregory.

Note. Double lines separate identity clusters. Highlights separate trait clusters. 1’s indicate where a trait has been selected, whereas 0’s indicate where a trait has not been selected.

| | Actual | Ideal | Undesired | Work | Spiritual | W/Dad |
|-----------|--------|-------|-----------|------|-----------|-------|
| Actual | 0 | | | | | |
| Ideal | 1.20 | 0 | | | | |
| Undesired | 0.44 | 4.77 | 0 | | | |
| Work | 3.12 | 1.46 | 2.0 | 0 | | |
| Spiritual | 3.98 | 1.12 | 1.23 | 3.75 | 0 | |
| W/ Dad | 2.51 | 1.33 | 3.99 | 3.62 | 3.42 | 0 |

Figure 4. Gregory's MDS scaled distances between his identities.

Note. Even though we excluded non-applicable identities, a participant would very likely have more applicable identities than this simplified example.

Appendix. Self-Descriptive Trait Adjectives.

| | | | |
|------------------|--------------------|--------------------|--------------------|
| Knowledgeable | Optimistic | Sympathetic | Manipulative |
| Self-controlled | Confident | Complex | Sad |
| Committed | Caring | Quiet | Moody |
| Secure | Happy | Overwhelmed | Jealous |
| Anxious | Intimate | Distant | Agreeable |
| Cold | Weak | Loving | Achieving |
| Comfortable | Confused | Loyal | Strong |
| Warm | Argumentative | Exploring | Quarrelsome |
| Bored | Passive | Pleasant | Disorganized |
| Free | Satisfied | Dependable | Out of place |
| Fun-loving | Calm | Energized | Logical |
| Cautious | In a bad situation | Excitable | Trusting |
| Indecisive | Self-disciplined | Assertive | Close |
| Frustrated | Unimportant | Important | Unhappy |
| Content | Withdrawn | Consistent | Angry |
| Pessimistic | Lacking Confidence | Easily upset | Creative |
| Critical | Procrastinating | Careful | Regretful |
| Risk-taking | Reserved | Lose self-control | Proud |
| Inhibited | Conventional | Indulgent | Craving |
| Impulsive | Risk-avoiding | Excitement-seeking | Not really myself |
| Feel like myself | Clear-headed | Careless | Emotionally stable |
| Uncreative | Open to new exp. | | |

