

## ORIGINAL RESEARCH REPORT

# A Latent Class Analysis of Personal Values in Young Adults

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Human values and motivations are a powerful predictor of behavior, and Schwartz's taxonomy offers a meaningful organizational system for robust value dimensions (Schwartz, 1992). Although values clearly represent a meaningful and culturally relevant dimension of individual differences, they remain poorly understood particularly in regards to how values co-occur and manifest within individuals. The purpose of the present study was to examine how values co-occur and manifest within individuals. A racially/ethnically diverse sample of 1,308 undergraduate students (351 males,  $M_{age} = 21.70$ ,  $SD = 5.22$ ) reported on their personal values and personality traits. Latent class analyses revealed support for two value classes: personal-focused ( $N = 210$ ) and social-focused ( $N = 1098$ ), which map onto hypotheses of value configurations based on Schwartz's taxonomy (Schwartz, 1992). The value classes also exhibited differences based on racial/ethnic composition, gender composition, and personality trait association, also consistent with previous research. The current study provides evidence for two value types that manifest across two countries in North America.

**Keywords:** Personal Values; Personality Traits; Racial Differences

Personal values reflect principles we use to govern how we ought to behave and represent a dimension of individual differences (Parks & Guay, 2009; Rokeach, 1973; Schwartz, 1992, 2006). Values show robust associations with other individual differences, such as personality traits (Fischer & Boer, 2014; Parks & Guay, 2009; Roccas, Sagiv, Schwartz, & Knafo, 2002), and have been organized into summary categories – most notably, Schwartz's circumplex taxonomy (2006). In addition to numerous studies examining values from a variable-centered approach, recent empirical attention has focused on adopting a within-person approach to examine value typology (Borg, Bardi, & Schwartz, 2015; Gollan & Witte, 2014; Magun, Rudnew, & Schmidt, 2016). These studies further validate the existing taxonomic distinctions proposed by Schwartz's value theory (Schwartz, 1992, 2006). The present study seeks to replicate previously reported findings and further describe emergent classes on the basis of race/ethnicity and gender, as well as, associations with personality traits and psychopathology.

Two basic conceptualizations have been proposed for personal values: values as preferences and values as

principles (Ravlin & Meglino, 1987). We focus here on the latter. Personal values reflect guiding principles that influence an individual's behavior (Parks & Guay, 2009; Schwartz, 1992; Schwartz, 2006). Schwartz's Theory of Basic Human Values (1992; Smith & Schwartz, 1997) is perhaps the most widely used and extensively developed taxonomy for personal values. These personal values are conceptualized according to six tenets described by Schwartz (1992, 2006). (1) Values are beliefs linked to affect. When activated, they are imbued with feelings. (2) Values reference desirable goals that assist in motivating action. (3) Values transcend specific situations and actions. (4) Values serve as criteria or standards. (5) Values are ordered by importance relative to other values. (6) The relative importance of multiple values guide actions. Values can be distinguished from one another by the type of motivation or goal that the value expresses (Schwartz, 2006). Schwartz's theoretical model is further composed of ten broad values: self-direction (choosing, creating, exploring), stimulation (excitement, novelty, challenge), hedonism (pleasure, sensuous gratification), achievement (personal success, competency), power (social status, prestige, dominance), security (safety, harmony), conformity (social norm-consistency), tradition (respect, commitment to customs), benevolence (concern over close other's welfare), and universalism (concern over welfare of all people and nature). The taxonomy of the values is laid out in a circumplex (see Parks & Guay, 2009;

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Schwartz, 1992 for an illustration), with complementary values being closer to – and opposing values being further away from – each other. The values are divided into four quadrants along two bipolar dimensions: openness to change versus conservation and self-transcendence versus self-enhancement. Openness to change (self-direction, stimulation, and hedonism) and conservation (tradition, conformity, and security) values represent characteristics of individualism and collectivism, respectively.

Recently, there has been an increase in research examining values using a within-person approach. At least two studies have tested whether Schwartz's value circumplex exists within individuals as well as across individuals (Borg, Bardi, & Schwartz, 2015; Gollan & Witte, 2014). Other studies have employed a wide variety of methods including data clustering techniques to evaluate the within-person structure of values (see Magun et al., 2016 for more details). Most recently, Magun and colleagues (2016) sought to use a typological approach to investigate the between and within country diversity of values. This approach identifies homogenous classes of individuals with similar value systems and can be tested using a variety of statistical methods including cluster, discriminant, and latent class analyses (Lee et al., 2011; Magun & Rudney, 2008; Magun et al., 2016; Moors & Vermunt, 2007). In Magun's work, they sought to evaluate within and between country value heterogeneity of populations in Europe. The investigators identified five European value classes. The countries were internally diverse in their value class composition and most of them had a non-zero probability of having members in all of the classes. These results highlighted latent class analyses as an appropriate strategy for relating values to each other within Schwartz's value taxonomy both within and between countries. A latent class approach can add valuable insight into how personality and values are related to each other within an individual. Presently, known associations between personality and values are based primarily on variable-centered analyses. Therefore, the current study seeks to identify values types in countries in North America and seeks to characterize emergent classes in terms of race/ethnicity, gender, personality traits, and psychopathology.

### Values, Race/Ethnicity, and Gender

Culturally reflective demographic variables including race/ethnicity and gender likely relate to within-person configurations of personal values (Coon & Kimmelmeier, 2001; Gaines et al., 1997; Hofstede, 2001; Schwartz & Rubel, 2005). Although the structure of value importance is near universal at the societal level, individuals from different cultural groups could be expected to differ substantially on the relative importance that they attribute to the ten values (Schwartz, 2006). The most robust racial/ethnic differences in personal values are seen when examining individualistic versus collectivistic orientations. Specifically, individuals of European descent tend to place a higher emphasis on values corresponding to individualism (e.g., self-direction, hedonism, and stimulation); whereas, individuals of African, Asian, and Hispanic/Latino descent tend to place a higher emphasis on values associated with collectivism (e.g., tradition and

conformity; Cokely, 2005; Coon & Kimmelmeier, 2001; Gaines et al., 1997; Hofstede, 2001; Kim, Atkinson, & Yang, 1999; Kim & Omizo, 2005). However, there is also emerging evidence suggesting that African Americans score higher on individualism relative to their Asian and European American peers, likely a manifestation of a survival mechanism over time (Cokely, 2005). Overall, there are similarities and differences between racial/ethnic groups and personal value priorities.

When examining sex differences in personal value importance, the findings are often mixed. The most common sex difference found across cultures is that men tend to place a higher emphasis on self enhancement values (e.g., power and achievement) compared to women, whereas women tend to emphasize self-transcendence values (e.g., universalism and benevolence) compared to men (Bond, 1988; Di Dio, Saragovi, Koestner, & Aube, 1996; Feather, 1984, 1987; Rokeach, 1973; Schwartz & Rubel, 2005). There are findings that suggest that women place a higher importance on conservation values (e.g., security, conformity, and tradition) whereas men place a greater emphasis on openness to change values (e.g., hedonism, stimulation, and self-direction; Ryckman & Houston, 2003; Schwartz & Rubel, 2005). However, there are also studies that find no sex differences among any of the ten personal values (Aygün & Imamoglu, 2002; Prince-Gibson & Schwartz, 1998) or no sex differences for specific values (e.g., tradition and conformity; Schwartz & Rubel, 2005). Despite some inconsistencies in the literature, previous research provides evidence of the presence of racial/ethnic and gender differences that may influence within-person configurations of personal values. As such, race/ethnicity and gender represent two meaningful ways to further characterize the value types that emerge. The current sample is particularly well suited to this goal as it offers racial/ethnic diversity in a large sample of individuals from two distinct geographic locations in North America.

### Values and Personality

Associations between personal values and personality traits have been robustly documented in the literature (Bilsky & Schwartz, 1994; Fischer & Boer, 2014; Olver & Mooradian, 2003; Parks, 2007; Parks-Leduc, Feldman, & Bardi, 2015; Roccas et al., 2002; Vecchione, Alessandri, Barbaranelli & Caprara, 2011; Yik & Tang, 1996). Previous research has provided evidence that the strength of associations between values and personality varies as a function whether the traits are more cognitively based (with cognitive traits having a stronger association with values) and the amount of content overlap with between the values and traits (Parks-Leduc et al., 2015). Across studies, Openness to Experience and Agreeableness demonstrate the strongest associations with personal values, followed by Conscientiousness and Extraversion (Fischer & Boer, 2014; Parks, 2007; Parks & Guay, 2009; Parks-Leduc et al., 2015; Roccas et al., 2002). Agreeableness is positively correlated with benevolence, tradition, and conformity and negatively correlated with power and achievement; Openness to Experience is positively correlated with self-direction, universalism, and stimulation and negatively

correlated with conformity, security, power and tradition; Extraversion is positively correlated with achievement, stimulation, and hedonism and negatively correlated with tradition; and Conscientiousness is positively correlated with achievement, conformity, and security and negatively correlated with stimulation. Higher order associations between Neuroticism and values are typically absent; however, facets of Neuroticism correlate with the values (e.g., impulsiveness correlates positively with stimulation; Roccas et al., 2002). Collectively, this work provides evidence supporting associations between personality traits and personal values.

Personal values and personality traits both represent two related but distinct domains of individual differences (Parks-Leduc et al., 2015). Personality traits are considered to be innate dispositions whereas values are learned beliefs that may reflect adaptation to personal and societal needs (Olver & Mooradian, 2003; Parks & Guay, 2009; Rokeach, 1972; Schwartz, 2006). In addition, personal values often conflict with each other, so that an individual often has to prioritize one value over another, whereas personality traits can be expressed simultaneously. Both personal values and personality provide meaningful information that can be used to help explain individual differences in behavior (Bilsky & Schwartz, 1994; Parks & Guay, 2009). Examining personality associations among the emergent value types will provide additional meaningful information that further distinguish the value types.

### The Present Study

The primary goal of the present study was to identify emergent value types (within-person configurations) of values present in North America using two large, racially and ethnically diverse samples as a replication of previous research. We hypothesized that emergent latent classes would be consistent with Schwartz's circumplex taxonomy of value configurations and that they should map onto existing values types identified in other samples (Magun et al., 2016). The secondary goal of the present study was to describe emergent latent classes by examining race/ethnicity and gender differences as well as associations with personality traits. We expected that emergent classes may vary in group membership such that value types characterized by values representing individualism (i.e., stimulation, hedonism, and self-direction) would be comprised of more individuals of European descent than those value types characterized by values representing collectivism (i.e., tradition and conformity). Given the lack of empirical work examining personality characteristics within value types, we did not generate a priori hypotheses.

### Method

#### Participants

**Sample 1.** Participants were 547 undergraduate students between the ages of 17–42 years ( $M = 19.59$ ,  $SD = 2.95$ , three participants did not specify their age; 207 males (37.8%), five participants did not specify their gender) from a large public university in a major metropolitan area in southern Ontario, Canada. Participants self-identified as the following ethnicities: 34.7% East Asian,

17.7% South East Asian, 17.7% Western European, 9.9% Eastern European, 5.7% Multiracial/Mixed, 5.5% Middle Eastern, 4.9% African/Black, 2.6% Latino, 0.4% Native Canadian/Aboriginal peoples of Canada, and 0.9% did not specify (the current sample is representative of the population of the institution and not the larger Canadian population). Participants were recruited from an undergraduate participant pool that was limited to Introductory Psychology students and is a reflection of the makeup of the student body in the psychology department at the university. No other eligibility requirements, preparation, pre-requisites, disqualifiers, or course restrictions were imposed.

**Sample 2.** Participants were 938 undergraduate students between the ages of 17–58 years ( $M = 23.06$ ,  $SD = 5.88$ , 160 males (17.1%), 74 participants did not specify their age and gender) from a large public university in a major metropolitan area in the Southern region of the United States. Participants self-identified as the following ethnicities: 24.6% Latino, 18.2% European American, 16.5% African American/Black, 15.1% South East Asian, 7.0% East Asian, 4.8% Multiracial/Mixed, 3.6% Middle Eastern, 0.4% Native American and 9.6% did not specify (due to rounding errors these percentages sum up to 99.8%). Participants were recruited from an undergraduate participant pool that was limited to undergraduates taking psychology courses and is a reflection of the makeup of the student body in the psychology department at the university. Participants were recruited from an undergraduate participant pool that was limited to undergraduates taking psychology courses. No other eligibility requirements, preparation, pre-requisites, disqualifiers, or course restrictions were imposed.

For the purposes of the remaining analyses, we combined the two samples ( $N = 1,308$ ) after dropping participants that were missing information on their age, race/ethnicity, and/or their gender ( $n = 95$ ) or those who self-identified as Mixed/Multiracial or Native American/Canadian given the small number of individuals in each ethnic group ( $n = 82$ ). The following racial/ethnic groups were combined for analyses (and reflect slight differences in categorical options between the two samples): in Sample 1, individuals who self-identified as Western European, Eastern European, and Middle Eastern were combined to represent European Americans ( $n = 181$ ) and in Sample 2 individuals who self-identified as Middle Eastern were combined with those who self-identified as European American ( $n = 205$ ).<sup>1</sup>

#### Measures

**Big Five Inventory (BFI; John, Donahue & Kentle, 1991).** The BFI is a 44-item questionnaire that assesses a five-factor higher-order structure of personality: Neuroticism (N), Extraversion (E), Openness to Experience (O), Agreeableness (A), and Conscientiousness (C). Participants rated each item on a five-point scale (1 = *strongly disagree* to 5 = *strongly agree*). In the current study, the BFI scales had coefficient alphas ranging from .72 (O) to .83 (E; average  $\alpha = .78$ ) in the combined sample.

**Schwartz Value Survey (SVS; Schwartz, 1992).** The SVS is a 57-item questionnaire that assesses ten

dimensions of universal values: power, achievement, hedonism, stimulation, self-direction, universalism, benevolence, tradition, and security. The SVS presents two lists of value items: the first contains 30 items that describe potentially desirable end states in noun form [e.g., equality (equal opportunity for all)] and the other 27 items describe potentially desirable ways of acting in adjective form [e.g., honest (genuine, sincere)]. Participants rated each item on a nine-point scale (7 = *of supreme importance* to -1= *opposed to my values*). To account for individual and cultural group differences in their use of the response scale, Schwartz (2006) recommends that the values be corrected by centering each individuals' response around the mean of their total score. As such, the ten values were all centered in this way. In the current study, the SVS value scores had coefficient alphas ranging from .64 (Hedonism) to .85 (Universalism and Benevolence; average = .78) in the combined sample.

**Procedures**

Participants spent approximately one hour completing questionnaires in the lab (Sample 1) or through an online survey (Sample 2), including questionnaires not relevant to the current investigation. All participants gave informed consent prior to participation and were informed of their right to withdraw from the study at any point in time without penalty or loss of course credit. Upon completion of the study, participants were presented with a research summary that contained background information as well as the research hypotheses. Participants were compensated with course credit according to the rules set by the respective psychology departments. Ethical approval for the study was acquired from the Research Ethics/Institutional Review Boards at both universities. Missing data (2% SVS and 0.6% BFI) were imputed using the expectation-maximization (EM) algorithm in SPSS 21 and the Little's Missing Completely at Random test was not significant  $X^2 = 28.19, p = 1.00$ . All analyses were conducted using the combined sample.

**Results**

**Latent Class Analysis of Personal Values**

Latent class analyses were conducted in *Mplus* 5.21 to identify meaningful classes that differentiated personal values-based patterns among participants. Specifically, classes were identified based on patterns of responding to the 10 personal values: conformity, tradition, benevolence, universalism, stimulation, self-direction, hedonism, achievement, power, and security. Statistical indicators for model selection included Akaike's Information Criterion (AIC), Bayesian Information Criterion (BIC), and entropy. For AIC and BIC, lower relative values indicate a better-fitting model. For entropy, absolute values closer to 1.0 indicate a greater classification certainty, with acceptable models typically showing entropy >.80.

Based on all three fit statistics, two classes' best summarized the data (see **Table 1** and **Figure 1**) and thus were examined for further analysis. The Lo-Mendell-Rubin Adjusted Likelihood Ratio Test suggested that the two classes fit significantly better than one class (1005.78,  $p < .001$ ) and that three classes fit significantly better than two classes (499.42,  $p < .001$ ); whereas, four did not fit significantly better than three (Lo-Mendell-Rubin Adjusted Likelihood Ratio Test = 335.18,  $p = .110$ ). However, the entropy value in the three-class solution was below threshold at .76 thus the two-class solution was deemed more interpretable (entropy = .87). These classes were labeled: personal-focused and social-focused. Relative to the other class, the personal-focused class (16.1% of participants based on the estimated model) was characterized by high stimulation, self-direction, and hedonism, and low tradition and conformity. The social-focused class (83.9% of participants) was characterized by high conformity and tradition, and low self-direction, stimulation, and hedonism.<sup>2</sup>

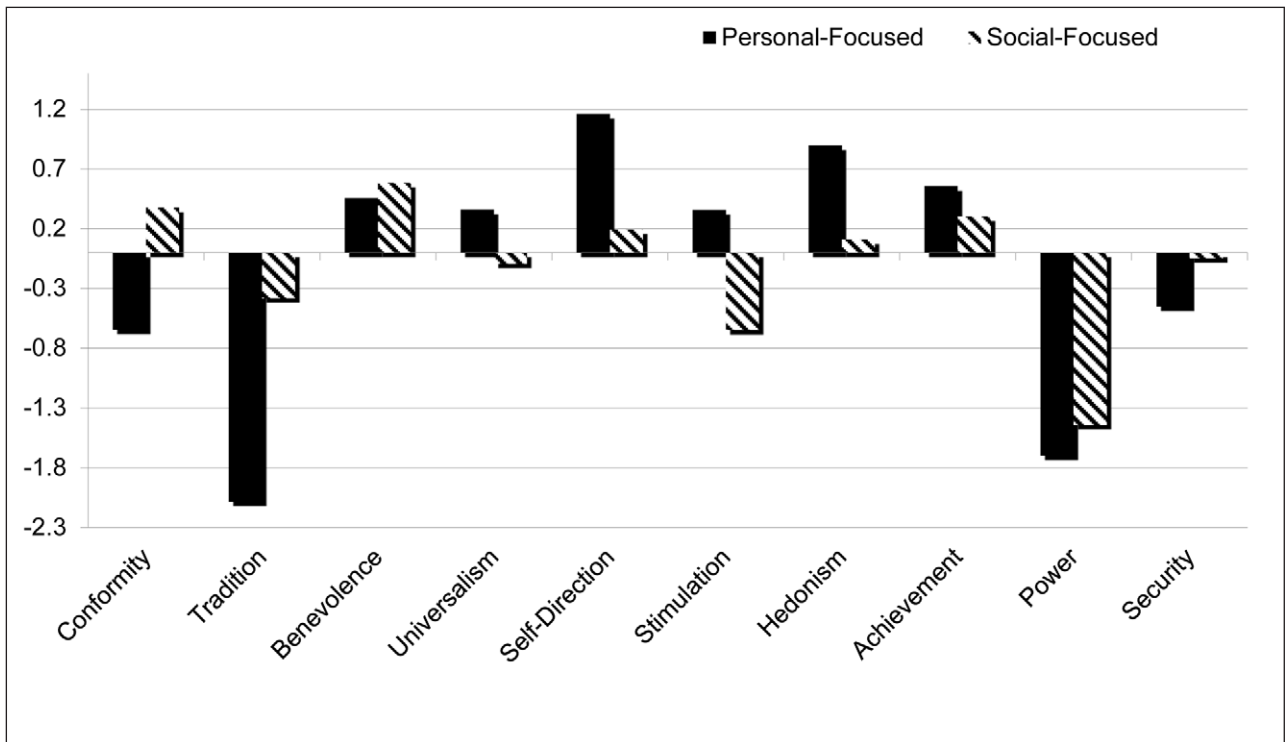
**Race and Gender Differences between Classes**

Racial/ethnic and gender differences between the two groups were examined in *SPSS* 21 (see **Table 2**). Class membership significantly differed by both race/ethnicity ( $X^2 (4) = 66.63, p < .001, w = 0.23$ ) and gender ( $X^2 (1) = 11.52, p = .001, w = 0.09$ ). Unsurprisingly, given the

**Table 1:** Statistical fit indices and class sizes for values classes.

	2-class model	3-class model	4-class model	5-class model
<b>Statistical fit indices</b>				
AIC	31826.33	31342.58	31025.15	30775.23
BIC	31986.79	31559.99	31299.49	31106.51
Entropy	.87	.76	.81	.83
<b>Class size</b>				
Class 1	210	807	83	39
Class 2	1098	310	804	74
Class 3		191	173	236
Class 4			248	182
Class 5				777

Note. AIC = Akaike's Information Criterion; BIC = Bayesian Information Criterion.



**Figure 1:** Value Scores as a Function of the Two-Class Solution.

differences in group sizes, many aspects of group membership further corresponded to overall group size (e.g., more participants in all racial/ethnic categories were assigned to the social-focused class). As can be seen in **Table 2**, Hispanic/Latino, East Asians, South East Asians, and African American/Canadians were most prevalent in the social-focused class relative to the personal-focused class. As can be seen in **Table 2**, males were more prevalent in the personal-focused, class whereas females were more prevalent in the social-focused class.

#### **Personality Differences between Classes**

A multivariate linear model (GLM) was conducted to determine potential personality trait differences between classes in *SPSS 21*. The overall GLM indicated significant differences in personality traits between classes (Wilks'  $\lambda = 0.90$ ,  $F(5, 1302) = 27.56$ ,  $p < .001$ ). There were no significant class differences for N ( $F(1, 1306) = 0.98$ ,  $p = .322$ ) or E ( $F(1, 1306) = 0.79$ ,  $p = .375$ ; see **Table 2** and **Figure 2**). Classes differed on O ( $F(1, 1306) = 71.83$ ,  $p < .001$ ) such that the personal-focused group ( $M = 3.94$ ,  $SD = 0.54$ ) scored higher on O than the social-focused group ( $M = 3.58$ ,  $SD = 0.56$ ). Classes differed on A ( $F(1, 1306) = 23.95$ ,  $p < .001$ ) such that the personal-focused group ( $M = 3.61$ ,  $SD = 0.66$ ) scored lower on A than the social-focused ( $M = 3.84$ ,  $SD = 0.61$ ) group. Classes differed on C ( $F(1, 1306) = 15.66$ ,  $p < .001$ ) such that the social-focused group ( $M = 3.54$ ,  $SD = 0.62$ ) scored higher on C than the personal-focused group ( $M = 3.35$ ,  $SD = 0.71$ ).

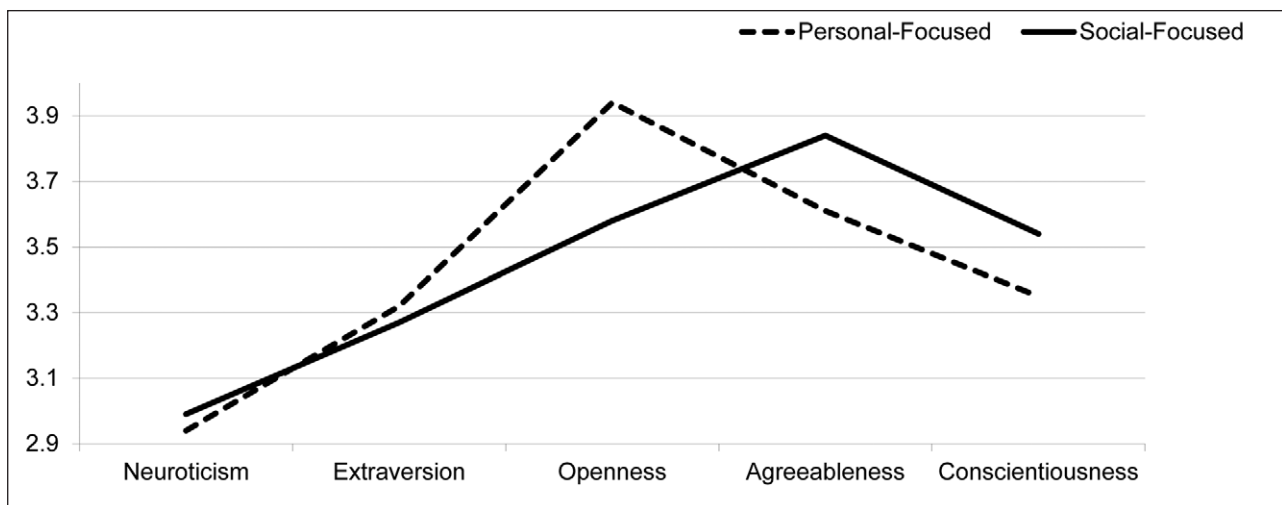
#### **Discussion**

Schwartz's taxonomy of global human values (Schwartz, 1992) has mobilized this area of research and grounded the field by offering a meaningful and compelling organization of human values. This area of research remains understudied relative to other domains of individual differences, such as personality. In particular, what has been especially lacking is an understanding of how human values co-occur and manifest *within* individuals (but see Magun et al., 2016 for a recent example of such an investigation). Thus, it was the primary goal of this study to identify value types present in a large and diverse North American college student sample. Results of latent class analysis supported the emergence of two classes: personal-focused (16.1% of the sample) and social-focused (83.9%; see **Figure 1**). The classes further exhibited differences based on racial/ethnic composition, gender composition, and personality trait association, further validating group differences and showing connections to previous variable-centered analytic approaches. These findings will be discussed in more detail below, but overall these findings offer additional support for the presence of value types at the within-person level. The classes were also distinguished by race/ethnicity, gender, and personality associations, which are in agreement with previous research.

The first primary goal of the study was to determine whether value types would emerge that were 1) consistent with Schwartz's values taxonomy, and 2) consistent with previous research identifying value classes (see Magun et al., 2016). This goal was somewhat supported

**Table 2:** Class profiles: Age, personality trait scores, and ethnicity by value class.

	Personal-Focused Class ( <i>n</i> = 210) <i>M</i> ( <i>SD</i> )	Social-Focused Class ( <i>n</i> = 1098) <i>M</i> ( <i>SD</i> )	Effect Size Cohen's <i>d</i> (Hedges' <i>g</i> )
<u>Sample site</u>	62% Sample 1	34% Sample 1	
Age	20.79 (3.84)	21.82 (5.32)	
<u>Gender</u>			
Male	76 (22%)	275 (78%)	
Female	134 (14%)	823 (86%)	
<u>Personality Traits</u>			
Extraversion	3.32 (0.88)	3.27 (0.74)	0.06 (0.07)
Agreeableness	3.61 (0.66)	3.84 (0.61)	-0.36 (-0.37)
Conscientiousness	3.35 (0.71)	3.54 (0.62)	-0.29 (-0.30)
Neuroticism	2.94 (0.82)	2.99 (0.74)	-0.06 (-0.07)
Openness	3.94 (0.54)	3.58 (0.56)	0.65 (0.65)
<u>Ethnicity</u>			
European Descent	110 (29%)	276 (72%)	
Hispanic/Latino	23 (9%)	222 (91%)	
East Asian	36 (14%)	220 (86%)	
South East Asian	27 (11%)	212 (89%)	
Black/African Descent	14 (8%)	168 (92%)	



**Figure 2:** Big Five Scores as a Function of the Two-Class Solution.

with the identification of two classes showing some overlap with Schwartz's theorizin (Schwartz, 2006; see **Figure 1**). Schwartz (2006) proposed additional dynamic underpinnings of the universal values structure: 1) the interests that the value attainment serves (e.g., personal-focused versus social-focused) and 2) self-regulation systems (e.g., the avoidance of punishment and the goal of preventing loss versus the pursuit of reward and the promotion of gain; or prevention-focused versus promotion-focused based on Higgins (1998) self regulatory theory). Specifically, having a personal focus regulates how

one may express personal interests and characteristics. The personal-focused class can be characterized by those who are much more likely to place greater importance on values relating to self-enhancement (e.g., achievement and power) and openness to change (e.g., hedonism, stimulation, and self-direction) and less emphasis on values relating to conservation (e.g., security, conformity, and tradition) and self-transcendence (e.g., universalism and benevolence). Social-focused individuals are concerned with regulating how one relates socially to others as well as how it affects them and can be characterized by those

who place a higher emphasis on conservation and self-transcendence values and less emphasis on openness to change and self-enhancement values. In addition, these results can be examined in the context of another recent study identifying value types in multiple European countries (Magun et al., 2016). The authors identified five classes that were distributed across the European countries. Furthermore; most of the countries also had a non-zero probability to have members of all the five classes. Our study extends these findings by identifying value classes in North America and characterizing the classes using race/ethnicity, gender, and personality traits, which may further elucidate how sub-groups differ in their value profiles.

The two classes were further examined regarding subgroup composition for racial/ethnic subgroups and for gender subgroups. Although Schwarz's values are hypothesized to be universal, such that all values should show endorsement across a variety of cultures, it is also expected that values, as culturally influenced individual differences, will show differences across major culturally distinct subgroups, as well (Schwartz, 2006). Although many previous empirical investigations have not specifically focused on using Schwartz's values, empirical investigations have found mean-level differences in values across different racial/ethnic groups (Coon & Kimmelmeier, 2001; Gaines et al., 1997; Hofstede, 2001; Schwartz & Rubel, 2005) and between men and women (Bond, 1988; Di Dio, et al., 1996; Feather, 1984, 1987; Rokeach, 1973; Schwartz & Rubel, 2005). Thus, we sought to determine whether or not the racial/ethnic and gender subgroups were differentially represented among the value types and if so, whether they reflected known group differences in mean level patterns of endorsement.

Racial/ethnic differences emerged between the two groups in expected ways across all five racial/ethnic groups. Consistent with previous research examining individualistic versus collectivistic value orientations, European American/Canadians were more likely to be in personal-focused group (i.e., the values in this group most closely reflect individualism) compared to Hispanic/Latino American/Canadians, South East Asian American/Canadians, and African American/Canadians whereas Hispanic/Latino American/Canadians, South East Asian American/Canadians and African American/Canadians were more likely to be in the social-focused group (i.e., the values in this group most closely reflect collectivism) compared to European American/Canadians (Coon & Kimmelmeier, 2001; Gaines et al., 1997; Hofstede, 2001; Schwartz & Rubel, 2005). The racial/ethnic differences between the classes supports previous findings and provides evidence that even in diverse environments (i.e., like the university settings) individuals are still maintaining their value preferences. Given the incredibly diverse nature of both countries in North America it is important to consider how race/ethnicity influences an individual's experience. Future research may investigate these values types in the context of status in the country (i.e., citizen or immigrant) or look at other environmental factors like identity, level of acculturation,

or experiences of discrimination to understand how racial/ethnic minorities function in society. It is possible that an individual's level of acculturation may influence their values and that value importance could differ over time as a result.

Gender differences also emerged between the two groups in somewhat expected ways. In this sample males were more likely to be in the personal-focused group. Although inconsistent, previous research has suggested that men are more likely to endorse power, achievement, hedonism, stimulation, and self-direction (Bond, 1988; Di Dio et al., 1996; Feather, 1984, 1987; Ryckman & Houston, 2003; Schwartz & Rubel, 2005). Given the likelihood that men are more likely to endorse values associated with individualistic orientations it was not surprising that men were more likely to be in the personal-focused group. Women in this sample were more likely to be in the social-focused group. The social-focused group was characterized by high conformity, tradition, and benevolence. Both of these groups are comprised of values that also reflect a collectivistic orientation. This is in line with previous research that has suggested that women place a higher value on universalism and benevolence, security, tradition and conformity (Bond, 1988; Di Dio et al., 1996; Feather, 1984, 1987; Ryckman & Houston, 2003; Schwartz & Rubel, 2005). Overall, both the racial/ethnic and gender differences found map onto existing findings using variable-centered approaches and help distinguish the classes from each other.

The final test was to evaluate personality differences among the value types that emerged. Personality traits are another major individual difference domain, and an area that has received more empirical attention than individual differences in values, to date. There are important theoretical distinctions between these constructs, with personality traits being conceptualized as more internal and stable, and values being conceptualized as more environmentally influenced and susceptible to change (Olver & Moordian, 2003; Rokeach, 1972). Furthermore, personality traits are associated with values in meaningful ways, and these patterns of association have been replicated across samples (Bilsky & Schwartz, 1994; Fischer & Boer, 2014; Olver & Mooradian, 2003; Parks, 2007; Roccas et al., 2002; Vecchione et al., 2011; Yik & Tang, 1996). For example, strong associations are often demonstrated between A and benevolence, O and stimulation, E and hedonism, and C and achievement (Parks & Guay, 2009). These associations provide some foundation for examining personality trait level composition of the values-based classes presented here.

There were some personality trait differences between classes (see **Figure 2**). Specifically, O, A, and C all showed clear patterns of differentiation between classes. N and E showed virtually stable levels across the two classes. In terms of class differences, the social-focused class endorsed higher levels of A and C, as would be expected, and lower levels of O. This may reflect lower levels of endorsement of stimulation, and self-direction in the social-focused class, both of which would be expected

to show associations with O (Parks, 2007; Parks & Guay, 2009; Roccas et al., 2002).

In terms of those personality traits for which differences between values-based groups were found, the results are not surprising. Specifically, previous research and theory has implicated the personality traits O and A as having the strongest associations with values (Parks, 2007; Parks & Guay, 2009) followed by E and C who have modest associations with values. This is consistent with our findings, in that three of these four personality traits showed clear patterns of differentiating between the two values based groups. The personal-focused class is higher on O and the magnitude of the effect is large. Previous research has found associations between O and self-direction and universalism, two values that are higher in the personal-focused class. We get small effects for the class differences on A and C, which may be a function of the divergent profiles presented. For example, A is associated with both benevolence and tradition. While, tradition was higher in the social-focused class than the personal-focused class, benevolence did not show that exact same pattern. A similar picture emerged for C and it is possible that the magnitude of effects would have been larger if the difference between the classes on other values (for example benevolence) were larger. Additionally, previous research has failed to find associations between the ten values and the higher order trait N. However, examination at the lower-order facet level has revealed some associations (i.e., impulsiveness with stimulation). These findings help classify and differentiate the values classes that emerged in this sample.

### **Limitations and Future Directions**

As with any empirical investigation, there are notable limitations of this research as well as exciting areas for future investigation. The strengths of the sample are especially relevant for the current research goals, which benefitted from a very large sample size, college students drawn from two different geographic regions of North America, and the presence of sizable subgroups reflecting major racial and ethnic categories in North America. Aspects of the sample also reflect limitations that should be considered in future studies. The study of college students allows easier access to particularly large (and in this case, diverse) samples, but also potentially impacts generalizability of such findings to non-college-student samples of adolescents and adults. Thus, future work extending this to individuals drawn from non-college-attending populations may prove highly valuable. Furthermore, mean level differences in acculturation were found, highlighting the importance of examining the role of acculturation in value profiles in future work. Furthermore, culture and race/ethnicity are often intertwined, future work should attempt to tease apart the unique contributions that each make to the endorsement of particular values. In addition, the pursuit of a college degree in itself likely reflects value-driven behavior, such that values endorsement among college students may differ from non-college students in meaningful ways. Other aspects of the sample that may limit generalizability are that data collection came from only two geographic regions in North America, so

other parts of North America and regions around the world are obviously not reflected in these findings. The culturally specific nature of human values places great importance on replication of findings from different cultural regions.

Another exciting area for future studies lies in further identifying characteristics of values types in North Americans. We examined race/ethnicity, gender composition, and personality trait associations as initial variables as a means of further distinguishing classes. Future work might focus on expanding classification to other individual differences, such as motivational preferences and identity or personal narrative or behavioral outcomes such as academic achievement or occupational attainment. There is also a clear need for studies of incremental validity and practical utility of the model. For example, what important criteria do values predict, above and beyond other individual differences? What potential applications does the measurement of human values have? How might values be fully integrated into a comprehensive model of human individual differences (e.g., how do values function alongside personality traits in influencing thoughts, feelings, and behaviors)? Personality traits have proven useful in predicting a variety of behavioral outcomes, including physical and mental health, occupational status and achievement, and relationship success (Kotov, Gamez, Schmitdt & Watson, 2010; Ozer & Benet-Martinez, 2006; Roberts, Kuncel, Shiner, Capsi & Goldberg, 2007) – how can the inclusion of values further these efforts? We see these as some of the many exciting questions awaiting further study.

### **Conclusion**

In summary, this study provided additional evidence for the within-person configuration of personal values. This study builds upon other studies that have done this (e.g., Magun et al., 2016) by identifying within person configurations of values in a highly diverse sample of North American college students. We specifically identified two classes: personal and social-focused. These two classes were further differentiated by race/ethnicity with more racial/ethnic minorities belonging to the social-focused class (i.e., the class that most resembles a collectivistic orientation) and gender (more females belonging to the social-focused class, which is also consistent with previous research examining gender differences). Furthermore, we identified personality profiles consistent with previous research (i.e., significant differences between the classes emerged on O, A, and C). These findings highlight the importance of within-person analyses and also highlight the importance of culture and personality in understanding values.

### **Data Accessibility Statement**

Authors are happy to provide copies of the database used to analyze data published in the current manuscript upon request to the corresponding author.

### **Notes**

- <sup>1</sup> Individuals who self-identified as Middle Eastern were collapsed with individuals of European Descent in accordance with the U.S. Census racial/ethnic



categories (U.S. Census Bureau, Population Estimate Program, 2010).

- <sup>2</sup> The latent class analyses were also ran controlling for study site. The overall pattern of results remained the same. There was also no significant difference between the classes on level of acculturation.

### Competing Interests

The authors have no competing interests to declare.

### Author Contributions

- Contributed to conception and design: AJS, KH, JLT
- Contributed to acquisition of data: AJS, KH
- Contributed to analysis and interpretation of data: AJS, KH, RT, RLW, JLT
- Drafted and/or revised the article: AJS, KH, RLW, JLT
- Approved the submitted version for publication: AJS, JLT

### Author Information

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