



## The effects of culture and gender on perceived self-other similarity in personality



Catherine J. Ott-Holland<sup>a,\*</sup>, Jason L. Huang<sup>b</sup>, Ann Marie Ryan<sup>a</sup>, Fabian Elizondo<sup>c</sup>, Patrick L. Wadlington<sup>c</sup>

<sup>a</sup> Michigan State University, Psychology Building, 316 Physics, East Lansing, MI 48824, United States

<sup>b</sup> Wayne State University, Rm. 8402.24 - 5057 Woodward Ave, Detroit, MI 48202, United States

<sup>c</sup> Birkman International, 3040 Post Oak Blvd. Suite 1425, Houston, TX 77056, United States

### ARTICLE INFO

#### Article history:

Available online 10 August 2014

#### Keywords:

Culture  
Personality  
Distinctive similarity  
Assumed similarity  
Gender  
Collectivism

### ABSTRACT

Gender and culture may influence individuals' perceptions of their similarity to others. 391,454 individuals from 20 countries rated their own personality traits and the personality traits they attribute to other people in general. A multilevel analysis on distinctive profile similarity (Furr, 2008) demonstrated that both gender and culture play a role in perceived self-other similarity. Specifically, women and those from highly collectivistic cultures saw themselves as more similar to others. Country-level analysis based on self-other similarity correlations (e.g., Srivastava, Guglielmo, & Beer, 2010) within each country revealed that cultural assertiveness uniquely predicted this assumed similarity. The findings shed light on how people construe themselves in relation to others and contribute to the understanding of personality within cultural contexts.

© 2014 Elsevier Inc. All rights reserved.

### 1. Introduction

Individuals use information about themselves to “fill in gaps” when information about others is unavailable (Ready, Clark, Watson, & Westerhouse, 2000). Predictions we make about a typical “other” can create biases in interpersonal processes (Srivastava, Guglielmo, & Beer, 2010). For example, individuals may negotiate in ways that assume the other party will behave as they themselves would, or conversely, may assume that others will act quite differently than themselves. Similarly, people may deliver feedback to others with the expectation that recipients will react as they themselves would, or with the expectation that they will react differently if they expect others to act “not like me.” Variance in the extent to which individuals view their own personality attributes as similar to others may also create bias in educational and organizational evaluative contexts, and thus has been a focus of research for several decades.

Given the stability of how individuals perceive others in general over time (cf. Wood, Harms, & Vazire, 2010), there is reason to assume one's culture and gender might influence assumptions made about others' characteristics. Using a large, cross-cultural

sample, the present study evaluates the extent to which similarity between individuals' perceptions of their own traits and their perceptions of others' traits varies across cultures and gender. This study makes several unique contributions. First, although there is extensive research on whether and when we view others as similar or different from ourselves (Cronbach, 1955; Festinger, 1954; Furr, 2008; Kenny, 1994), cultural influences on perceived self-other personality similarity are largely unexplored. Second, much research in cross-cultural psychology has been viewed as employing inadequate conceptualizations of culture, and inattention to levels of analysis issues (Gelfand, Erez, & Aycan, 2007). We considered culture as measured by the well-respected GLOBE research program (House, Hanges, Javidan, Dorfman, & Gupta, 2004) to hypothesize and conduct a multilevel analysis using empirically derived cultural dimensions.

Our primary goal in the present research is to provide insight into the cultural factors that influence how similar individuals perceive their own personality traits to be in relation to the traits of other people in general. We tested the effects of cultural assertiveness and institutional collectivism on perceived similarity using a sample of respondents from 20 countries. In the sections that follow, we review existing literature on self-other similarity and the cultural dimensions of interest (assertiveness and institutional collectivism). Related hypotheses are then put forth. Research supporting a hypothesized effect of gender on self-other similarity is also presented.

\* Corresponding author.

E-mail addresses: [ottholla@msu.edu](mailto:ottholla@msu.edu) (C.J. Ott-Holland), [jasonhuang@wayne.edu](mailto:jasonhuang@wayne.edu) (J.L. Huang), [ryanam@msu.edu](mailto:ryanam@msu.edu) (A.M. Ryan), [felizondo@birkman.com](mailto:felizondo@birkman.com) (F. Elizondo), [pwadlington@birkman.com](mailto:pwadlington@birkman.com) (P.L. Wadlington).

### 1.1. Perceived similarity between self and others

The term *generalized other* was first used to explain how individuals view other members of a society in general (Mead, 1934); others have defined the generalized other as people within an environment on average (Kenny, 1994). Early research on individuals' bias towards rating the generalized other as similar to themselves labeled this phenomenon *assumed similarity* (Cronbach, 1955). Hoch (1987) referred to rating others as similar to oneself as a *perceived consensus*.

In the present study, we focus on perceived similarity in personality traits between self and the generalized other for several reasons. First, evidence suggests the way we perceive the generalized other underlies interpersonal behaviors, including troublesome tendencies (e.g. narcissistic behavior, antisocial behavior; Wood et al., 2010). Second, while perceived similarity to specific others may affect behavior towards them, beliefs about the generalized other may affect behavior in new encounters. Third, perceptions of similarity have greater effects on outcomes than actual similarity, as individuals act on their perceptions (Strauss, Barrick, & Connerley, 2001).

### 1.2. Cultural influences on perceived similarity

Examinations of culture's influence on perceived self-other trait similarity are sparse. Allik et al. (2010) found cross-culturally replicable patterns in the relationship between how an individual reports his or her personality as compared to how others rate *that individual's* personality. That is, Allik et al. examined the relationship between how a target individual views his or her personality and how others rate the target's personality; we focus here on similarity between internal perspectives of oneself and the generalized other.

A long research tradition on the concepts of individualism and collectivism has established the multidimensional nature of these constructs and the fact that they are not just opposite poles of the same dimension (Gelfand, Bhawuk, Nishii, & Bechtold, 2004). Further, there are different forms of collectivism: Triandis et al. (1986) established the distinction between societies that value family loyalty (in-group collectivism) from valuing and rewarding collective action and group acceptance (institutional collectivism). Because the generalized other represents an average of all people and thus is likely impacted by perceptions of relationships in the broader society, we chose to focus on institutional collectivism and not the more family-centric in-group collectivism. *Institutional collectivism* is defined as the extent to which practices within a given culture facilitate and reward collective rather than individual action and whether it is deemed important in the society to be accepted by other group members (Gelfand et al., 2004). Practices in institutional collectivistic cultures encourage and reward collaborative thought and behavior, which may foster a perception of similarity between one's own personality and the personality of others. Individuals in collectivistic cultures tend to avoid conflict with members of their group (Leung, 1988); collectivistic individuals may subjugate their individual behaviors to group or societal modal behaviors to ensure interpersonal harmony. Further, individuals in collectivistic cultures tend to possess interdependent self-construals (Singelis, 1994). Such cultures emphasize the importance of acceptance by a group rather than individual focus, which may lead to greater focus on similarities with others.

**Hypothesis 1.** Institutional collectivism affects how similar one views one's traits to those of others, such that individuals in cultures high in institutional collectivism will view others as more similar to oneself than those in cultures low in institutional collectivism.

Assertiveness is associated with voicing one's own wants and opinions (Booream & Flowers, 1978), without having to compromise with others' requests against one's own desire (Lange & Jabuwkoski, 1976). In the GLOBE study, *cultural assertiveness* is defined as the extent to which individuals in a society are encouraged to act forcefully in their interactions with others (Den Hartog, 2004). Den Hartog (2004) notes that in highly assertive cultures individual initiative is valued, individual brilliance is admired, and "super-achievers" in a domain are respected. Because assertive cultures may encourage or even expect individuals to express their unique identity, individuals in such cultures may be accustomed to emphasizing how they are distinct from others. The cultural emphasis on being exceptional or even superior in comparison to others may make individuals less likely to see their personality traits as similar to the personality traits of others. In contrast, having a low standing on assertiveness may indicate cultural expectations for individuals to reconcile their dispositional uniqueness with other people around them and to suppress rather than express uniqueness in their daily behavior.

**Hypothesis 2.** Cultural assertiveness affects how similar one views one's traits to those of others, such that individuals in cultures high in assertiveness will report their own personality traits as more distinctive from the personality traits of others than do those from cultures low in assertiveness.

### 1.3. Gender and perceived similarity

Women tend to perceive themselves as more similar to others than men do (Winqvist, Mohr, & Kenny, 1998). Research on empathic accuracy has found women make better inferences than men about the thoughts and emotions of others, in part because they are motivated to adhere to traditional stereotypes of women as empathic and communal (Laurent & Hodges, 2009). Women tend to exhibit more interdependent self-construals than men do (Cross & Madson, 1997). This emphasis on the overlap among individuals supports a prediction that women may rate their own traits as similar to their ratings of other's traits in general.

**Hypothesis 3.** Gender will affect how similar one views one's traits to those of others, such that women will report their own personality traits as more similar to others than will men.

## 2. Method

### 2.1. Participants

We utilized archival data from 415,060 individuals across 55 countries and regions. Given our use of the GLOBE study to operationalize culture, we removed individuals who were not in GLOBE study countries. This resulted in a sample of 395,824 individuals from 20 countries. These data were collected from 2001 to 2009 using an online assessment consisting of 298 personality, perception, and occupational interest items, including 176 personality items (see Measures section below). Approximately 90% of the data were collected in workplace settings, with the rest in career counseling, non-profit, and educational settings, and data were mainly used for developmental purposes, such as executive coaching and leader development (Birkman International, 2013). No substantial differences across countries in the functional purpose of the assessment could be identified. The majority of the individuals in the dataset were from branches of multinational companies, providing some indication that jobs and industries did not vary considerably by country. We excluded the 1.1% of the participants who did not

provide gender information, as well as 31 duplicate responses, resulting in a final sample of 391,454. Table 1 provides the *N* and gender composition of the sample from each country. The average age of participants was 41.51 (*SD* = 11.17). 43.3% of the participants graduated from college, 27.5% attended but did not complete college, and 18.5% graduated high school. Participants worked in a broad range of industries, such as farming and fishing, management, engineering, and education.

## 2.2. Measures

### 2.2.1. Perceived self-other personality similarity

The Birkman Method (Birkman, Elizondo, & Wadlington, 2013) is a self-report questionnaire that asks about self-perceptions and one's perceptions of others. Scales were developed empirically and validation efforts have included factor analytic and item response approaches. An overview of scale development efforts and psychometric properties can be found in the test technical report (Birkman International, Inc., 2013); more extensive psychometric documentation is provided in the test manual (Birkman et al., 2013). A Flesch-Kincaid reading level analysis shows the instrument is written at a third grade level (Birkman et al., 2013). Response scales are dichotomous (0 = false and 1 = true) and scores reported here are the averages for each scale (i.e., ranging from 0 to 1).

**2.2.1.1. Ratings of one's own personality.** For self-perceptions of personality, individuals rated whether or not each personality item described their usual behavior. We focused on 88 items that comprise the five personality Orientations from The Birkman Method. Emotive Orientation describes the extent to which individuals express their emotions and make decisions quickly and easily (22 items;  $\alpha = .89$ ). Social Orientation describes how much an individual seeks out social interactions (25 items;  $\alpha = .85$ ). Process Orientation represents the extent to which individuals are careful, methodical, and detail-oriented (15 items;  $\alpha = .68$ ). Control Orientation reflects the extent to which individuals are opinionated and commanding (19 items;  $\alpha = .71$ ), and Change Orientation describes the extent to which individuals are open to novel approaches and ideas (7 items;  $\alpha = .65$ ).

These five Orientations show limited evidence of linkages with the Five Factor Model (Birkman et al., 2013). Based on a sample of 106 using NEO-R-IPIP, Emotive Orientation and Neuroticism, both describing levels of anxiety and emotionality, are correlated  $r = .23$ ,  $p < .05$ . Social Orientation and Extraversion focus on the desire for social interactions, and are correlated  $r = .60$ ,  $p < .05$ . Process Orientation and Conscientiousness both describe the extent to which individuals are careful, methodical, and detail-oriented,  $r = .63$ ,  $p < .05$ . Control Orientation, which assesses the extent to which an individual is commanding and opinionated, shows a non-significant relationship with Agreeableness ( $r = -.17$ , n.s.). Change Orientation focuses on preferences for predictable situations; it shows a non-significant relationship with Openness to Experience ( $r = -.04$ , n.s.).

These self-rated personality orientations have also been linked to conceptually similar constructs in the 16PF (Conn & Rieke, 1994), the MBTI (Briggs-Myers, McCaulley, Quenk, & Hammer, 2003), and the Hogan Personality Inventory (Hogan & Hogan, 2007). As outlined in Birkman et al. (2013), Process Orientation associates positively with the 16PF Dutifulness/Rule Consciousness; Emotive Orientation is associated with the Adjustment Scale of the HPI. The Change Orientation has been linked to the Original thinking subscale of the MBTI's Sensing-Intuitive Type scale (Birkman et al., 2013).

**2.2.1.2. Ratings of the generalized other's personality.** For perceptions of the generalized other's personality, individuals completed the same 88 personality Orientation items, with instructions to indicate how they think "most people" would answer each item. Internal consistencies were .88 (Emotive), .80 (Social), .75 (Process), .79 (Control), and .56 (Change).

**2.2.1.3. Similarity operationalization.** We operationalized self-other similarity in personality with two approaches: (a) individual-level profile similarity and (b) country-level similarity correlation.

First, individual-level profile similarity assesses the degree to which the shapes of two personality profiles (i.e., self and the generalized other) are similar. A high level of similarity indicates that a person saw the same traits being characteristic of himself/herself and the generalized other. For example, if a person rated himself/herself and the generalized other as both low on Emotive Orientation and high on Social Orientation, relative to other Orientations, there will be high similarity.

Specifically, we operationalized profile similarity using Furr's (2008) distinctive similarity approach. Furr (2008) suggests that personality ratings can be broken down into two types of profiles: a normative profile, representing the average personality profile in a group, and a distinctive profile, representing the ways in which an individual's personality profile deviates from the group's average profile. Distinctive profile similarity captures the extent to which the shape of one distinctive profile matches the shape of another distinctive profile (Furr, 2008). In the current study, distinctive profile similarity allowed us to examine the similarity in personality profile between self and generalized others while ruling out the potential confounding influence of a country's normative profiles on these dimensions. To calculate the distinctive profiles for self-rated personality and ratings of the generalized other's personality, we removed the respective country mean of each item from each individual's item score. The resulting self and generalized other distinctive profiles, each based on 88 items, were then correlated, giving each respondent a single correlation score, as an indicator of distinctive similarity. We present the mean and standard deviation of distinctive profile similarity in each country in Table 2.

The second approach, stemming from research on assumed similarity (e.g., Funder, Kolar, & Blackman, 1995; Srivastava et al., 2010;

**Table 1**  
Sample size and gender by country.

Country	<i>n</i>	Gender (%)	
		Male	Female
Argentina	136	67.65	32.35
Australia	14,806	58.44	41.56
Austria	124	66.94	33.06
Brazil	2230	60.31	39.69
Canada	30,185	54.68	45.32
China	1315	54.45	45.55
Denmark	699	63.09	36.91
Great Britain	14,276	57.99	42.01
Greece	47	48.94	51.06
Hungary	70	47.14	52.86
India	858	82.52	17.48
Mexico	3110	67.40	32.60
Netherlands	19,972	54.74	45.26
Russia	92	47.83	52.17
Singapore	1435	58.68	41.32
South Africa	163	56.44	43.56
South Korea	3910	71.69	28.31
Spain	610	61.48	38.52
Switzerland	1502	59.72	40.28
US	295,914	53.26	46.74
Total	391,454	54.30	45.70

**Table 2**  
Cultural practices scores and similarity by country.

Country	Cultural practices		Distinctive Profile Similarity		Within-country similarity correlation on corresponding personality dimensions					
	Assertiveness	Institutional collectivism	M	SD	r Emotive	r Social	r Process	r Control	r Change	r average
Argentina	4.18	3.66	.24	.21	.51	.38	.38	.38	.18	.37
Australia	4.29	4.31	.26	.20	.54	.29	.41	.47	.35	.41
Austria	4.59	4.34	.21	.21	.47	.16	.31	.42	.10	.29
Brazil	4.25	3.94	.20	.21	.53	.26	.30	.33	.30	.34
Canada	4.09	4.36	.24	.21	.51	.24	.39	.43	.32	.38
China	3.77	4.67	.24	.22	.52	.32	.37	.41	.34	.39
Denmark	4.04	4.93	.26	.19	.57	.28	.41	.47	.35	.42
England	4.23	4.31	.24	.20	.51	.26	.34	.42	.30	.37
Greece	4.55	3.41	.17	.16	.40	.23	.14	.39	.50	.33
Hungary	4.71	3.63	.14	.20	.22	-.01	.31	.37	.26	.23
India	3.70	4.25	.23	.23	.56	.30	.42	.47	.33	.42
Mexico	4.31	3.95	.24	.22	.53	.32	.37	.44	.32	.40
Netherlands	4.46	4.62	.21	.19	.45	.18	.28	.39	.29	.32
Russia	3.86	4.57	.25	.18	.58	.32	.46	.56	.45	.47
Singapore	4.06	4.77	.22	.20	.48	.28	.36	.38	.29	.36
South Africa	4.49	4.54	.21	.19	.48	.32	.33	.25	.22	.32
South Korea	4.36	5.20	.32	.26	.62	.48	.39	.45	.45	.48
Spain	4.39	3.87	.22	.20	.50	.21	.30	.42	.31	.35
Switzerland	4.58	4.20	.20	.21	.39	.25	.31	.28	.21	.29
US	4.50	4.21	.26	.21	.55	.28	.41	.45	.35	.41
M	4.27	4.29	.23	.21	.50	.27	.35	.41	.31	.37
SD	.28	.45	.04	.02	.09	.10	.07	.07	.09	.06

Note.  $N = 391,454$ . Cultural practices scores taken from House et al., 2004, p. 742–744, Table B.2. For the South Africa, the GLOBE study's "white sample" values were used, as our sample was majority Caucasian. Culture practice scores represent average ratings on multi-item 7 point response scales with higher scores indicating greater assertiveness and greater collectivism, with internal consistency estimates of .75 and .67 respectively, based on GLOBE sample of 17,370 managers in 62 countries (Hanges & Dickson, 2004).  $M$  and  $SD$  in the table are unweighted, based on the country means. The calculation of Furr's (2008) distinctive similarity scores is described in the measures section. Fisher's  $r$  to  $z$  transformation was applied to correlation coefficients prior to analysis. Only the distinctive similarity scores and the average within-country correlations were used in analyses; all other correlations provide supplemental descriptions of the data.

Watson, Hubbard, & Wiese, 2000), measures similarity of each personality dimension by correlating ratings of self and generalized others. A high *similarity correlation* on a particular trait suggests that "the more a person described him- or herself as having a trait, the more likely the person was to see the trait in others" (Srivastava et al., 2010, p. 526). Previous studies (e.g., Srivastava et al., 2010) assessed similarity coefficients at the sample level to describe how individuals' view of their own trait converged with their perceptions of others' corresponding trait in a particular sample. In contrast, because our data essentially contained 20 samples, each from a unique country, this afforded us the opportunity to assess self-other similarity in each sample (country). That is, a within-country self-other correlation on a given trait reflected whether individuals' ratings of themselves and the generalized others on that trait domain would be associated in a particular country.

For each country, a self-other similarity correlation was computed on each of the five Orientations (see Table 2). These five similarity correlations were subjected, after Fisher's  $r$  to  $z$  transformation, to a principal component analysis at the country level ( $N = 20$  countries). A single principal component was identified by Kaiser's criterion and via a screeplot, accounting for 58% of observed variance across the five variables, supporting the use of a single assumed similarity index. Thus, we averaged the country-level correlations to form an overall measure for self-other similarity for each country.

Both Furr's (2008) distinctive profile similarity approach and the within-country correlation approach were based on Pearson's correlation. To use Pearson's correlation coefficients as outcomes of our analyses, we utilized Fisher's  $r$  to  $z$  transformations in hypothesis testing, with the exception of presenting them for descriptive purposes (as noted below).

### 2.2.2. Culture

The GLOBE study was conducted to provide a better understanding of leadership across cultures (House et al., 2004).

Measures of cultural constructs were developed and tested in 62 countries. We operationalized our two cultural dimensions using the GLOBE practices scores rather than the GLOBE values scores. Although the GLOBE values scores indicate the shared principles of a society, they do not necessarily portray how individuals actually behave in that region. The GLOBE practices scores indicate the extent to which actual behaviors of individuals in a given country vary according to that value and thus are likely a more direct indicator of the influences of culture on individual behavior (see House & Javidan, 2004, for more information on this distinction). Our hypotheses are based on the influence of context "as is" not context as it "should be," indicating the use of practices rather than values as more appropriate (see Atwater, Wang, Smither, & Fleenor, 2009; Ott-Holland, Huang, Ryan, Elizondo, & Wadlington, 2013, for similar views). Table 2 lists the GLOBE practices scores for assertiveness and institutional collectivism for each country.

### 2.2.3. Gender

Gender was self-reported, with females coded as 0 and males coded as 1.

## 3. Results

Table 3 presents country-level intercorrelations between assertiveness, institutional collectivism, average within-country distinctive profile similarity, and average within-country similarity correlation. Inspection of the correlations suggested that, at the country level of analysis, a country's mean distinctive profile similarity was negatively associated with assertiveness ( $r = -.45$ ,  $p < .05$ ; see Fig. 1) and positively associated with institutional collectivism ( $r = .68$ ,  $p < .01$ ; see Fig. 2). Similarly, a country's average similarity correlation was negatively related to assertiveness ( $r = -.64$ ,  $p < .05$ ; see Fig. 3) and positively related to institutional collectivism ( $r = .51$ ,  $p < .01$ ; see Fig. 4). These correlations provided initial support of Hypotheses 1 and 2 that self-other similarity

**Table 3**  
Country-level correlations between cultural practices and self-other similarity.

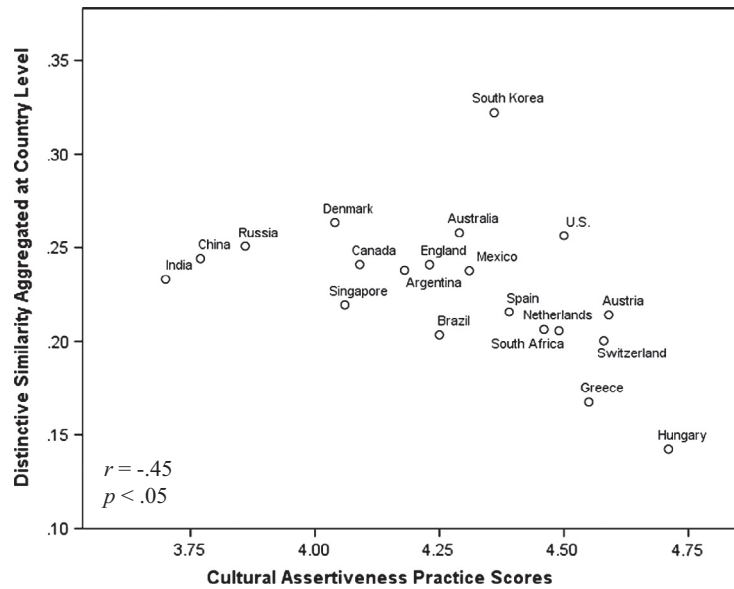
	1	2	3	4
1. Assertiveness	–			
2. Institutional collectivism	–.37	–		
3. Mean distinctive profile similarity	–.45*	.68**	–	
4. Average similarity correlation	–.64**	.51*	.87***	–

Note.  $N = 20$ . Mean distinctive profile similarity = Average of distinctive profile similarity for each country. Average similarity correlation = Average of similarity correlations across five Birkman Orientations for each country.

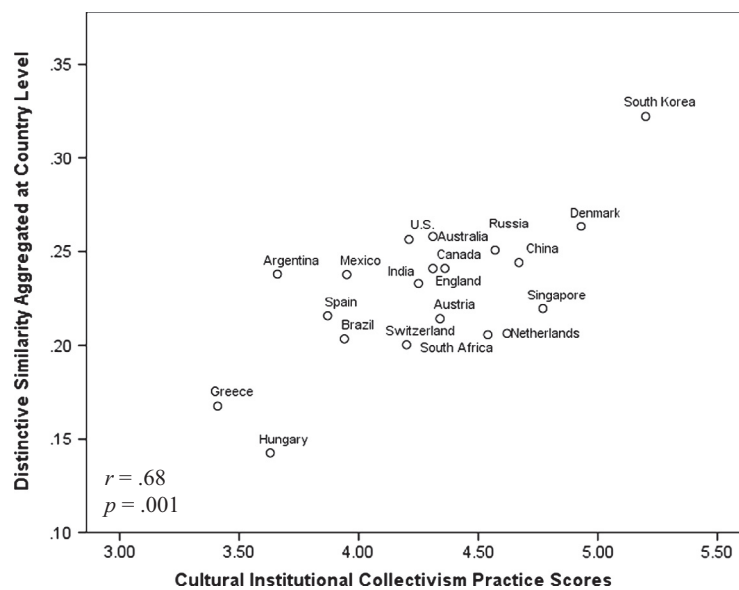
\*  $p < .05$ .  
\*\*  $p < .01$ .  
\*\*\*  $p < .001$ .

would be positively associated with institutional collectivism and negatively associated with cultural assertiveness. Interestingly, at the country level, mean distinctive profile similarity and average similarity correlation were highly correlated,  $r = .87$ ,  $p < .001$ , suggesting that both operationalizations of self-other similarity reflected a country's typical tendency to see others' personality in a similar light as oneself. Finally, among the countries used in this sample, the correlation between assertiveness and institutional collectivism was  $r = -.37$ , n.s.

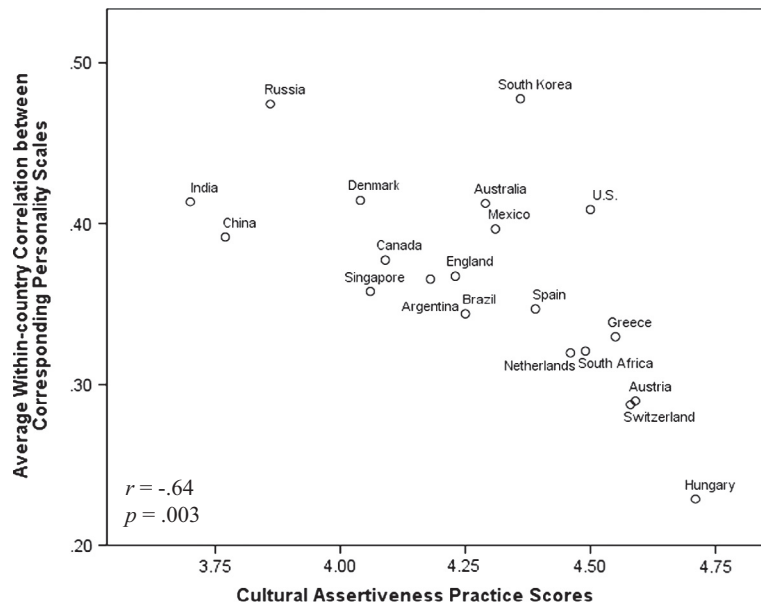
Results in Table 3, albeit informative, do not directly address the study hypotheses. We proceeded to test Hypotheses 1–3 on distinctive profile similarity at the individual level. In the current



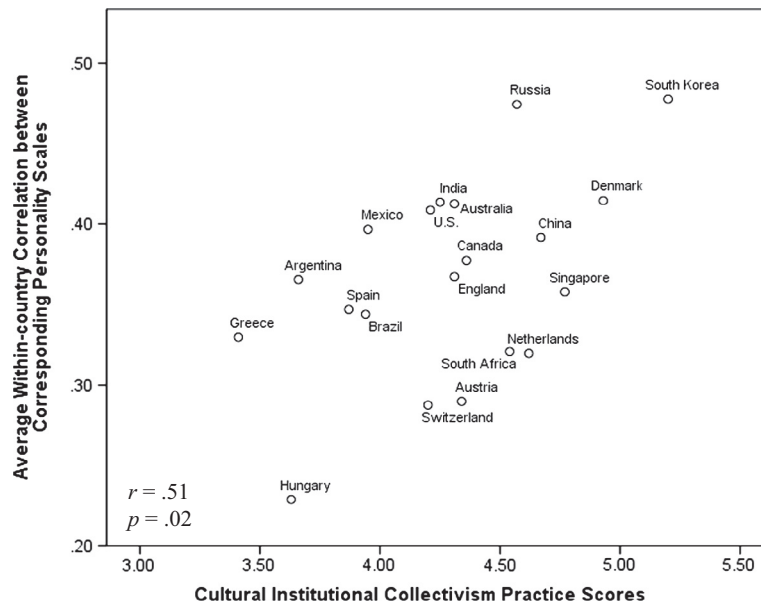
**Fig. 1.** Country-level association between country mean distinctive similarity and cultural assertiveness. Note: The figures present untransformed  $r$ 's for descriptive purposes. Analysis was done on Fisher transformed correlation coefficients. Cultural assertiveness practice scores were taken from the GLOBE study; scores represent average ratings on multi-item 7-point response scales with higher scores indicating greater assertiveness (House et al., 2004). The calculation of Furr's (2008) distinctive similarity scores is described in the measures section.



**Fig. 2.** Country-level association between country mean distinctive similarity and institutional collectivism. Note: The figures present untransformed  $r$ 's for descriptive purposes. Analysis was done on Fisher transformed correlation coefficients. Institutional collectivism practice scores were taken from the GLOBE study; scores represent average ratings on multi-item 7-point response scales with higher scores indicating greater collectivism (House et al., 2004). The calculation of Furr's (2008) distinctive similarity scores is described in the measures section.



**Fig. 3.** Country-level association between average within-country similarity correlations and cultural assertiveness. *Note:* The figures present untransformed  $r$ 's for descriptive purposes. Analysis was done on Fisher transformed correlation coefficients. Cultural assertiveness practice scores were taken from the GLOBE study; scores represent average ratings on multi-item 7-point response scales with higher scores indicating greater assertiveness (House et al., 2004).



**Fig. 4.** Country-level association between average within-country similarity correlations and institutional collectivism. *Note:* The figures present untransformed  $r$ 's for descriptive purposes. Analysis was done on Fisher transformed correlation coefficients. Institutional collectivism practice scores were taken from the GLOBE study; scores represent average ratings on multi-item 7-point response scales with higher scores indicating greater collectivism (House et al., 2004).

study, individuals were nested within their respective cultures. Thus, the ordinary least square method cannot be used, as ignoring the clustering of data may result in biased error estimates (Bliese & Hanges, 2004; Kenny & Judd, 1986). We used HLM 7.0 (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2011) to analyze individual data nested by culture. Because our focus was higher-level (i.e., Level 2 culture) variables' influences on lower-level (i.e., Level 1 distinctive similarity correlations) outcomes, controlling for a Level 1 variable (gender), we adopted the centering strategy recommended by Enders and Tofghi (2007) by grand-mean centering the Level-2 variables (assertiveness and institutional collectivism).

We used the following analytical models for hypotheses testing:

#### Level-1 Model

$$\text{Distinctive Profile Similarity}_{ij} = \beta_{0j} + \beta_{1j} \times (\text{Male}_{ij}) + r_{ij}$$

#### Level-2 Model

$$\beta_{0j} = \gamma_{00} + \gamma_{01} \times (\text{Assertiveness}_j) + \gamma_{02} \times (\text{Institutional Collectivism}_j) + u_{0j} \beta_{1j} = \gamma_{10}$$

In the Level-1 model, distinctive similarity scores were a function of the within-culture intercept ( $\beta_{0j}$ ), and the gender of the respondent ( $\beta_{1j}$ ). In the Level-2 model, the Level-1 intercept was a function of the culture's assertiveness ( $\gamma_{01}$ ) and institutional collectivism ( $\gamma_{02}$ ), as well as the grand mean  $\gamma_{00}$ .

**Table 4**  
Results of multilevel modeling predicting distinctive profile similarity.

Parameter	Distinctive profile similarity	
	Estimate	<i>p</i>
Fixed effect		
Intercept $\gamma_{00}$	.25	<.001
Assertiveness $\gamma_{01}$	-.02	.45
Institutional collectivism $\gamma_{02}$	.06	.008
Male $\gamma_{10}$	-.01	<.001
Random effect		
Variance of intercept $u_0$	.001	<.001
Variance of residual <i>r</i>	.061	–

Note.  $N = 391,454$ . Variance of *r* represent residual variance and its significance was not tested (see Raudenbush & Bryk, 2002). The calculation of Furr's (2008) distinctive similarity scores is described in the measures section. Culture practice scores represent average ratings on multi-item 7 point response scales with higher scores indicating greater assertiveness and greater collectivism, with internal consistency estimates of .75 and .67 respectively, based on GLOBE sample of 17, 370 managers in 62 countries (Hanges & Dickson, 2004). For Gender: Female = 0, Male = 1.

Results of the multilevel modeling are presented in Table 4. According to Hypothesis 1, a country's institutional collectivism will be positively associated with individuals' distinctive profile similarity in that country. Supporting Hypothesis 1, the average level of distinctive similarity found in a culture was positively predicted by the culture's institutional collectivism ( $\gamma = .06$ ,  $p = .008$ ), controlling for its assertiveness. Respondents from cultures high on institutional collectivism tended to perceive their own personality to be more similar to all others in the society, relative to respondents from cultures low on institutional collectivism.

Hypothesis 2 states that cultural assertiveness will be negatively related to the distinctive self-other profile similarity of individuals within that culture. Although the effect was in the hypothesized direction ( $\gamma = -.02$ ,  $p = n.s.$ ), the effect failed to reach significance. Thus, the distinctive similarity between views of oneself and others found in a culture was not uniquely related to cultural assertiveness, controlling for institutional collectivism. Together, institutional collectivism and assertiveness accounted for 19% of country level variation on distinctive self-other profile similarity.

Hypothesis 3 states that women will report higher levels of distinctive self-other profile similarity than men. Gender had a significant fixed effect on perceived personality difference, supporting Hypothesis 3 ( $\gamma = -.01$ ,  $p < .001$ , unique pseudo  $R^2 < .01$ ). Males tended to perceive themselves as less similar to others than females did, but the effect was quite small and largely driven by the large sample size in the current study.

For all hypotheses tested on distinctive profile similarity, the same patterns emerged after controlling for participant age (based on available data), education level (based on available data), and year of data collection. All additional results are available from the first author.

The second operationalization of self-other similarity based on average similarity correlation was a country-level estimate, allowing for testing of Hypotheses 1 and 2. We regressed the country-level average similarity correlation onto both assertiveness and institutional collectivism in a multiple regression analysis ( $R^2 = .49$ ,  $p = .003$ ). Cultural assertiveness significantly predicted country level average self-other similarity ( $B = -.13$ ,  $\beta = -.52$ ,  $p = .01$ ), whereas institutional collectivism did not have a significant effect ( $B = .05$ ,  $\beta = .32$ ,  $p = .11$ ). When the proportion of males and the number of respondents in each country were entered as controls, the significance and direction of the regression weights did not change. Thus, predicting the average within-country self-other scale correlations using institutional collectivism and

cultural assertiveness showed opposite results as were found using the distinctive profile similarity approach.

#### 4. Discussion

Understanding how culture influences the way individuals see themselves in relation to others has the potential to expand theoretical work on the assumed similarity of personality. Research in this area may help us to understand the dispositional nature (Wood et al., 2010) and the potential behavioral ramifications of perceived self-other similarities (Hoch, 1987). Based on our findings on distinctive profile similarity using personality items, it appears that individuals in cultures characterized by low institutional collectivism tend to perceive themselves as being different from others around them, whereas cultural assertiveness had no influence on self-other distinctive similarity. When average self-other similarity correlations were examined at the country level, a country's cultural assertiveness level predicted mean country-level self-other similarity ratings, whereas collectivism was not a significant predictor. Further, across all cultures, males tended to perceive others as being more different from themselves than females did.

One question that emerges is why the item-level distinctive profile similarity approach yielded different results from the country-level average self-other similarity correlation approach, given how highly correlated the two indices are at the aggregated mean level (.87). We consider two possibilities. First, tests for Hypotheses 1 and 2 were low-powered as there were only twenty countries in the current study. Although cross-cultural studies often sample similar or even smaller number of cultures (e.g., Atwater et al., 2009, 21 cultures; Ching et al., 2013, 5 cultures; Church et al., 2013, 7 cultures), it should be recognized that testing culture's main effects based on such small number of countries tends to have low power. The low power was further compounded by the moderate correlation between assertiveness and institutional collectivism. Indeed, the country-level bivariate correlations between each cultural practice and the two operationalizations of self-other similarity were quite similar.

Second, distinctive profile similarity and within-country average similarity correlations may have captured slightly different aspects of self-other similarity. Given there were different numbers of items within each scale, the item-level profile approach to similarity was weighted more towards certain traits (e.g. Social's 25 items) than other traits (e.g. Change's 7 items). The scale-level approach to similarity does not weight based on the number of items in the scale, thus presenting a representation of similarity that is equally weighted across traits.

This evaluation of similarity of perceived self and generalized other personality traits may lead to several areas for future investigation. First, the way we view ourselves in relation to how we view others may aid in better articulating personality's role as a behavioral predictor. The examination of perceived distinctive similarity in conjunction with contextual factors might provide a means for understanding when and where an individual's personality traits relate to his or her behavior. For instance, studies have shown that individuals tend to behave in a more extraverted manner when interacting with friendly others (e.g., Fleeson, 2001; Huang & Ryan, 2011). It is likely that such a general tendency may depend on the assumed similarity between self and others. As another example, if one sees oneself as similar to others, it may be easier to express one's behavioral tendencies in contexts where similarity is valued (e.g. interdependent tasks) but less so in contexts where similarity is devalued (e.g. competitive tasks).

Second, as Srivastava et al. (2010) note, understanding how views of self influence views of others is important for appropriate interpretation of other reports. While there is a tendency to see

other reports of behavior as less biased than self-reports (Mount, Barrick, & Strauss, 1994), findings on assumed similarity suggest biases exist that might affect ratings of others. Our findings here further indicate that the prevalence of such biases may be somewhat culturally dependent.

Third, the cultural effects on perceived congruence have implications for interactions in multicultural settings. Because individuals from different cultural backgrounds may be more or less likely to focus on their differences from others than on their similarities, it may be useful to understand when to emphasize similarity (i.e., to foster group cohesion) and when to emphasize individual uniqueness (i.e., to allow for addressing individual desires and needs). Similar considerations may be important when considering groups that have mixed gender composition.

Our findings also have value for cross-cultural researchers in that they expand our understanding of the impact of institutional collectivism and assertiveness. Both cultural values were related at the country-level to the two operationalizations of similarity, suggesting their importance at an aggregate or society level of influence, even if our results at the individual level differed in their relative influence. Expanding knowledge of how culture affects how others are viewed can affect how psychologists design programs related to cross-cultural adjustment and adaptation, study abroad programs, international negotiations, and other cross-cultural interpersonal interaction activities.

Finally, our findings on gender and similarity have implications for researchers interesting in studying gender's role in interactions with unknown others. As an example, Paluck and Green (2009) have discussed different forms of prejudice reduction interventions, with some focused on emphasizing establishing similarity with out-group members and others emphasizing the importance of acknowledging diversity and difference. Males and females may respond differently to these different intervention foci because of differences in how readily they see similarity with others. Similarly, efforts to build team identity and team cohesion (Salas et al., 2008) might be differentially effective based on gender because of differences in how others are viewed.

#### 4.1. Strengths and limitations

While this investigation had a number of strengths (i.e., large sample with a diverse set of countries, an empirically based cultural framework, use of multilevel modeling), it was limited in several ways. First, our measure of culture was at the level of country. Further research measuring cultural belief endorsement by individuals might show even stronger effects, and might better account for the influence of subcultures within nations. However, the cross-cultural analysis was driven by the theoretical rationale developed at the cultural level, and examining cultural effects through cross-cultural analysis has the potential to reveal relationships distinct from individual-level analysis (Leung, 1989). Second, we focused on the cultural dimensions of assertiveness and institutional collectivism because of theoretical rationales, a desire to preserve the small number of degrees of freedom at the country level of analysis, and the high intercorrelations between GLOBE dimension scores (House et al., 2004) that make analyses exploring all dimensions simultaneously difficult to interpret. We conducted post hoc analyses adding three additional cultural dimensions that may influence interpersonal relationships (In-group Collectivism, Humane Orientation, and Power Distance) as level 2 predictors, and none added significant prediction. Third, the greater within-culture variation relative to between-culture variation in assumed similarity suggests that other factors are at play at the individual level and warrant further investigation. Our examination of gender is one example of analyzing potential contributing factors at the individual level. Despite the significant finding, the effect size

associated with gender was small, pointing to the need to investigate other predictors (e.g., self-monitoring, cognitive complexity) that account for within-culture variation on assumed similarity.

## 5. Conclusion

An in-depth investigation of self-other similarity requires an understanding of cultural influences. As with many studies of culture as a moderator, we found cultural effects were prevalent, but not large. Further, these effects differed based on how similarity was operationalized. Understanding the magnitude of cultural effects as a contextual influence ensures that one does not overemphasize cultural differences in multicultural settings; however, even relatively small effects can have large practical implications for behavioral outcomes in increasingly interdependent social contexts. This study contributes to the broader body of knowledge on self-other profile similarity, and can inform interventions related to emphasizing and de-emphasizing similarities and differences.

## References

- Allik, J., Realo, A., Mõttus, R., Borkeu, P., Kuppens, P., & Hřebíčková, M. (2010). How people see others is different from how people see themselves: A replicable pattern across cultures. *Journal of Personality and Social Psychology*, 99, 870–882. <http://dx.doi.org/10.1037/a0020963>.
- Atwater, L., Wang, M., Smither, J. W., & Fleenor, J. W. (2009). Are cultural characteristics associated with the relationship between self and others' ratings of leadership? *Journal of Applied Psychology*, 94, 876–886. <http://dx.doi.org/10.1111/j.1540-5915.2008.00195.x>.
- Birkman International, Inc. (2013). *Technical Brief*. <[http://www.birkman.com/images/uploads/TBM\\_technical\\_brief.pdf](http://www.birkman.com/images/uploads/TBM_technical_brief.pdf)>
- Birkman, R. W., Elizondo, F., & Wadlington, P. L. (2013). *The Birkman Method technical manual*. Houston, TX: Birkman International.
- Bliese, P. D., & Hanges, P. J. (2004). Being both too liberal and too conservative: The perils of treating grouped data as though they were independent. *Organizational Research Methods*, 7, 400–417. <http://dx.doi.org/10.1177/1094428104268542>.
- Booream, C. D., & Flowers, J. V. (1978). A procedural model for training of assertive behavior. In J. M. Whitely & J. V. Flowers (Eds.), *Approaches to assertion training* (pp. 15–46). Monterey, CA: Brooks/Cole.
- Briggs-Myers, I., McCaulley, M. H., Quenk, N. L., & Hammer, A. L. (2003). *MBTI manual. A guide to the development and use of the Myers-Briggs Type Indicator* (3rd ed.). Menlo Park, CA: CPP Inc.
- Ching, C. M., Church, A. T., Katigbak, M. S., Locke, K. D., Vargas-Flores, J. D. J., Ibáñez-Reyes, J., et al. (2013). Cross-cultural generalizability of the Personality and Role Identity Structural Model (PRISM): Implications for trait and cultural psychology. *Journal of Research in Personality*, 47, 894–907. <http://dx.doi.org/10.1016/j.jrp.2013.08.012>.
- Church, A. T., Katigbak, M. S., Ching, C. M., Zhang, H., Shen, J., Arias, R. M., et al. (2013). Within-individual variability in self-concepts and personality states: Applying density distribution and situation-behavior approaches across cultures. *Journal of Research in Personality*, 47, 922–935. <http://dx.doi.org/10.1016/j.jrp.2013.09.002>.
- Conn, S. R., & Rieke, M. L. (1994). *The 16PF fifth edition technical manual*. Champaign, IL: Institute for Personality and Ability Testing.
- Cronbach, L. J. (1955). Processes affecting scores on "understanding of others" and assumed similarity. *Psychological Bulletin*, 52, 177–193. <http://dx.doi.org/10.1037/h0044919>.
- Cross, S. E., & Madson, L. (1997). Models of the self: Self-construals and gender. *Psychological Bulletin*, 122, 5. <http://dx.doi.org/10.1037/0033-2909.122.1.5>.
- Den Hartog, D. N. (2004). Assertiveness. In R. J. House, P. J. Hanges, M. Javidan, P. W. Dorfman, & V. Gupta (Eds.), *Culture, leadership, and organizations: The GLOBE study of 62 societies* (pp. 395–436). Thousand Oaks, CA: Sage.
- Enders, C. K., & Tofighi, D. (2007). Centering predictor variables in cross-sectional multilevel models: A new look at an old issue. *Psychological Methods*, 12, 121–138. <http://dx.doi.org/10.1037/1082-989X.12.2.121>.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7, 117–140. <http://dx.doi.org/10.1177/001872675400700202>.
- Fleeson, W. (2001). Toward a structure- and process-integrated view of personality: Traits as density distributions of states. *Journal of Personality and Social Psychology*, 80, 1011–1027.
- Funder, D. C., Kolar, D. C., & Blackman, M. C. (1995). Agreement among judges of personality: Interpersonal relations, similarity, and acquaintanceship. *Journal of Personality and Social Psychology*, 69, 656–672. <http://dx.doi.org/10.1037/0022-3514.69.4.656>.
- Furr, R. M. (2008). A framework for profile similarity: Integrating similarity, normativeness, and distinctiveness. *Journal of Personality*, 76(5), 1267–1316. <http://dx.doi.org/10.1111/j.1467-6494.2008.00521.x>.
- Gelfand, M. J., Bhawuk, D. P. S., Nishii, L. H., & Bechtold, D. J. (2004). Individualism and collectivism. In R. J. House, P. J. Hanges, M. Javidan, P. W. Dorfman, & V. Gupta



- (Eds.), *Culture, leadership, and organizations: The GLOBE study of 62 societies* (pp. 437–512). Thousand Oaks, CA: Sage.
- Gelfand, M. J., Erez, M., & Aycan, Z. (2007). Cross-cultural organizational behavior. *Annual Review of Psychology*, 58, 479–514. <http://dx.doi.org/10.1146/annurev.psych.58.110405.085559>.
- Hanges, P. J., & Dickson, M. W. (2004). The development and validation of the GLOBE culture and leadership scales. In R. J. House, P. J. Hanges, M. Javidan, P. W. Dorfman, & V. Gupta (Eds.), *Culture, leadership, and organizations: The GLOBE study of 62 societies* (pp. 122–151). Thousand Oaks, CA: Sage.
- Hoch, S. J. (1987). Perceived consensus and predictive accuracy: The pros and cons of projection. *Journal of Personality and Social Psychology*, 53, 221–234.
- Hogan, R., & Hogan, J. (2007). *Hogan Personality Inventory Manual* (3rd ed.). Tulsa, OK: Hogan Assessment Systems.
- House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., & Gupta, V. (2004). *Culture, leadership, and organizations: The GLOBE study of 62 societies*. Thousand Oaks, CA: Sage.
- House, R. J., & Javidan, M. (2004). Overview of GLOBE. In R. J. House, P. J. Hanges, M. Javidan, P. W. Dorfman, & V. Gupta (Eds.), *Culture, leadership, and organizations: The GLOBE study of 62 societies* (pp. 9–28). Thousand Oaks, CA: Sage.
- Huang, J. L., & Ryan, A. M. (2011). Beyond personality traits: A study of personality states and situational contingencies in customer service jobs. *Personnel Psychology*, 64, 451–488.
- Kenny, D. A. (1994). *Interpersonal perception: A social relations analysis*. New York: Guilford.
- Kenny, D. A., & Judd, C. M. (1986). Consequences of violating the independence assumption in analysis of variance. *Psychological Bulletin*, 99, 422–431. <http://dx.doi.org/10.1037/0033-2909.99.3.422>.
- Lange, A. J., & Jabuwkoski, P. (1976). *Responsible assertion: A model for personal growth*. Champaign, IL: Research Press.
- Laurent, S. M., & Hodges, S. D. (2009). Gender roles and empathic accuracy: The role of communion in reading minds. *Sex Roles*, 60, 387–398. <http://dx.doi.org/10.1007/s11199-008-9544-x>.
- Leung, K. (1988). Some determinants of conflict avoidance. *Journal of Cross-cultural Psychology*, 19, 125–136. <http://dx.doi.org/10.1177/0022002188019001009>.
- Leung, K. (1989). Cross-cultural differences: Individual-level vs. culture-level analysis. *International Journal of Psychology*, 24, 703–719. <http://dx.doi.org/10.1080/00207598908246807>.
- Mead, G. H. (1934). *Mind, self, and society from the standpoint of a social behaviorist*. Chicago, IL: University of Chicago Press.
- Mount, M. K., Barrick, M. R., & Strauss, J. P. (1994). Validity of observer ratings of the big five personality factors. *Journal of Applied Psychology*, 79, 272–280. <http://dx.doi.org/10.1037/0021-9010.79.2.272>.
- Paluck, E. L., & Green, D. P. (2009). Prejudice reduction: What works? A review and assessment of research and practice. *Annual Review of Psychology*, 60, 339–367. <http://dx.doi.org/10.1146/annurev.psych.60.110707.163607>.
- Ott-Holland, C. J., Huang, J. L., Ryan, A. M., Elizondo, F., & Wadlington, P. L. (2013). Culture and vocational interests: The moderating role of collectivism and gender egalitarianism. *Journal of Counseling Psychology*. <http://dx.doi.org/10.1037/a0033587>.
- Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Newbury Park, CA: Sage.
- Raudenbush, S. W., Bryk, A. S., Cheong, Y. F., Congdon, R. T., & du Toit, M. (2011). *HLM 7: Hierarchical linear and nonlinear modeling*. Lincolnwood, IL: Scientific Software International.
- Ready, R. E., Clark, L. A., Watson, D., & Westerhouse, K. (2000). Self- and peer-reported personality: Agreement, trait stability, and the “self-based heuristic”. *Journal of Research in Personality*, 34, 208–224. <http://dx.doi.org/10.1006/jrpe.1999.2280>.
- Salas, E., DiazGranados, D., Klein, C., Burke, C. S., Stagl, K. C., Goodwin, G. F., et al. (2008). Does team training improve team performance? A meta-analysis. *Human Factors: The Journal of the Human Factors and Ergonomics Society*, 50(6), 903–933. <http://dx.doi.org/10.1518/001872008X375009>.
- Singelis, T. M. (1994). The measurement of independent and interdependent self-construals. *Personality and Social Psychology Bulletin*, 20, 580–591. <http://dx.doi.org/10.1177/0146167294205014>.
- Srivastava, S., Guglielmo, S., & Beer, J. S. (2010). Perceiving others' personalities: Examining the dimensionality, assumed similarity to the self, and stability of perceiver effects. *Journal of Personality and Social Psychology*, 98, 520–534. <http://dx.doi.org/10.1037/a0017057>.
- Strauss, J. P., Barrick, M. R., & Connerley, M. L. (2001). An investigation of personality similarity effects (relational and perceived) on peer and supervisor ratings and the role of familiarity and liking. *Journal of Occupational and Organizational Psychology*, 74, 637–657. <http://dx.doi.org/10.1348/096317901167569>.
- Triandis, H., Bontempo, R., Betancourt, H., Bond, M., Leung, K., Brenes, A., et al. (1986). The measurement of the etic aspects of individualism and collectivism across cultures. *Australian Journal of Psychology*, 38, 257–267. <http://dx.doi.org/10.1080/00049538608259013>.
- Watson, D., Hubbard, B., & Wiese, D. (2000). Self–other agreement in personality and affectivity: The role of acquaintanceship, trait visibility, and assumed similarity. *Journal of Personality and Social Psychology*, 78(3), 546. <http://dx.doi.org/10.1037/0022-3514.78.3.546>.
- Winquist, L. A., Mohr, C. D., & Kenny, D. A. (1998). The female positivity effect in the perception of others. *Journal of Research in Personality*, 32, 370–388. <http://dx.doi.org/10.1006/jrpe.1998.2221>.
- Wood, D., Harms, P., & Vazire, S. (2010). Perceiver effects as projective tests: What your perceptions of others say about you. *Journal of Personality and Social Psychology*, 99, 174–190. <http://dx.doi.org/10.1037/a0019390>.