

Personality-and-culture: The case of national extraversion and word-of-mouth

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Abstract

One advantage of the recently revitalized “personality-and-culture” paradigm is its capacity to describe both individual- and culture-level differences. Another advantage is personality-and-culture’s foundation in the extensive heritage of theory development and empirics in personality psychology itself, in which traits have been related to a variety of observable behaviors and to underlying physiological, neurological, and genetic structures. Personality-and-culture also builds on recent, substantial methodological and analytic advances specific to cross-cultural research including progress in data collection capabilities, in computational power, and in tools for statistical analyses of bias and equivalence. This article reviews these advances in personality-and-culture and then report preliminary empirics linking nation-level extraversion to differences in preferences for interpersonal sources of product information (i.e., word-of-mouth), thus clarifying national differences in reliance on interpersonal sources of information and, most importantly, demonstrating the general value of the personality-and-culture approach.

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National character, “the idea that the people of each nation have a distinctive, enduring pattern of behavior and/or personality characteristics” (Clark, 1990, p. 66), offers an important paradigm for theory development in cross-cultural consumer research by connecting consumer phenomena to underlying, universal cultural attributes. The most widely adopted and applied framework of national character has been Hofstede’s four- and later five-dimensional model of culture (Hofstede, 1980, 1991). Hofstede’s framework and the specific scores he published have been productively applied across business disciplines including marketing and consumer research (see Sivakumar and Nakata, 2001). Nevertheless, Hofstede’s work has been criticized (see Bond, 2002; McSweeney, 2002; Roberts and Boyacigiller, 1987; Sivakumar and Nakata, 2001) and, in any case, was never intended for and is not appropriate for individual-level analyses: “The usefulness of the country scores is not for describing individuals, but for describing the social systems these individuals are likely to have built” (Hofstede, 1991, p. 253).

Nevertheless, regardless of Hofstede’s explicit intent, direct correspondence between cultural and individual-level differences is often presupposed (e.g., Carpenter and Radhakrishnan, 2000; Nasierowski and Mikula, 1998). As van de Vijver and Poortinga (2002) note, “country-level indicators that are derived from individual-level data, such as Hofstede’s (1980) four dimensions, are repeatedly and almost unavoidably applied at the individual level... It is almost a catch-22 to say that social indicators cannot be applied to the level from which they are clearly derived” (p. 145). In fact, the structure of Hofstede’s values and the validity of the associated measures have been shown to be different at different levels of analysis (Bearden et al., 2006). Like many social scientists, marketing and consumer researchers are regularly concerned with understanding and predicting the behavior of *individuals* rather than or along with understanding cultures or nations. A personality-based approach to national character offers the distinct advantage of mapping both levels of analysis directly.

The remainder of this paper has the following organization: first, advances in personality psychology are outlined with special attention to the emergence of the “Five Factor Model” or “Big Five.” Second, advances in cross-cultural psychology and

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in the comparison of social science constructs, including personality traits, across cultures are briefly reviewed. Due to its prominence in the literature and to its centrality in the subsequent empirics, particular attention is given to Extraversion (one of the Big Five) and the establishment of universality and measure comparability for Extraversion across nations, languages, and cultures. That is, Extraversion-and-culture is reviewed in some detail as an archetype of the progress in the personality-and-culture paradigm more generally, which is our central thesis. We then specifically report evidence of personality traits' explanatory power, linking Extraversion with nation-level reliance on word-of-mouth sources of product information across 11 countries and five continents. Finally, we compare Extraversion's predictive power with that of Hofstede's ecological constructs (we find Extraversion to have superior explanatory power).

1. Personality

1.1. Recent resurgence

After decades of competing taxonomies and disappointing results, the 1990s saw “a dramatic upsurge” and “vitality” in personality scholarship (Funder, 2001, p. 198) as a result of: important advances in psychometrics and assessment; widespread recognition of the effects of situations, traits, and situation–trait interactions on behaviors; and emerging consensus that personality differences are well organized hierarchically within five broad factors (the “Five-Factor Model” or “Big Five”): Extraversion (E), Neuroticism (N), Openness to Experience/Intellect (O), Agreeableness (A), and Conscientiousness (C) (see Funder, 2001; McCrae, 2004).

1.2. The five-factor model

The high-level traits in the “Big Five” explain much of the variance in the numerous traits and trait taxonomies that had been proposed earlier. These “Big Five” subsume myriad narrower, more specific traits, “facets” or “subcomponents”. A growing body of evidence indicates that these five high-level traits are “endogenous basic tendencies” tied to genetically shaped, biologically based response systems, largely unaffected by environmental factors, and remarkably stable throughout adulthood (see Costa and McCrae, 2001; McCrae, 2004).

2. Personality-and-culture

The description and comparison of cultures in terms of typical personality profiles date back to the early Greeks and were particularly active during the early-to-mid-20th century among social scientists including such eminent pioneers as Margaret Mead and Edward Sapir (e.g., Mead, 1935; Sapir, 1949; for a thorough history, see LeVine, 2001). After intervening decades of relative inattention and disfavor, the study of personality-and-culture is undergoing a revival. Advances in personality-and-culture include methodological improvements in the cross-cultural measurement of personality,

statistical and analytical progress in establishing validity and equivalence, and advancements in computational and communication technologies facilitating data collection and scholarly collaboration across nations and cultures (Church, 2001a; Church and Lonner, 1998a; Harkness et al., 2003; McCrae, 2000a; McCrae and Allik, 2002; van de Vijver and Leung, 1997).

2.1. Concerns regarding bias, equivalence and nomological validity

Three types of bias can threaten personality-and-culture studies and intercultural comparisons: construct bias, method bias, and item bias (for recent, thorough reviews and syntheses, see Church, 2001c; Harkness et al., 2003; van de Vijver and Leung, 1997, 2001; Scholderer et al., 2005). Construct bias occurs when constructs are not culturally universal or when the behaviors associated with a construct are not the same across cultures. Method bias arises from characteristics of the instruments or methods used to measure and study a construct; sampling, instruments, and administrations can all contribute to method bias. Finally, item bias refers to item-level differences in the construct measurement. The absence of bias of any type is *equivalence* and the strongest equivalence is “scalar equivalence” or “full score comparability” (van de Vijver and Leung, 1997, 2001; Scholderer et al., 2005). Generalization of the nomological networks or “criterion-related” validity of intercultural personality traits and trait measures is an important condition toward establishing construct and method validity and equivalence (e.g., Church, 2001c; Church and Lonner, 1998b and van Hemert et al., 2002). These methodological concerns and advances that address them may be clarified with reference to the instance of trait Extraversion.

3. Extraversion-and-culture

Most personality-and-culture scholars now agree that the high-level traits in the Five-Factor Model generalize across cultures, coexisting with indigenous traits in some cultures (e.g., Katigbak et al., 2002; McCrae, 2002, 2004; McCrae et al., 2004, 2005). McCrae has asserted that the five factors “are not inventions of Western psychologists; they are part of human nature—dimensions of enduring dispositions that somehow find expression in every culture” (2001, p. 842). Extraversion, in particular, has been well established as a cultural universal (see, e.g., Lucas et al., 2000). Measures of Extraversion have been validated across languages and cultures. Finally, Extraversion has been linked with other nation-level parameters (e.g., work ethic, achievement motivation, and savings) in nomological systems supporting the validity of this trait in describing an important aspect of national character (Kirkcaldy et al., 1998; Lynn and Martin, 1995).

3.1. Extraversion

Within that five-factor model, Extraversion is defined as energetic, cheerful, and sociable (i.e., predisposed toward

positive affect and preferring interpersonal interaction; see, e.g., Costa and McCrae, 2001; Lucas et al., 2000; Watson and Clark, 1997). “The most commonly recurring themes [in definitions of Extraversion] are those of Ascendance and Sociability—in all of these views, extraverts are gregarious, friendly, dominant and socially facile” (Watson and Clark, 1997, p. 771). Lucas et al. (2000) contend that sensitivity to rewards constitutes the core of Extraversion across cultures, but concur that “sociability is undoubtedly an important part of Extraversion” (p. 452). Very similar forms of Extraversion have been identified across myriad cultures: in strictly emic and in emic-etic approaches (e.g., Bond, 2000); in comprehensive studies of natural languages even when the generalization of other domains among the Big Five is more equivocal (Saucier and Goldberg, 2001); and in studies utilizing nonverbal measures (Paunonen et al., 2001).

3.2. Methods and metrics

Two extensive research programs have compared personality structure, measurement, and levels across many cultures and have included closely related markers of Extraversion. First, in the earlier research program of cross-cultural extensions, Sybil Eysenck and her colleagues conducted numerous bi-national studies across several decades comparing various nations to an English referent on the Eysenck Personality Questionnaire or EPQ (Barrett and Eysenck, 1984; Barrett et al., 1998; Lynn and Martin, 1995). Barrett and Eysenck (1984) extrapolated comparable scores across 25 countries from those data. Lynn and Martin (1995) augmented that compilation with scores for 12 additional countries. Although those comparisons were criticized (e.g., Bijnen et al., 1986), more recent and more rigorous analyses, some by the same critics, have supported the structure of at least the EPQ-Extraversion and EPQ-Neuroticism scales (Barrett et al., 1998; van Hemert et al., 2002). Applying multilevel factor analysis and extensive nomological tests, van Hemert et al. (2002) conclude that “the constructs of Extraversion and Neuroticism appear to have the same psychological meaning within and across countries” (p. 16) and “two EPQ scales (Extraversion and Neuroticism) were convincingly equivalent at an individual and country level” (p. 18).

The second, more recent of the two cross-cultural research programs has extended the Revised NEO Personality Inventory (NEO-PI-R, which includes Extraversion) across at least 50 countries (see McCrae, 2001, 2002). These studies, sampling both college students and general population, have identified parallel structure as well as similar patterns of personality development across age groups and genders. McCrae has declared “(t)he methodology of comparing trait levels is substantially worked out, and the five-factor model provides a framework for comprehensive personality assessment” (2000b, p. 25). It is noteworthy that others are less optimistic about establishing intercultural comparability: “a major challenge for cross-cultural personality studies is that equivalence of constructs and measures will rarely, if ever, be fully met, so future research should focus on the impact of violations of

equivalence on cross-cultural comparisons” (Church, 2001b, p. 798).

3.3. Intercultural correlates of extraversion

If full scalar equivalence is resistant to incontrovertible statistical tests, the generalization of nomological networks nevertheless corroborates the validity of intercultural differences (or highlights anomalies and limitations; see, e.g., Church and Lonner, 1998b; McCrae, 2001, 2002; Paunonen and Ashton, 1998). “As in any problem of construct validity, there is no single method that establishes the metric equivalence of translations... but a pattern of evidence can make a compelling case” (McCrae, 2000b, 18–19). Paunonen and Ashton (1998) argue “perhaps the best evidence for the cross-cultural applicability of an imported personality measure is the extent to which it predicts different variables consistently across cultures, variables that have some social significance” (p. 166).

Limited research has connected intercultural differences in Extraversion to nomological networks of social behaviors. Lynn and Martin (1995) validated their compilation of country-level EPQ-Extraversion scores by correlating them with country-level “work ethic” and national rates of suicide and homicide. Others have linked Lynn and Martin’s Extraversion scores with work attitudes including achievement motivation, mastery, and saving (Kirkcaldy et al., 1998), traffic fatalities (Lajunen, 2001), and the number of tipped professions (Lynn, 2000).

Yang and Lester (2000) linked Lynn and Hampson’s (1975) index of Extraversion with unemployment across 18 countries. McCrae (2001), in validating his 26-country compilation of intercultural NEO-PI-R scores, related NEO-Extraversion with subjective well-being, and Hofstede’s Power Distance and Individualism. McCrae (2002) extended those comparisons to 36 countries, replicating the relationships with Power Distance and Individualism and, in addition, linking Extraversion to Long-Term Orientation and EPQ Extraversion.

3.4. Summary of methodological issues

Although proof of full-metric equivalence is allusive, the literature appears to be converging on an understanding that certain high-level traits, including Extraversion, are universal and that specific measures appear to tap those traits across cultures and languages (Hofstede and McCrae, 2004). McCrae (2002) argues that, “in a large sample of traits and cultures, all of the various sources of bias might cancel out, leaving reasonably comparable scores” (p. 106). An emerging body of empirics supports the criterion validity of these country-level comparisons. We next review information search before motivating the influence of Extraversion.

4. Consumer external information search

Understanding consumer information search “is critical to firms’ strategic decision making” (Moorthy et al., 1997, p. 263; Ratchford et al., 2003). External information sources have traditionally been classified using two distinctions: independent

versus advocate (i.e., “marketer-controlled” or “seller-dominated”) and impersonal (i.e., “mass”) versus personal/interpersonal (i.e., “word-of-mouth;” [Andreasen, 1968](#); [Beatty and Smith, 1987](#); [Schmidt and Spreng, 1996](#)).

4.1. The potency of word-of-mouth

One of the most important sources of product information is personal/interpersonal. “Informal conversation is probably the oldest mechanism by which opinions on products and brands are developed, expressed, and spread... Word-of-mouth emerges as one of the most important, if not the most important source of information for the consumer” ([Arndt, 1967](#), p. 1 and 70; also see [Goodman, 1999](#)). The influence of word-of-mouth has been studied extensively in the marketing management and consumer psychology literatures (e.g., [Dye, 2000](#); [Brown and Reingen, 1987](#)). Word-of-mouth has been shown to be particularly important with regard to services ([Zeithaml et al., 1996](#)) and the diffusion of innovations ([Mahajan et al., 1990](#)), and is a closely related and consequential outcome of consumer satisfaction and loyalty ([Oliver, 1997](#); [Reichheld, 1996](#)).

Word-of-mouth has been linked with a variety of personality traits or trait-like constructs including Extraversion ([Mooradian and Olver, 1997](#)) and traits or facets subsumed by Extraversion such as “sociability” ([Lau and Ng, 2001](#)) and “social needs” ([Reynolds and Beatty, 1999](#)). Word-of-mouth has also been related to Extraversion in the form of “Opinion Leadership”: “A very consistent attribute of opinion leaders, from the early studies and across numerous areas of leadership and personal influence was their social activity and gregariousness” ([Weimann, 1999](#), p. 79).

4.2. Word-of-mouth across cultures and nations

Limited research has considered information search or source preferences across nations or cultures. [Money et al. \(1998\)](#), noting that “(v)irtually no [previous] WOM studies have been undertaken on a cross-national basis” (p. 77), found strong support for the hypothesis that the Japanese firms rely on word-of-mouth referrals more than American firms and on stronger interpersonal ties in sourcing industrial services. They explained those differences with reference to Hofstede’s Individualism and Uncertainty Avoidance dimensions and to the High- versus Low-Context cultural distinction, but they did not test those relationships.

[Dawar et al. \(1996\)](#), surveying students at a “major European business school,” found that Uncertainty Avoidance and Power Distance (for the students’ home countries) predicted reliance on interpersonal sources of product information. [Keillor et al. \(2001\)](#) found that level of economic development was inversely related to the influence of personal sources such as family and friends; they did not consider cultural or individual differences across nations. [Pompitakpan \(2000\)](#) referenced Hofstede’s Uncertainty Avoidance to explain the observation that, “in making purchase decisions, Japanese are apt to rely more heavily on personal sources of information than Thais, and Thais are apt to do so more heavily than Americans” (p. 64).

4.3. Hypothesis

Based on the fundamental tendency of Extroverts to prefer and seek out social interaction – that is, based on the *sociability* element of Extraversion – we hypothesize that cultures characterized by higher levels of Extraversion will rely on word-of-mouth for product information more than cultures with lower Extraversion.

5. Study

5.1. Word-of-mouth data

Word-of-mouth data were obtained from the 1997 DDB Needham World Styles Survey (see [Horn, 2000](#)). The database includes 15,520 responses from subjects in 12 nations on five continents (Mexico is excluded from further discussion because of a lack of matching scores on Extraversion). We removed cases with multiple “primary” sources (236 subjects), no source (258), or missing data (65) on these items, leaving 14,961 cases for analysis. A summary of sampling and survey methodology is presented in [Table 1](#).

Seven items querying subjects’ “primary source of product information” (television; radio; friends or family, newspapers, magazines, the Internet, or direct mail) were included within the extensive World Styles Survey. We computed the dependent variable, reliance on word-of-mouth, as the percent of respondents in each country indicating “friends or family” as their primary source of product information ([Table 2](#)).

Table 1
Word-of-mouth sample characteristics by country

Country	Subsample size (% of total sample)	Coverage	Data collection format
Japan	1362 (8.8)	National	Multi-stage probability sampling, face-to-face
China	1000 (6.4)	Shanghai	Random probability sampling, face-to-face
Australia	1033 (6.7)	National	Multi-stage probability sampling, face-to-face
Europe:		National	Random sample, phone interview
France	1007 (6.5)		
Germany	1005 (6.5)		
Italy	1058 (6.8)		
Spain	1002 (6.5)		
UK	933 (6.0)		
US	3462 (22.3)	National	Mail panel, self-administered
Canada	1389 (8.9)	National	Mail panel, self-administered
Brazil	1268 (8.2)	Sao Paulo Rio de Janeiro	Multi-stage probability sampling, face-to-face
Mexico	1001 (6.4)	Mexico City Guadalajara Monterey	Stratified sampling, random block, face-to-face
Total	15,520		

Source: DDB Needham Worldwide ([Horn, 2000](#)).

Table 2
Extroversion and word-of-mouth scores, and sample sizes

Country	Extraversion					Word-of-mouth ^a (%)	
	EPQ ^b		NEO-PI-R ^c		SD ^d		Factor score
	Score	n	Score	n ^e			
Australia (AU)	23.17	1452	–	–	1.12	–	15
Brazil (BR)	17.58	1396	–	–	–	–	4
Canada (CA)	20.67	1652	51.70	282/566	1.80	1.38	15
China (CN)	13.01	2097	44.50	115/86	–	–	8
UK (UK)	18.94	17,725	–	–	0.98	–	11
France (FR)	11.81	866	47.3	333/733	–0.06	–0.88	7
Germany ^f (GR)	18.88	2538	47.3	1475/1255	0.83	0.29	14
Italy (IT)	17.46	2609	46.6	341/349	–1.21	–0.60	6
Japan (JP)	17.17	258	41.7	340/341	–0.51	–1.06	7
Spain (SP)	17.98	2986	48.3	89/107	–1.42	–0.38	9
USA (US)	20.83	4153	50.0	648/741	2.09	1.27	19

^a Percent of respondents indicating “friends or family” as primary source of product information.
^b van Hemert, van de Vijver, Poortinga, and Georgas (2002, Table 1, p. 7).
^c Socio-demographic (SD) markers from Lester (2000, Table 2, p. 37) derived from factor analysis of socio-demographic variables including country-level rates of murder and other crimes, divorce, cigarette consumption, illegitimacy, and accidents.
^d Men/women.
^e McCrae (2002, Tables 1 and 3 107, 112).
^f Scores for Germany on the EPQ and the socio-demographic index are for West Germany.

5.2. Extraversion data

From different data sets than the DDB Needham World Styles Survey, intercultural Extraversion scores were drawn from the two major cross-cultural research programs focused on the EPQ and NEO-PI-R, respectively (see Table 2; see van Hemert et al., 2002; McCrae, 2002). A third source of data was Lester’s (2000) factor analysis of socio-demographic indicators, which identified Extraversion (along with Neuroticism). Additionally, we computed a single latent Extraversion factor from these three specific scores using Principle Components Analysis using varimax rotation (Eigen value 2.03, 67.6% of variance explained; factor loadings are shown in Table 3). In factor analyses of this type “the increased reliability of aggregate scores may compensate for the small number of observations” (McCrae, 2001, p. 831; also see Hofstede, 1980 and Hofstede and McCrae, 2004).

Table 3
Country-level correlations of extraversion measures and word-of-mouth

Measure	NEO	EPQ	SD	Factor
EPQ	0.528 * [8]			
SD	0.588 * [7]	0.552 * [9]		
Factor ^a	0.821 [7]	0.781 [7]	0.863 [7]	
Word-of-Mouth	0.691 **	0.694 *** [11]	0.891 ****	0.934 **** [7]

Cases (i.e., overlapping countries) in brackets.
 NEO=McCrae’s NEO-PI Extraversion scores (McCrae, 2002).
 EPQ=EPQ Extraversion (van Hemert et al., 2002).
 SD=Socio-Demographic Extraversion Factor (Lester, 2000).
 Factor=Extraversion factor score.

^a Factor loadings for single-factor Principle Components Factor Analysis.
 * $p < 0.10$.
 ** $p < 0.05$.
 *** $p < 0.01$.
 **** $p < 0.001$.

5.3. Analysis and results

Correlations between the variables are presented in Table 3. Fig. 1 graphs country-level reliance on word-of-mouth with the Extraversion factor score, which has the highest correlation with reliance on word-of-mouth, and the EPQ-Extraversion score, which had the highest overlap of scores with the DDB-Needham word-of-mouth data. The correlations among Extraversion scores indicate acceptable convergent validity. Most importantly, these analyses identify a strong, direct relationship between various country-level markers of Extraversion and reliance on Word-of-Mouth that are, notwithstanding the small number of cases, significant and meaningful in magnitude.

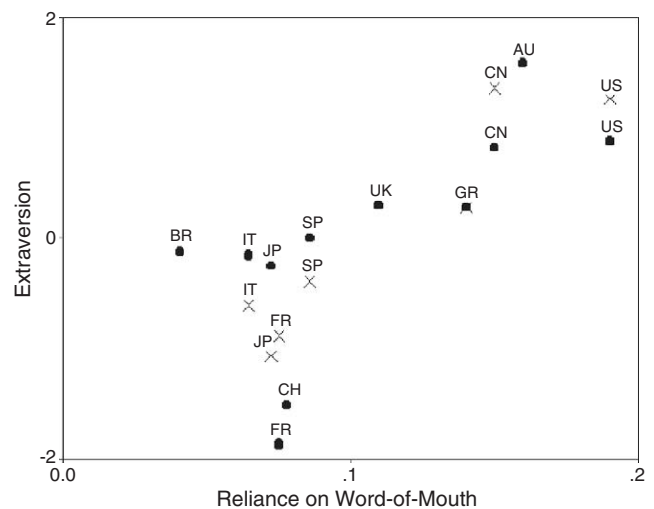


Fig. 1. Plot of reliance on word-of-mouth with Extraversion factor scores and EPQ-E score. ●—standardized (Z) EPQ-E scores; ×—Extraversion factor scores. See Table 2 for country abbreviations.

5.4. Extraversion versus Hofstede's ecological scores

Hierarchical regressions compared country-level Extraversion with Hofstede's dimensions with regard to variance explained in reliance on Word-of-Mouth (Table 4). Step-wise regressions of all four Hofstede variables on reliance on Word-of-Mouth indicate that Power Distance mediated any significant effects of Individualism, Uncertainty Avoidance, and/or Masculinity. Hierarchical regressions, shown in Table 4, indicate that Extraversion explains more variance in reliance on Word-of-Mouth sources than Power Distance. When Extraversion is entered first and Power Distance is entered second (Regression A in Table 4), Power Distance explained no significant additional variance. In comparison, when Power Distance is entered first and Extraversion is added (Regression B in Table 4), Extraversion explains significant additional variance, approximately 30% additional variance; Power Distance becomes insignificant when Extraversion is entered.

The same procedure using the *other* markers of Extraversion (i.e., the NEO, EPQ, and Socio-Demographic scores; not shown) produced comparable results similarly supportive of the predictive power of Extraversion vis-à-vis Hofstede's Power Distance. Although Power Distance clearly mediated the effects of Hofstede's other variables, specific relationships between reliance on Word-of-Mouth and both Individualism and Uncertainty Avoidance have been proposed (as reviewed above; Money et al., 1998; Dawar et al., 1996; Pornpitakpan, 2000). Therefore, we also test Extraversion against those variables in the same hierarchical regression procedure. The results of those analyses indicate that Extraversion was related to significant variance in reliance on Word-of-Mouth beyond that explained by any of those variables. None of those variables predicted significant variance beyond that explained by Extraversion. (These data and analyses are of explanatory power at the country level. As discussed, Hofstede's dimensions, by definition, offer *no* explanatory power at the individual level.)

6. Discussion and contributions

We have proposed personality traits as useful descriptors of national character. Traits are grounded in the extensive tradition of theory and empirics in personality psychology and, in particular, in personality-and-culture. Both of these areas have

made important recent advances. Compilations of intercultural trait comparisons are available from recent, large samples across many countries and cultures. These traits, measures, and scores have been subject to extensive, rigorous psychometric testing and validation. Importantly, these traits describe both intercultural and individual differences.

In a preliminary analysis drawing on large samples from 11 countries across five continents, we find empirical support for the robust association between Extraversion, a fundamental and universal personality trait, and reliance on word-of-mouth, an important consumer behavior. Additionally, we find significant marginal predictive power for Extraversion over Hofstede's ecological dimensions of culture at the country level. People in cultures characterized by higher Extraversion are more likely to rely on interpersonal sources of information, that is, on word-of-mouth for product information. This finding should inform managers trying to create "buzz" or hoping to accelerate the diffusion of innovations – some cultures are more predisposed to such information flows than others (Dye, 2000; Gatignon et al., 1989; Mahajan et al., 1990).

6.1. Future research

The measure used in the DDB World Styles survey to capture information source preference is coarse but straightforward. Future research into cross-cultural differences in information search and other consumer phenomena will require richer, more complex measures and therefore require similar attention to adapting, validating, and establishing equivalence as has been devoted to cross-cultural personality trait measures, as reviewed above (see Harkness et al., 2003; McCrae, 2002, 2004; McCrae et al., 2004; van de Vijver and Leung, 1997). Finally, due to the nature of our data, our analysis uses nation-of-survey-collection as a surrogate for culture, a precarious supposition for several reasons (see Sivakumar and Nakata, 2001, 559–560). Future research should be improved by differentiating cultures from nations.

Future research could also extend intercultural personality analysis to other universal traits, to other important consumer behaviors, and could address differences at both the cultural and individual levels. Such 'multi-level analyses' compare factor structures and relationships among variables across levels of aggregation (see van de Vijver and Poortinga, 2002). As noted, Hofstede's (1991) well-known and widely

Table 4

Hierarchical regressions of national character variables on nation-level consumer reliance on word-of-mouth sources of information

Regression	Model	Independent variables and β s				R^2	Adj. R^2	ΔR^2
A	1 *	EFS	0.934 *			0.873	0.847	
	2 **	EFS	0.857 **	PD	-0.100	0.877	0.815	0.04
B	1 **	PD	-0.767 **			0.589	0.506	
	2 **	PD	-0.100	EFS	0.857 **	0.877	0.815	0.288 **

EFS=Extraversion factor score.

PD=Power Distance (Hofstede, 1980).

* $p < 0.01$.

** $p < 0.05$.

adopted framework does not inform our understanding of individual-level behaviors: “the culture of a country – or other category of people – is not a combination of properties of the ‘average citizen’, nor a ‘modal personality’... (c) onfusing the level of the individual with the level of the society is known in the social sciences as the *ecological fallacy*” (p. 112, emphasis original). Our archival data do not allow testing of relationships at the individual level but future data collections should be planned to facilitate such analyses.

6.2. Associated concerns

Finally, several concerns about identified cross-cultural differences are largely beyond the scope of this study. Do dimensions of culture explain differences in traits or do traits explain features of culture? Hofstede contends that culture influences traits while McCrae argues that cultural values tend to be reflections of personality (McCrae, 2004 and Hofstede and McCrae, 2004). Also, a genetic and biological role in shaping traits and behavior suggests ethical as well as empirical challenges that must be considered and investigated further. Are cultural differences genetically determined? “That possibility is likely to make many social scientists uncomfortable because any such genetic differences between groups might fuel racist or eugenicist agendas” (McCrae, 2000b, p. 21). Although these traits have few normative (i.e., evaluative or “good–bad”) connotations and the *between culture* differences are not particularly large, especially vis-à-vis *within culture* variance, it is important to keep these concerns in mind when comparing cultures along traits or any other characteristics.

“A trait perspective on human nature and culture offers great intellectual promise. It addresses fundamental issues with the widest possible applicability; it has already produced provocative findings; and it inspires a rich agenda for future research” (McCrae, 2004, p. 13). We propose that that rich future research will include productive explorations in consumer psychology and cross-cultural marketing.

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