Evidence of Factorial Similarity Across Cultures Using the CPI 260® Assessment

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This study was conducted to examine the factor structure of the CPI 260 assessment across nine languages and cultures, and compare them to a sample from the United States. Results indicated a consistent set of four factors, suggesting that the CPI 260 measures personality elements that may be universal.

Equivalence studies on assessments used with international respondents are vital. As more companies become multinational, conducting business and managing employees in several countries, the use of testing for selection, training, and development has become more widespread. Many smaller companies have followed. "The globalization of industry is resulting in the spread of testing and selection practices of major international companies to smaller national organizations wherever they compete in local marketplaces" (Bartram, 1998, p.155). Although assessment uses and standards vary around the world, assessments that may be used ethically across cultures have become increasingly relevant, especially those that have been used successfully in high stakes testing in the United States.

The California Psychological Inventory™ instrument has been successfully used in U.S. and international employment settings for decades as a tool for leadership, coaching, selection, and retention. The CPI recently underwent a revision to create a shorter form of the assessment, developed specifically for use in organizations. Following its release, the factor structure was examined across English speaking populations, and initial evidence showed similar factor structures across two samples from the United States and one from the United Kingdom (Gough & Bradley, 2005). More recent research found that the CPI 260 has a similar factor structure across samples from the United States, Canada, and Australia (Schaubhut, Thompson, & Morris, 2007). This consistency in psychometric properties across cultures is evidence that the measure has utility in those cultures (Paunonen & Ashton, 1998), and for the CPI 260 assessment, that research from the United States is more likely to generalize to other cultures.

In this study, we sought to replicate these findings to different, non-English speaking cultures. Respondents from nine countries completed translations of the CPI 260 assessment. Each of these nine samples was compared to a sample from the United States. Factor structures in each sample were expected to be very similar to that of the U.S. sample. "The folk concepts…are conceived of as cultural and historical universals…and hence applicable to individuals in any society." (Gough & Bradley, 1996, p.107) Demonstration of a similar factor structure would bolster the case for generalization of other CPI findings, and

support the theory that the folk concepts measured by the CPI are cultural universals.

Method

Participants

This study used nine international samples totaling 3,670 respondents, who completed one of nine translations (Danish, Dutch, European Spanish, French, German, Latin/North American Spanish, Simplified Chinese, Swedish, and Traditional Chinese) of the CPI 260 assessment between December, 2008 and August, 2009. These respondents were recruited through a market research company as part of an international data collection project, and were compensated for their time. A U.S. sample from the *CPI 260® Manual* (Gough & Bradley, 2005) was also included for comparison.

To be included in a sample, each respondent must have indicated that their country of origin and country of residence is one in which the language of the assessment is spoken. All international respondents were age 18 or older, employed full- or part-time, and did not omit more than 13 items. Each international sample contained approximately equal numbers of men and women, and contained validity indicators – fake good, fake bad and random – within normal ranges. The rate of each invalidity indicator is shown in the *CPI™ Manual* for numerous male and female samples. The rate of fake good cases reported in the *CPI™ Manual* for women ranges from 0 for several samples to 8.5% for a sample of

police officer applicants, and for men ranges from 0 for several samples to 7.5% for a sample of police officer applicants. Female fake bad rates range from 0 for several samples to 8.8% for a sample of psychiatric patients, and from 0 for several male samples to 4.9% for a sample of male psychiatric patients. Finally, female random rates range from 0 for several samples to 3.8 for a sample of high school students, and for men range from 0 for several samples to 4.9% for a sample of psychiatric patients (Gough & Bradley, 1996). The demographic makeup of each sample, including average age, industry of employment, and organizational level, is presented in Table 1.

Measure

The CPI 260 assessment is a measure of normal personality that is often used by organizations in coaching, leadership development, retention, and as a component of selection programs. It is comprised of three sets of scales. First, twenty folk scales that are grouped into the following four broad categories that measure interpersonal aspects: self-management, motivations and thinking style, and personal characteristics. The CPI 260 assessment also contains three vector scales, assessing one's orientations toward the interpersonal world, societal values, and the self (Gough & Bradley, 2005). The final group is special purpose scales that typically measure various work-related dispositions. The current study focused on the folk and special purpose scales, as they make up the four factors that have typically been found on the CPI

260 assessment (Gough & Bradley, 2005). Additionally, Gough and Bradley (1996) recommend excluding the vector scales for purposes of factor analysis.

Procedure

The comparison of factor structures across samples has long been used in psychological research to determine if the factor structure of an assessment is the same in two or more different groups (Chan, Ho, Leung, Chan, & Yung, 1999). Factor structure similarity of personality inventories has been studied by many researchers (Barrett, Petrides, Eysenck, & Eysenck, 1998; De Bruin, Nel, & Comrey, 1997; Noller, Law, & Comrey, 1988; Rodrigues & Comrey, 1974; Stumpf, 1993). Similarity of factors is most often evaluated by using the factor congruence coefficient (Burt, 1948; Reise, Waller, & Comrey, 2000; Tucker, 1951; Wrigley & Neuhaus, 1955).

A principal components factor analysis with varimax rotation and a four factor solution was run on the CPI 260 folk and special purpose scales for each sample. Gough and Bradley (2005) have named these four factors as interpersonal effectiveness, dependability, originality or creativity, and interpersonal sensitivity. A comparison among the factor structures in each sample compared to the U.S. sample was calculated using the Wrigley-Neuhaus factor similarity coefficient (1955). The programmer of an automated program permitted us to use his method to compute the factor similarity coefficients (A.L. Comrey,

personal communication, August 30, 2006).

Results

Table 2 shows CPI 260 scale means and standard deviations for each sample. The factor loadings for each sample appear to be similar to each other (Table 3), as well as to the U.S. sample shown in the *CPI 260 Manual* (Gough & Bradley). The results of the factor similarity analysis are presented in Table 4. The table can be read in a manner similar to correlation matrices, where the diagonal elements show the degree of congruence between corresponding factors, and the off diagonal elements show degree of similarity between the remaining factors in the analysis.

The average coefficients for each factor are: factor 1 = .98, factor 2 = .98, factor 3 = .89, and factor 4 = .75. Coefficients of .90 or higher are typically accepted as showing congruence between factors (Guadagnoli & Velicer, 1991). Others have suggested the minimum range for considering two factors to be equivalent is .70-.90 (Hall & Kaye, 1977). Therefore, it may be concluded that the factorial structures of the CPI 260 scales in the nine international samples are similar to that of the U.S. sample. Factors one and two, all with coefficients of .98 or .99, are nearly identical to the U.S. for all of the international samples. The coefficients for factor three show more variability across the samples, ranging from .79 (Traditional Chinese) to .97 (French). These coefficients indicate a fairly high degree of congruence with the U.S. sample on this factor. Factor four, however, shows somewhat less

congruence for the nine international samples compared to the U.S. The coefficients range from .66 (German and Latin/North American Spanish) to .85 (French).

Discussion

Results from this study showed that the factor structure found in the United States on the CPI 260 assessment is very similar to that found across several cultures and nine translations in total. These results provide support to Gough and Bradley's (2005) contention that the scales of the CPI 260 measure cultural universals, and researchers can have more confidence that previous findings will generalize to other cultures.

The strongest evidence of equivalence across cultures was for the first two factors, typically called interpersonal effectiveness and dependability. When considered with the results of previous studies (e.g., Schaubhut, Thompson, & Morris, 2007), these two factors have proven to be nearly identical across a dozen cultures. The third factor, typically called originality, showed substantial similarity across cultures, with a minimum coefficient of .79 in the Traditional Chinese sample. Overall, these results support the cross-cultural viability of the factors and point to these personality factors being universal.

Evidence of equivalence on the fourth factor, typically called interpersonal sensitivity, was less strong than for other factors, but results still indicate a good degree of similarity. Gough and Bradley (2005) describe the fourth factor as having to do with "sensitivity the

feelings of others, adherence to societal ethics, affiliative needs, emotional vulnerability, and tendermindedness." (p.17), and examination of the fourth factor indicates high loadings in the U.S. sample on folk scales such as Communality, Sensitivity, and Achievement via Conformance. Future research should examine these scales in particular for insight into how interpersonal sensitivity may manifest itself across cultures. This research may be informed by the existing literature in collectivism (Triandis, 1995), and related concepts such as interdependence (Cross, Bacon & Morris, 2000), that are thought to explain some cross-cultural differences (Markus & Kitayama, 1991) in areas dealing with others and affiliative needs. The manner in which the CPI 260 reflects these cultural differences should be examined further.

In closing, the substantial similarity in factorial structure across these samples suggests that findings from previous CPI 260 research completed with American samples should generalize more broadly. This gives researchers, practitioners, and organizations confidence that it may be utilized internationally as it is in the U.S., including leadership development, retention, and some high stakes testing.

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Table 1

Demographic Composition of U.S and International Samples

	Danish		Dutch		European Spanish		French		French		Latin/North American Spanish		Simplified Chinese		Swedish		Traditional Chinese		US English	
N	499		469		431		490		490		261		287		481		234		4000	
	n	%	n		n	%	n	%	n	%		n	%	n	%	n	%	n	%	n
Men	248	50	238	242	242	51	242	49	258	50	110	42	147	51	238	49	125	53	2000	50
Women	249	50	231	247	247	49	247	50	260	50	151	58	140	49	243	51	109	47	2000	50
Working full-time	433	87	306	433	433	87	433	88	412	80	178	68	269	94	377	78	214	91	3432	86
Working part-time	66	13	163	57	57	13	57	12	106	20	83	32	18	6	104	22	20	9	158	4
Organizational level																				
Entry-level	59	12	20	78	78	8	78	16	43	8	24	9	20	7	23	5	24	10	157	4
Non-supervisory	203	41	337	246	246	44	246	50	311	60	65	25	110	38	291	60	92	39	634	16
Supervisor	79	16	36	34	34	29	34	7	69	13	58	22	84	29	115	24	56	24	382	10
Management	91	18	48	80	80	9	80	16	40	8	46	18	42	15	33	7	40	17	1513	38
Executive	54	11	17	31	31	6	31	6	19	4	41	16	25	9	8	2	15	6	700	18
Top executive	11	2	9	17	17	4	17	3	32	6	24	9	6	2	10	2	6	3	245	6
Not provided	2	<1	2	4	4	<1	4	1	4	1	3	1	0	0	1	<1	1	<1	369	9
Satisfied with job	487	98	436	414	414	88	414	85	454	88	241	93	235	82	452	94	181	77	3391	96
Industry																				
Agriculture, Forestry, Fishing	7	1	1	8	8	1	8	2	2	<1	3	1	3	1	5	1	2	1	--	--
Mining	0	0	0	1	1	<1	1	<1	0	0	0	0	0	0	0	0	1	<1	--	--
Construction	15	3	12	14	14	7	14	3	19	4	19	7	17	6	17	4	12	5	--	--
Manufacturing	57	11	23	44	44	3	44	9	55	11	13	5	56	20	52	11	46	19	--	--
Wholesale Trade	14	3	17	18	18	3	18	4	17	3	15	6	17	6	9	2	10	4	--	--
Retail Trade	29	6	33	51	51	8	51	10	47	9	30	11	17	6	25	5	17	7	--	--

Table 1 (continued)

Demographic Composition of U.S and International Samples

Finance, Insurance, and Real Estate	18	4	21	27	27	4	27	6	32	6	19	7	16	6	14	3	17	7	--	--
Professional, Scientific, Technical Services	28	6	42	34	34	16	34	7	25	5	50	19	28	10	52	11	34	15	--	--
Personal Care and Other Services	88	18	121	63	63	4	63	13	56	11	5	2	6	2	76	16	6	3	--	--
Transportation, Electric, Gas, Sanitary Services	36	7	24	21	21	6	21	4	22	4	6	2	22	8	19	4	16	7	--	--
Information Systems and Technology	34	7	16	9	9	8	9	2	23	4	19	7	22	8	26	5	12	5	--	--
Information, Media, Communications	26	5	14	13	13	5	13	3	24	5	16	6	22	8	35	7	23	10	--	--
Other	146	29	144	186	186	34	186	38	195	38	64	25	59	21	149	31	38	16	--	--
	M	SD	M	M	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Age	45.6	11.0	45.0	40.7	40.7	9.6	40.7	11.3	43.2	10.9	34.6	10.5	29.5	7.1	43.1	10.6	28.5	5.3	40.4	12.1
Years working in current occupation	14.7	11.7	13.0	12.8	12.8	10.4	12.8	11.0	11.7	11.8	8.7	7.9	6.3	6.1	12.5	10.8	5.6	4.8	12.6	9.0

Note. Not all respondents provided answers to all of the demographic items.

Table 2

CPI 260® Scale Means for U.S. and International Samples

CPI 260® Scale	Danish		Dutch		European Spanish		French		German		Latin/North American Spanish		Simplified Chinese		Swedish		Traditional Chinese		US English	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Do	53.3	10.3	53.9	9.6	52.2	9.9	50.7	10.0	51.9	9.9	59.2	9.1	52.0	9.0	54.7	10.6	51.5	8.9	61.1	8.1
Cs	50.8	9.3	47.5	9.7	50.3	9.1	46.8	9.3	45.9	8.5	56.4	8.9	49.1	8.1	51.5	9.6	50.0	7.7	58.7	8.4
Sy	51.9	9.4	50.3	9.6	50.7	10.1	48.9	9.6	49.1	9.2	56.5	8.4	50.5	9.3	51.4	9.6	50.0	9.1	56.4	8.6
Sp	49.5	10.8	49.0	9.7	48.8	9.5	46.2	10.1	46.4	9.6	53.2	8.1	48.5	8.8	51.7	10.3	46.4	8.1	54.1	9.2
Sa	52.1	10.3	50.6	9.5	50.8	9.2	47.6	9.9	49.6	10.1	57.7	8.1	50.3	8.9	53.0	10.8	49.5	8.5	58.3	8.1
In	55.5	9.9	55.4	9.5	53.3	9.5	50.3	10.3	52.8	10.2	58.8	8.1	51.4	9.7	55.6	10.6	50.0	8.9	60.9	7.4
Em	56.7	8.9	54.0	9.1	55.4	9.1	53.4	9.4	51.0	9.0	58.9	8.1	53.2	7.6	55.0	9.1	52.9	8.0	61.9	8.9
Re	50.9	8.4	48.9	8.1	49.1	8.4	46.8	8.1	46.2	8.6	51.7	8.0	45.7	7.5	48.2	8.6	44.0	8.2	56.0	7.2
So	49.5	8.8	49.4	8.2	49.0	9.8	47.3	9.8	45.1	9.8	50.2	9.4	44.3	9.7	47.6	8.9	44.2	10.1	54.1	7.2
Sc	55.0	9.2	57.4	8.1	51.9	8.5	55.8	9.0	55.2	9.8	50.3	9.0	47.4	7.9	51.2	9.4	49.8	8.4	55.7	8.7
Gi	55.9	8.5	56.8	8.3	53.3	9.0	53.6	8.9	54.8	9.5	53.7	9.7	51.3	8.1	50.6	9.0	52.7	8.5	57.9	8.6
Cm	47.5	9.0	46.9	8.6	44.7	12.0	41.8	10.1	47.2	10.9	45.5	10.5	37.7	13.2	44.6	10.2	33.4	14.6	52.2	8.2
Wb	49.8	10.4	50.9	10.3	44.5	10.2	43.6	10.6	46.1	11.3	49.4	10.3	40.5	10.2	46.4	10.9	39.2	10.1	56.3	7.2
To	54.5	9.0	50.7	8.8	48.5	9.3	46.9	8.2	46.4	8.1	51.0	9.0	44.2	8.8	51.7	9.1	45.3	8.4	60.0	7.2
Ac	49.2	7.8	49.5	8.0	50.5	9.0	47.8	8.3	48.2	8.9	53.7	8.5	48.2	8.3	48.0	8.1	49.4	9.4	57.3	6.9
Ai	54.3	8.1	51.9	8.3	51.0	7.8	48.7	7.6	48.7	7.4	52.0	7.3	46.9	7.6	52.4	8.2	46.1	6.9	61.0	6.8
Cf	51.2	8.7	49.3	8.8	48.0	8.5	46.7	8.9	48.3	9.1	51.5	8.2	46.9	8.4	49.5	9.0	46.7	8.0	57.5	7.2
Is	53.1	8.5	50.3	7.8	49.5	9.1	47.9	8.2	50.4	8.6	51.9	8.2	48.2	8.3	50.0	8.5	47.9	7.8	58.7	7.4
Fx	50.3	9.9	50.6	9.5	45.7	9.7	48.0	9.6	45.9	8.8	43.8	8.3	41.4	7.6	49.6	10.6	41.8	8.1	54.2	10.5
Sn	45.8	7.8	47.1	8.8	47.3	7.3	45.9	8.5	46.5	8.4	44.8	7.9	48.4	7.5	45.0	9.0	47.0	7.4	44.0	8.4
Mp	57.4	9.2	54.3	8.9	51.0	8.4	50.1	8.3	49.2	8.1	54.6	8.9	48.4	8.1	54.6	8.5	48.8	8.0	63.7	7.7
Wo	51.1	9.0	50.6	9.6	46.2	10.0	44.7	9.5	46.4	9.6	48.2	9.6	42.6	10.0	49.0	9.3	42.7	10.2	56.5	6.9
Ct	51.3	10.2	49.7	10.3	49.1	9.5	48.5	10.0	48.4	9.1	53.6	8.3	44.5	8.5	50.5	10.4	42.6	8.3	57.4	9.7
Lp	53.1	9.9	52.3	9.3	50.9	10.3	48.8	10.1	49.8	10.2	57.4	9.5	49.2	9.3	52.1	10.1	48.3	9.3	61.8	7.5
Ami	53.6	9.5	52.2	9.7	47.4	9.5	47.6	9.5	46.4	9.7	48.5	9.5	44.7	9.3	49.8	9.6	43.8	9.3	56.9	8.2
Leo	55.0	9.3	56.5	9.0	51.8	10.0	52.1	9.5	54.9	9.9	54.3	9.2	50.6	9.0	53.0	9.1	49.5	9.6	59.3	9.6

Note: *N* = 499 Danish, *N* = 469 Dutch, *N* = 431 European Spanish, *N* = 490 French, *N* = 518 German, *N* = 261 Latin/North American Spanish, *N* = 287 Simplified Chinese, *N* = 481 Swedish, *N* = 234 Traditional Chinese, *N* = 4000 U.S. English.

Table 3

Loadings of CPI 260® Factored Scales for U.S. and International Samples

CPI 260® Scale	Danish	Dutch	European Spanish	French	German	Latin/North American Spanish	Simplified Chinese	Swedish	Traditional Chinese	U.S. English
					Factor 1					
Do	0.89	0.93	0.93	0.93	0.92	0.91	0.90	0.94	0.87	0.93
Cs	0.65	0.71	0.83	0.80	0.74	0.81	0.83	0.78	0.82	0.80
Sy	0.78	0.82	0.87	0.88	0.85	0.84	0.88	0.87	0.87	0.84
Sp	0.72	0.70	0.80	0.81	0.79	0.78	0.80	0.79	0.80	0.79
Sa	0.84	0.89	0.87	0.90	0.91	0.89	0.84	0.89	0.86	0.88
In	0.79	0.81	0.77	0.83	0.79	0.79	0.67	0.82	0.65	0.80
Em	0.47	0.57	0.74	0.71	0.60	0.62	0.73	0.64	0.74	0.63
Re	0.12	0.16	0.26	0.09	0.17	0.29	0.14	0.40	0.30	0.23
So	0.13	0.04	0.19	0.17	0.07	0.31	0.25	0.18	0.26	0.11
Sc	-0.39	-0.25	-0.16	-0.32	-0.33	-0.21	-0.33	-0.41	-0.24	-0.39
Gi	-0.02	0.01	0.13	-0.05	-0.07	0.00	0.05	-0.17	0.07	-0.12
Cm	0.17	0.03	0.09	0.12	0.31	0.32	0.10	0.32	0.30	0.06
Wb	0.50	0.48	0.43	0.44	0.47	0.47	0.38	0.45	0.35	0.43
To	0.24	0.19	0.27	0.21	0.10	0.28	0.21	0.20	0.13	0.21
Ac	0.20	0.30	0.40	0.34	0.34	0.49	0.28	0.53	0.40	0.33
Ai	0.26	0.26	0.52	0.44	0.31	0.48	0.44	0.45	0.40	0.36
Cf	0.49	0.57	0.65	0.65	0.60	0.61	0.52	0.69	0.58	0.61
Is	0.34	0.32	0.46	0.43	0.42	0.46	0.40	0.41	0.28	0.37
Fx	-0.05	0.08	0.12	0.08	-0.10	0.02	0.03	0.01	-0.03	0.12
Sn	-0.77	-0.74	-0.43	-0.68	-0.73	-0.30	-0.50	-0.38	-0.33	-0.52
Mp	0.52	0.53	0.65	0.64	0.54	0.57	0.58	0.58	0.50	0.54
Wo	0.31	0.28	0.34	0.29	0.37	0.30	0.24	0.30	0.22	0.18
Ct	0.38	0.52	0.59	0.59	0.49	0.57	0.46	0.51	0.48	0.53
Lp	0.82	0.86	0.82	0.85	0.85	0.79	0.78	0.88	0.81	0.85
Ami	0.09	0.11	0.14	0.08	0.00	0.11	0.13	-0.04	0.09	0.01
Leo	0.52	0.50	0.37	0.34	0.41	0.36	0.27	0.35	0.38	0.15

Poster presented at the Annual Conference of the Society for Industrial Organizational Psychology, Atlanta, GA, April 8-10, 2009.
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Table 3 (continued)

Loadings of CPI 260® Factored Scales for U.S. and International Samples

Scale	Danish	Dutch	European Spanish	French	German	Latin/North American Spanish	Simplified Chinese	Swedish	Traditional Chinese	U.S. English
						Factor 2				
Do	0.04	0.08	0.12	0.07	0.10	0.23	0.16	0.06	0.25	0.12
Cs	0.03	0.06	0.24	0.12	0.01	0.34	0.15	0.07	0.22	0.06
Sy	-0.04	0.07	0.15	0.10	0.03	0.15	0.12	0.08	0.24	0.03
Sp	-0.07	0.02	0.00	0.05	0.09	0.02	-0.08	-0.03	0.05	-0.08
Sa	-0.19	-0.14	-0.05	-0.03	-0.06	-0.05	0.01	-0.09	0.11	-0.06
In	0.21	0.23	0.33	0.30	0.40	0.35	0.43	0.23	0.52	0.24
Em	0.03	0.13	0.25	0.12	0.05	0.36	0.09	0.09	0.04	0.18
Re	0.38	0.47	0.51	0.40	0.53	0.68	0.45	0.56	0.65	0.54
So	0.62	0.75	0.62	0.74	0.79	0.75	0.64	0.76	0.75	0.60
Sc	0.80	0.81	0.89	0.76	0.79	0.89	0.83	0.80	0.86	0.77
Gi	0.83	0.80	0.87	0.75	0.74	0.86	0.85	0.78	0.79	0.78
Cm	0.21	0.49	0.12	0.37	0.52	0.27	0.29	0.44	0.53	0.25
Wb	0.68	0.71	0.65	0.78	0.79	0.73	0.67	0.70	0.79	0.72
To	0.60	0.62	0.75	0.73	0.67	0.76	0.74	0.65	0.76	0.72
Ac	0.34	0.54	0.49	0.43	0.53	0.69	0.50	0.57	0.68	0.50
Ai	0.31	0.40	0.51	0.48	0.45	0.60	0.53	0.38	0.65	0.49
Cf	0.34	0.36	0.44	0.45	0.46	0.59	0.45	0.42	0.59	0.47
Is	0.40	0.35	0.48	0.58	0.47	0.60	0.50	0.43	0.64	0.51
Fx	0.06	0.00	0.09	0.12	-0.10	-0.08	0.10	0.05	0.04	0.07
Sn	-0.24	-0.01	0.04	-0.20	-0.15	-0.01	-0.20	-0.03	-0.02	-0.19
Mp	0.52	0.57	0.60	0.52	0.56	0.67	0.64	0.56	0.64	0.66
Wo	0.66	0.74	0.72	0.83	0.81	0.82	0.71	0.78	0.85	0.79
Ct	0.04	0.01	0.19	0.18	0.05	0.14	0.24	0.09	0.21	0.11
Lp	0.25	0.29	0.38	0.33	0.36	0.51	0.39	0.34	0.46	0.37
Ami	0.83	0.86	0.86	0.90	0.88	0.89	0.83	0.86	0.87	0.88
Leo	0.41	0.46	0.44	0.49	0.50	0.48	0.49	0.39	0.64	0.44

Table 3 (continued)

Loadings of CPI 260® Factored Scales for U.S. and International Samples

Scale	Danish	Dutch	European Spanish	French	German	Latin/North American Spanish	Simplified Chinese	Swedish	Traditional Chinese	U.S. English
					Factor 3					
Do	0.21	0.12	0.10	-0.07	0.00	-0.08	0.17	0.04	-0.01	-0.10
Cs	0.57	0.48	0.03	0.32	0.34	0.14	0.06	0.41	0.11	0.37
Sy	0.33	0.23	0.15	0.04	0.06	-0.07	0.19	0.12	-0.08	0.07
Sp	0.52	0.48	0.24	0.31	0.32	0.21	0.27	0.30	0.02	0.34
Sa	0.23	0.15	0.20	-0.01	0.03	-0.10	0.22	0.07	0.02	-0.01
In	0.30	0.28	0.25	0.08	0.11	0.01	0.32	0.14	0.08	0.06
Em	0.65	0.58	-0.02	0.38	0.41	0.19	-0.12	0.44	0.24	0.45
Re	0.36	0.19	0.61	0.04	-0.01	-0.10	0.67	0.20	-0.23	0.07
So	0.03	0.10	0.52	-0.01	-0.02	-0.23	0.51	0.01	-0.16	-0.25
Sc	-0.08	-0.05	0.12	-0.09	-0.08	-0.10	0.13	0.05	0.14	-0.13
Gi	-0.04	-0.05	-0.06	-0.09	-0.06	-0.10	0.03	0.10	0.13	-0.18
Cm	0.01	0.04	0.87	-0.06	-0.17	-0.37	0.81	-0.11	-0.35	-0.21
Wb	0.26	0.24	0.37	0.02	0.09	-0.03	0.40	0.10	-0.02	-0.01
To	0.58	0.58	0.19	0.36	0.50	0.34	0.23	0.60	0.40	0.41
Ac	0.09	-0.02	0.56	-0.14	-0.14	-0.23	0.64	-0.16	-0.27	-0.18
Ai	0.72	0.70	0.31	0.43	0.56	0.38	0.33	0.68	0.31	0.61
Cf	0.50	0.44	0.36	0.19	0.27	0.12	0.50	0.37	0.01	0.30
Is	0.52	0.59	0.34	0.27	0.39	0.24	0.38	0.48	0.04	0.31
Fx	0.87	0.86	-0.14	0.86	0.87	0.84	-0.15	0.89	0.89	0.82
Sn	0.09	-0.05	0.12	0.30	0.10	0.14	0.36	0.07	0.07	0.41
Mp	0.41	0.33	0.06	0.12	0.20	0.13	0.06	0.35	0.23	0.14
Wo	0.39	0.39	0.36	0.17	0.17	-0.05	0.45	0.30	0.00	0.12
Ct	0.82	0.74	0.13	0.64	0.72	0.62	0.17	0.73	0.73	0.70
Lp	0.26	0.19	0.28	-0.07	0.03	-0.11	0.36	0.08	-0.09	-0.07
Ami	0.31	0.30	0.20	0.17	0.21	0.08	0.27	0.31	0.12	0.09
Leo	-0.29	-0.26	0.25	-0.46	-0.29	-0.40	0.36	-0.27	-0.11	-0.67

Table 3 (continued)

Loadings of CPI 260® Factored Scales for U.S. and International Samples

						Factor 4				
Scale	Danish	Dutch	European Spanish	French	German	Latin/North American Spanish	Simplified Chinese	Swedish	Traditional Chinese	U.S. English
Do	0.22	0.18	-0.10	0.15	0.19	-0.10	0.00	-0.08	-0.01	0.06
Cs	0.23	0.27	0.18	0.25	0.40	-0.05	0.16	0.08	0.11	0.11
Sy	0.27	0.18	-0.07	0.13	0.16	-0.14	0.04	-0.01	-0.08	0.15
Sp	0.07	-0.04	0.23	-0.15	-0.15	0.11	0.17	-0.19	0.02	-0.07
Sa	0.24	0.12	-0.11	0.05	0.13	0.06	0.02	-0.12	0.02	0.03
In	0.17	0.00	0.05	0.01	0.00	-0.08	0.15	-0.18	0.08	-0.11
Em	0.23	0.18	0.21	0.20	0.29	0.01	0.15	0.04	0.24	0.10
Re	0.66	0.68	-0.03	0.77	0.64	0.32	0.06	0.46	-0.23	0.50
So	0.44	0.05	-0.09	0.13	0.13	0.10	0.00	0.03	-0.16	0.23
Sc	0.16	0.14	-0.03	0.32	0.25	0.02	0.12	0.11	0.14	0.17
Gi	0.15	0.19	-0.04	0.33	0.33	-0.18	-0.06	0.04	0.13	0.13
Cm	0.62	0.14	0.01	0.28	-0.15	0.59	-0.05	0.13	-0.35	0.57
Wb	0.15	-0.16	0.07	-0.09	-0.08	0.02	0.06	-0.29	-0.02	-0.04
To	0.24	0.11	0.35	0.20	0.21	0.11	0.33	-0.01	0.40	-0.03
Ac	0.75	0.61	-0.15	0.68	0.61	0.07	-0.11	0.35	-0.27	0.57
Ai	0.31	0.30	0.40	0.28	0.36	0.01	0.44	0.05	0.31	0.10
Cf	0.44	0.39	0.11	0.35	0.37	0.07	0.23	0.05	0.01	0.17
Is	0.25	0.25	0.32	0.17	0.14	0.02	0.25	-0.04	0.04	0.07
Fx	-0.09	-0.16	0.85	-0.11	-0.15	-0.07	0.90	0.04	0.89	-0.23
Sn	0.21	0.40	0.43	0.32	0.18	0.78	0.30	0.77	0.07	0.51
Mp	0.30	0.19	0.07	0.23	0.35	-0.12	0.13	-0.05	0.23	0.06
Wo	0.34	0.15	0.12	0.10	0.06	0.09	0.12	-0.05	0.00	0.14
Ct	0.04	0.04	0.62	0.04	0.02	0.15	0.73	0.05	0.73	-0.17
Lp	0.31	0.21	-0.08	0.23	0.23	-0.05	0.04	-0.09	-0.09	0.15
Ami	0.18	0.05	0.14	0.07	0.11	0.03	0.12	-0.10	0.12	0.06
Leo	0.15	-0.04	-0.45	0.05	0.03	-0.28	0.00	-0.22	-0.11	-0.03

Table 4

Coefficients of Congruence for CPI 260® Factors in U.S. and International Samples

	U.S. factor 1	U.S. factor 2	U.S. factor 3	U.S. factor 4
Danish factor 1	.97			
Danish factor 2	.26	.98		
Danish factor 3	.71	.50	.84	
Danish factor 4	.56	.73	.12	.83
	U.S. factor 1	U.S. factor 2	U.S. factor 3	U.S. factor 4
Dutch factor 1	.98			
Dutch factor 2	.31	.98		
Dutch factor 3	.67	.51	.84	
Dutch factor 4	.42	.54	.24	.83
	U.S. factor 1	U.S. factor 2	U.S. factor 3	U.S. factor 4
European Spanish factor 1	.98			
European Spanish factor 2	.39	.99		
European Spanish factor 3	.20	.17	.95	
European Spanish factor 4	.48	.67	.04	.74
	U.S. factor 1	U.S. factor 2	U.S. factor 3	U.S. factor 4
French factor 1	.99			
French factor 2	.39	.99		
French factor 3	.35	.21	.97	
French factor 4	.34	.64	.13	.85
	U.S. factor 1	U.S. factor 2	U.S. factor 3	U.S. factor 4
German factor 1	.98			
German factor 2	.36	.98		
German factor 3	.48	.33	.94	
German factor 4	.46	.64	.21	.66
	U.S. factor 1	U.S. factor 2	U.S. factor 3	U.S. factor 4
Latin/North American Spanish factor 1	.98			
Latin/North American Spanish factor 2	.45	.98		
Latin/North American Spanish factor 3	.19	.02	.93	
Latin/North American Spanish factor 4	-.13	.05	.26	.66
	U.S. factor 1	U.S. factor 2	U.S. factor 3	U.S. factor 4
Simplified Chinese factor 1	.99			
Simplified Chinese factor 2	.41	.99		
Simplified Chinese factor 3	.37	.33	.85	
Simplified Chinese factor 4	.49	.70	.06	.75
	U.S. factor 1	U.S. factor 2	U.S. factor 3	U.S. factor 4
Swedish factor 1	.99			
Swedish factor 2	. 33	.99		
Swedish factor 3	.52	.49	.89	
Swedish factor 4	-.27	-.01	.22	.70
	U.S. factor 1	U.S. factor 2	U.S. factor 3	U.S. factor 4
Traditional Chinese factor 1	.98			
Traditional Chinese factor 2	.46	.98		
Traditional Chinese factor 3	.18	.16	.79	
Traditional Chinese factor 4	-.20	.06	.09	.72