

A LONGITUDIAL COMPARISON OF HOFSTEDE'S MEASURING TOOLS VSM 94 AND VSM 2013

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Abstract:

Geert Hofstede's work on national culture and its characteristic dimensions has been the subject of discussion and debate since its inception in the late 1970's. In this paper we examined Geert Hofstede's theory of national culture dimensions. We compared the results of the two versions of Value Survey Module (VSM 94 and VSM 2013). The participants were divided into several groups depending on the year of data collection and the VSM version. Afterwards comparisons were made between the participant groups for which national culture dimensions were measured with VSM 94, separate comparisons were made between participants groups for which national culture dimensions were measured with VSM 2013, and comparisons which were comparing participant groups VSM 94 and participant groups VSM 2013. Some significant differences were found.

Keywords: Hofstede, cultural model, VSM 94, VSM 2013

1. HOFSTEDÉ'S THEORY OF CULTURAL DIMENSIONS

The main interest of our work was the national and organizational cultural dimensions of Geert Hofstede. Intercultural (Social) Psychology is a comparative science that examines the impact of culture on an individual. He published his theory in 1970, which originally contained 4 cultural dimensions, during the years of research were added two more, so the total number increased to six. He is currently working and empirically verifying the cultural dimension that is not yet part of the 2013 Questionnaire Module 2013. The dimensions are as follows: Power Distance index (PDI), Collectivism versus Individualism (IDV), Masculinity versus Femininity (MAS), Uncertainty avoidance index (UAI), Long-term versus Short orientation (LTO), Indulgence versus restraint. While called cultural dimensions here, Hofstede call them value dimensions. The aim of our paper is to verify the Hofstede concept of cultural dimensions using Slovak, American and Mexican culture through analysis and comparison of results, and to track the shift of indices of a particular nationality caused by the time difference of two measurements.

1.1. Mental programming

Every human being carries a certain pattern of feeling and thinking that has been learned throughout his life. Most were adopted during childhood when one learns and adapts the most easily (Hofstede, 2010). Hofstede (2010) named it mental programming, during which we gain new insights. Mental programs are expressive of moral circles and therefore social circles. Mental programs differentiate members of social groups. Dimensions of societal, organizational, and occupational social environments are expressive of mental programs. Societies, organizations, and occupations are social environments. Culture as mental programs, or emotional, cognitive, and action patterns is derived from or generated from social environments. Mental programs collectively uncollated are configurative habits of emotion, cognition and action. The dispositions or attitudes accepted manners of interaction. They are grounded in a social environment lived-in, or multiple social environments. These preferred forms of interaction are cultural. They are the "unwritten rules of the social game" (Hofstede, Hofstede & Minkov, 2010).

1.2. Experiment 1

In the first part of our research we stated 3 hypothesis and 1 research question. Our research sample consisted of 448 participants of Slovak, American and Mexican nationalities. Respondents were divided into 5 groups, according to their nationality, also according to the data collection date. Testing was performed between five groups using the nonparametric Kruskal Wallis H test. Mann Whitney's U test was used for nonparametric comparison of paired pairs. The resulting cultural dimension indices were calculated using the formulas formed by the meanings of the four items that are multiplied by the appropriate value (Hofstede & Minkov, 2012).

Hypothesis 1: We expect a significant difference between the index scores in Mexico, Slovakia and the US.

In Table no. 1 we present index values for individual countries and individual dates of independent measurements. Using the Kruskal-Wallis test, we found a statistically significant difference ($p < 0.05$) for all the variables examined, so the differences between the groups were not coincidental. This was confirmed by Hypothesis no. 1 in which we assumed that there would be significant differences between countries and groups.

Table 1: Indices of Mexico, SK 2014/15, SK 2016, USA 2014, USA 2015

	Indices VSM 2013				
	Mexico 2016 N=59	Slovakia 2014/2015 N=142	Slovakia 2016 N=86	USA 2014 N=104	USA 2015 N=57
<i>PDI</i>	-1,19	20,63	20,17	8,75	25,44
<i>IDV</i>	4,15	45,35	37,44	-0,34	-4,29
<i>MAS</i>	18,98	35	3,66	-	-
<i>UAI</i>	-34,74	-71,87	30,83	-31,87	-22,19
<i>LTO</i>	6,10	-4,58	7,73	-52,6	-59,29
<i>IVR</i>	71,86	93,99	-47,33	64,95	65,35

Hypothesis 2: We expect that the index scores of the groups of Slovak respondents from 2014/2015 and 2016 (marked SK 2014/15 and SK 2016) will not differ significantly.

Using Mann - Whitney U test, we find differences between groups

Hypothesis 2 has been confirmed to us, the shift of values is not observable in all dimensions, and shift is not one-dimensional in dimensions where statistically different values have been demonstrated.

Table 2: Mann-Whitney U test results for SK 2014/15 and SK 2016;

Test Statistics ^{a,b}						
	<i>PDI</i>	<i>IDV</i>	<i>MAS</i>	<i>UAI</i>	<i>LTO</i>	<i>IVR</i>
<i>Mann – Whitney U</i>	5985,50	5531,50	4020,00	874,00	5441,50	667,50
<i>Asymp. Sig. (2-tailed)</i>	,802	,221	,000	,000	,167	,000

Hypothesis 3: We assume that the US 2014 and US 2015 index scores for US will not differ significantly. When examining the shift in values of cultural dimensions in groups from the United States of America in 2015 and 2016, we performed the Mann-Whitney U test, similarly to the previous groups. This finding has been confirmed by Hypothesis # 3, so we could not make a significant difference.

Table 3: Mann-Whitney U test results for US 2014 and US 2015

Test Statistics ^{a,b}					
	<i>PDI</i>	<i>IDV</i>	<i>UAI</i>	<i>LTO</i>	<i>IVR</i>
<i>Mann – Whitney U</i>	2358,00	2884,50	2580,50	2943,50	2830,50
<i>Asymp. Sig. (2-tailed)</i>	,031	,771	,174	,942	,636

Question 1: Are the different language versions of VSM 2013 compatible and comparable? How does the translation affect the questionnaire?

When language of an individual is formed, communication is formed between family members, groups, societies. The exchange of meaning among people is called social communication. Using the language we build up verbal communication that is mediated by the language and its meaning found in it. Verbal communication runs in at least two parallel lines, i.e., in thematic (what is being discussed), and in the interpretation (what meaning and meaning is attached) (Výrost & Slaměník, 2008).

Most intercultural projects - especially those focused on research - require translation from language to language. In such cases, it is very important to make sure that the translation is as close as possible to the original version and intent. Sometimes it is necessary to use several words, phrases, ideas to express the same meaning. At first glance similar words may have different meaning, so they require additive clarification of meaning (Shiraev & Levy, 2000).

There may also be words and phrases in one language that simply do not exist in other languages. Therefore, in formulating a questionnaire to examine intercultural psychology, it is recommended not to use proverbs, metaphors, words of vague significance, precisely because of the questionnaire transcription (Shiraev & Levy, 2000).

Cultural-based translations are considered the most complicated translations at all. When a translator does not have any cultural background or a background of background, he encounters difficulties in trying to pass on the overall meaning of cultural patterns found in the original text (Ulvydiene, 2013).

The importance of the language barrier is also supported by the fact that in today's globalized society, an immense amount of work, research, and books is being created that seeks to identify the causes and causes of intercultural misunderstandings, including language, language barrier. Hofstede himself advised investigators to check the VSM questionnaire before using it in practice. Therefore, we can not give a clear answer to our research question. It is obvious that translation still changes meaning to some extent.

1.3. Experiment 2

In the second part of our paper we compared the two versions of Hofstede's measuring tool, the VSM 94 and VSM 2013.

Hypothesis 1: As to the "VSM 94"-version of the questionnaire, the score for the PDI-, IDV-, MAS-, UAI- and LTO-indexes of the individual years 2008, 2009, 2010, 2012 and 2013 will not significantly differ from their common score.

In Table 4, we provide the mean index-values and median-index values for the individual groups, as well as all "VSM 94"-groups tested jointly (common score). Just as assumed, the T-test conducted within the Hypothesis 1 shows that the index score of the individual scores does not significantly differ from the common score.

The score of the individual indexes (with the exception of the IDV-index, where no such trend occurred) shows the prevailing trend that a slightly differing index-score between the individual groups (i.e. the groups 2008 through 2012 for the PDI-index score of M=54,90 SD=3,82; and MAS-index M=53,68 SD=8,81; the groups 2009, 2012, 2013 for the UAI-index score M=-60,67 SD=1,78; the groups 2008, 2009, 2010, 2013 and the LTO-index M=7,90 SD=0,47) — gets disrupted by one or two groups with a more significantly differing score.

Table 4: Indices of groups measured with VSM 94

Groups VSM94	PDI	IDV	MAS	UAI	LTO
2008	56,75	-13,07	-64,21	-50,44	8,42
2009	49,24	-5,45	-42,73	-61,67	7,27
2010	56,10	-22,79	-55,00	-70,22	7,94
2012	57,54	-8,11	-52,79	-58,61	13,77
2013	69,18	-31,27	-81,64	-61,73	8,00
Common score	58,36	-17,27	-60,29	-60,78	9,27

Hypothesis 2: For the questionnaire version "VSM 2013", the score for the indexes PDI, IDV, MAS, UAI, LTO and IVR of the groups of grade 2, 3, 4 and 5 (2014) will not significantly differ from their *common score*.

According to the T-test results, the index-scores of individual scores (2nd, 3rd, 4th and 5th grade in 2014) do not significantly differ from their common score as we postulated in Hypothesis 2. In Table 5 you will find the score of those indexes for each of the groups, as well as the *common score*.

With those groups, the above trend appeared only in the PDI-index, where the 2nd grade group (2014) scored 4,56 (with a difference of 16,86), as opposed to the average of the remaining group (M=21,42; SD=0,33).

The highest difference of the *common score* for the groups of the 2nd, 3rd, 4th and 5th grade (in 2014) and of the individual scores of those groups — reaches 13,26 for the PDI-index; 6,73 for the IDV-index; 15,47 for MAS; 11,71 for UAI; 7,29 for LTO and 6,36 for the IDV-index.

Table 5: Indices of groups measured with VSM 2013

Groups VMS 2013	PDI	IDV	MAS	UAI	LTO	IDV
2014 2 nd grade	4,56	44,33	17,89	-81,11	-0,44	99,67
2014 3 rd grade	21,06	39,77	34,47	-62,73	-7,35	84,77
2014 4 th grade	21,71	54,00	27,00	-80,29	0,86	93,57
2014 5 th grade	21,49	50,67	45,97	-78,43	-13,36	100,75
Common score	17,82	46,50	33,36	-74,44	-6,43	94,39

Hypothesis 3: The score of the PDI-, IDV-, MAS-, UAI- and LTO-index for the groups with the "VSM 94"-questionnaire will differ significantly from those index-scores for the groups with the "VSM 2013"-questionnaire.

We conducted the T-test for individual groups, comparing the group-score of the individual indexes acquired from two different versions of the "VSM"-questionnaire (Table 6). We compared five "VSM 94"-tested groups with four "VSM 2013"-tested in the score of the indexes PDI, IDV, MAS, UAI and LTO. The test results support the Hypothesis 3 in the score of all five cultural dimension indexes. The "VSM 94"-tested groups achieve significantly different scores ($p < 0,05$) of the indexes PDI, IDV, MAS, UAI, as well as LTO compared to the "VSM 2013"-tested groups. The results of the normality-tests in the Table X prove a normal distribution of the index-score in the individual groups.

Table 6: T-test for individual groups

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PDI	,232	9	,176	,887	9	,186
IDV	,249	9	,112	,852	9	,078
MAS	,240	9	,143	,867	9	,113
UAI	,218	9	0,2	,913	9	,334
LTO	,253	9	,102	,909	9	,310

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Interval of the		
									Lower	Upper	
PDI	Equal variances assumed	,307	,597	7,803	7	,000	40,55700	5,19766	28,26648	52,84752	
	Equal variances not assumed			7,647	5,985	,000	40,55700	5,30339	27,57241	53,54159	
IDV	Equal variances assumed	2,032	,197	-10,344	7	,000	-63,33050	6,12220	-77,80721	-48,85379	
	Equal variances not assumed			-10,990	6,592	,000	-63,33050	5,76278	-77,13020	-49,53080	
MAS	Equal variances assumed	,174	,689	-9,980	7	,000	-90,60650	9,07889	-112,07467	-69,13833	
	Equal variances not assumed			-10,244	6,985	,000	-90,60650	8,84468	-111,52973	-69,68327	
UAI	Equal variances assumed	,289	,607	2,879	7	,024	15,10600	5,24618	2,70076	27,51124	
	Equal variances not assumed			2,808	5,826	,032	15,10600	5,37954	1,84659	28,36541	
LTO	Equal variances assumed	6,123	,043	4,431	7	,003	14,15250	3,19406	6,59975	21,70525	
	Equal variances not assumed			4,038	3,780	,017	14,15250	3,50510	4,19310	24,11190	

Hypothesis 4: The groups of the years 2008, 2009, 2010, 2012 and 2013 will not mutually differ significantly in their response-values to the individual items of questionnaire "VSM 94".

Table 7 show the results of the Kruskal-Wallis H-test for the individual items of the "VSM 94"-questionnaire, testing the differences between from the groups of 2008, 2009, 2010, 2012 and 2013. The results support the validity of Hypothesis 4 for most, however not for all items in the questionnaire. We see a significant difference ($p < 0,05$) between the groups in items No. 01, 04, 09, 11, 15 and 17.

Table 7 contains the mean values and median values of the individual "VSM 94"-questionnaires for from the groups of the years 2008, 2009, 2010, 2012 and 2013. The same median values to the responses in all the mentioned groups occur with most of the items (11 from 20), the items No. 01, 06, 07, 11, 12, 15, 17, 18 and 20 being an exception.

Table 7: Kruskal-Wallis H-test for the individual items of VMS 94

	PDI				IDV				MAS			
	03	06	14	17	01	02	04	08	05	07	15	20
Chi-Square	9,338	8,995	2,104	16,206	12,044	5,093	24,186	6,790	5,109	3,383	10,422	4,952
df	4	4	4	4	4	4	4	4	4	4	4	4
Asymp. Sig.	,053	,061	,717	,003	,017	,278	,000	,147	,276	,496	,034	,292

	UAI				LTO			
	13	16	18	19	09	10	11	12
Chi-Square	1,683	4,128	4,402	2,705	14,539	9,295	13,130	4,463
df	4	4	4	4	4	4	4	4
Asymp. Sig.	,794	,389	,354	,608	,006	,054	,011	,347

Hypothesis 5: The "VSM 94"-tested and "VSM 2013"-tested group will not significantly differ significantly in the response-values of identical items between the questionnaires "VSM 94" and "VSM 2013".

Based upon an analysis of the manual, the items numbered in the VSM 94-/VSM 2013-format as 06 / 07; 14 / 20; 17 / 23; 01 / 01; 04 / 04; 13 / 15 (with a reversed value of the responses); 16 / 21; 19 / 24; 10 / 14 — have been identified as being identical between the versions of the questionnaires "VSM 94" and "VSM 2013". Table X provides the mean- and median-values of those items, i.e. separately tested for the "VSM 94"-group (consisting of participants from the groups of 2008, 2009, 2010, 2012 and 2013), and separately for the "VSM 2013"-tested group (consisting of participants from groups of the 2nd, 3rd, 4th and 5th grade (in 2014)).

We conducted a Mann-Whitney U-test comparing the values of identical items between the groups test with "VSM 94" and "VSM 2013" version of the questionnaire. The test results shown in Table 8 comply with Hypothesis 6 in items 14 / 20; 17 / 23 and 01 / 01. The values of the item-pairs No. 06 / 07; 04 / 04; 13 / 15; 16 / 21; 19 / 24 and 10 / 14 do significantly ($p < 0,05$) differ between the tested groups and do not support the Hypothesis 6.

Table 8: Mann-Whitney U-test comparing the values of identical items between groups tested with VMS 94 and VSM 2013

	PDI			IDV		UAI			LTO
	06 / 07	14 / 20	17 / 23	01 / 01	04 / 04	13 / 15rev	16 / 21	19 / 24	10 / 14
Mann-Whitney U	16436,000	27567,000	27008,000	28107,500	24883,000	23569,500	13067,000	25798,000	23171,000
Wilcoxon W	39227,000	50358,000	49799,000	50898,500	47674,000	46360,500	35858,000	63473,000	45962,000
Z	-8,843	-1,231	-1,486	-,797	-3,012	-4,049	-11,009	-2,327	-4,270
Asymp. Sig. (2-tailed)	,000	,218	,137	,425	,003	,000	,000	,020	,000

Skupiny	PDI						IDV				UAI				LTO			
	06. / 07.		14. / 20.		17. / 23.		01. / 01.		04. / 04.		13. / 15.rev		16. / 21.		19. / 24.		10. / 14.	
	M	Md	M	Md	M	Md	M	Md	M	Md	M	Md	M	Md	M	Md	M	Md
VSM 94	2,82	3	3,75	4	3,11	3	1,68	2	2,03	2	2,65	3	3,43	4	3,12	3	3,07	3
VSM 2013	2,14	2	3,72	4	2,99	3	1,63	2	1,84	2	2,93	3	2,26	2	3,31	3	2,8	3

Hypothesis 6: The "VSM 94"-tested group and the one tested with "VSM 2013" will mutually differ significantly in the response-values to items being not identical between "VSM 94" and "VSM 2013", while being at the same time part of the same cultural dimension index.

A list of item-pairs not identified as item-pairs and being simultaneously a formula-part of the same index — is shown in Table X and X. At the same time, Table X contains the mean values and median values of items, separately for the "VSM 94"-tested group (consisting of participants from the groups of 2008, 2009, 2010, 2012 and 2013) and separately for the "VSM 2013" tested (consisting of participants from the groups of the 2nd, 3rd, 4th and 5th grade (2014)).

The Mann-Whitney U-test compares the item-values of both VSM-questionnaire versions, i.e. between the participant groups tested with "VSM 94" and the version "VSM 2013". The results are shown in Table 9 and they prove Hypothesis 7 with almost all item-pairs (with the exception of the pairs No. 03 / 02; 08 / 06 and 15 / 08.) All the remaining pairs do significantly ($p < 0,05$) differ in the response-values to the items between the "VSM 94"- and "VSM 2013"-tested group.

Table 9: Mann-Whitney U-test comparing the item-values of both VSM-questionnaire versions

	PDI		IDV				MAS								UAI		LTO	
	03 / 02		02 / 09		08 / 06		05 / 05		07 / 10		15 / 08		20 / 03		18 / 18		12 / 19	
Mann-Whitney U	27925,500		18346,000		28899,000		23007,500		25657,000		27734,000		14000,000		12113,500		22580,500	
Wilcoxon W	65600,500		56021,000		51690,000		45798,500		48448,000		65409,000		36791,000		34904,500		45371,500	
Z	-,967		-7,640		-,200		-4,506		-2,455		-,986		-10,643		-11,632		-4,572	
Asymp. Sig. (2-tailed)	,334		,000		,841		,000		,014		,324		,000		,000		,000	

Skupiny	PDI		IDV				MAS								UAI		LTO	
	03. / 02.		02. / 09.		08. / 06.		05. / 05		07. / 10.		15. / 08.		20. / 03.		18. / 18.		12. / 19.	
	M	Md	M	Md	M	Md	M	Md	M	Md	M	Md	M	Md	M	Md	M	Md
VSM 94	2,05	2	2,31	2	1,74	2	2,07	2	2,35	2	3,11	3	2,85	3	2,98	3	3,54	4
VSM 2013	2,15	2	2,85	2	1,73	2	1,81	2	2,16	2	3,19	3	1,89	2	1,86	2	3,14	3

2. CONCLUSION

In this paper we examined Hofstede's cultural dimensions in 2 different ways. In the first part of our research we compared 3 nationalities (Mexican, American and Slovakian). The first hypothesis was seeking for differences in the index scores of Mexico, US and Slovakia. The second and the third hypothesis were observing index shift over time between 2 data collections of Slovakia 2014/15 and between US 2014 and US 2015. Our research question was examining the comparability of various language versions of VSM 2013.

The second part of our experiment focused on comparing 2 versions of Hofstede's measuring tool, the VMS 94 and VSM 2013. The first hypothesis was comparing indices from different year of data collection with the common score, measuring tool VSM 94. The second hypothesis was comparing indices from different research groups with the common score, measuring tool VSM 2013. The third hypothesis examined the differences in PDI, IDV, MAS, UAI and LTO indices between VMS 94 and VSM 2013. The fourth hypothesis expected no significant difference between the groups of 2008, 2009, 2010, 2012 and 2013 measured with VMS 94. The fifth hypothesis expected no significant differences between the response values of identical items of VSM 94 and VSM 2013. Our last, the sixth hypothesis anticipated a difference between groups tested with VSM 94 and VSM 2013 in the response values of items not being identical between VSM 94 and VSM 2013.

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