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Do we have to combine Values in the Schwartz' Human Values Scale? A Comment on the Davidov Studies

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This paper addresses the question if it is meaningful to group basic values from the values model of Schwartz, which is a vital component of the European Social Survey (ESS), and presents an alternative approach. The suggestion to group values is raised in several studies led by Eldad Davidov, which more precisely conclude that only four of the original ten values can be studied as such (Hedonism, Stimulation, Self-direction, and Security), whereas the remaining six values have to be grouped in three pairs in order to solve the problem of a lack of discriminant validity. This paper indicates that the grouping was necessary because of the choice strategy of items for the ESS. The items chosen for the different values are chosen in such a way that the correlation within the value is relatively low and sometimes the correlations with items of other values is higher. We show this in three steps: the first one based on a German-study, looking for the correlation between the values in the original Portrait Values Questionnaire (PVQ). Secondly, the ESS selection from this wider set of items is used to show that this choice leads to much higher correlations between the values. Thirdly, an analysis with an alternative choice from the same PVQ set of items is done to show that this high correlation is not necessary. In this way we show that the high correlation between the values in the ESS is due to the selection of the items in the ESS and is not intrinsic to the values studied.
Keywords: Schwartz Human Values scale, ESS, discriminant validity, factor model, misspecifications

1 Introduction

The study of human values is vital within the European Social Survey (ESS[1]), that aims to develop and conduct a systematic study of changing values, attitudes, attributes and behaviour patterns within Europe (Jowell et al., 2007). The ESS has selected the values model of Shalom Schwartz for two main reasons: it is one of the most comprehensive models; and it has been extensively validated cross-culturally. Nonetheless, this validation has been mainly based on the initial measurement instrument of Schwartz (1994). The abbreviated instrument for the ESS, on the other hand, counts only with a few critical subsequent analyses, mainly led by Eldad Davidov. Moreover, the results of these analyses are not completely satisfactory, as they suggest to group several sets of values which show low discriminant validity. This suggestion solves the problem of correlations near to one or bigger than one, but causes the meaning of the individual values to get lost. Therefore, the present study aims to re-test the Schwartz model as operationalized within the ESS. This re-test is done with several samples from the ESS as well as from other sources, and has both qualitative and quantitative steps.

The structure of the paper is as follows. Section two shortly presents the general theory on values of Schwartz, its operationalization through the Portrait Values Questionnaire (PVQ), and the results of existing tests of the theory. Section three points out the method of this paper. Section four presents the results and section five presents the conclusions and avenues for further research.

2 The Values Model of Schwartz

In this section we resume the theoretical model of human values as proposed by Shalom Schwartz, its general operationalization through the portrait values questionnaire, and its specific operationalization within the ESS. We conclude by reviewing the existing tests of the model with ESS data.

2.1 Theoretical Model

Schwartz theoretically derives a list of 10 motivational types of values from three universal requirements: (1) needs of individuals as biological organisms (abbreviated as *"organism"*); (2) requisites of coordinated social interaction (abbreviated as *"interaction"*); and, (3) requirements for the smooth functioning and survival of groups (abbreviated as *"group"*) (1994:21). One value type can originate from one or more of these three universal requirements, as shown in Table 1 below. Schwartz claims exhaustiveness of this set of 10 basic value types; "It is possible to classify virtually all the items found in lists of specific values from different cultures [. . .] into one of these ten motivational types of values" (1994:22-23). The last column in Table 1 shows the single values from the initial 56-item instrument (1994).

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[1] http://www.europeansocialsurvey.org

Table 1: Ten basic values and related specific values (Schwartz)

Value type and Definition	Source	Specific values from 56-item instrument
Benevolence: Preservation and enhancement of the welfare of people with whom one is in frequent personal contact.	Organism Interaction Group	Honest, forgiving, loyal, spiritual life, helpful, responsible, meaning in life, true friendship, mature love
Universalism: Understanding, appreciation, tolerance and protection for the welfare of *all* people and for nature.	Organism Group	Inner harmony, social justice, world at peace, protect environment, equality, broad minded, unity with nature, world of beauty, wisdom
Self-direction: Independent thought and action-choosing, creating, exploring.	Organism Interaction	Self-respect, choosing own goals, creativity, curious, freedom, independent
Stimulation: Excitement, novelty and challenge in life	Organism	Exciting life, varied life, daring
Hedonism: Pleasure and sensuous gratification for oneself.	Organism	Pleasure, enjoying life
Achievement: Personal success through demonstrating competence according to social standards.	Interaction Group	Ambitious, successful, capable, intelligent, influential
Power: Social status and prestige, control or dominance over people and resources	Interaction Group	Preserving public image, social recognition, authority, wealth, social power
Security: Safety, harmony and stability of society, of relationships and of self.	Organism Interaction Group	National security, sense of belonging, reciprocation of favours, clean, social order, family security, healthy
Conformity: Restraint of actions, inclinations and impulses likely to upset or harm others and violate social expectations or norms.	Interaction Group	Obedient, honour elders, politeness, self discipline
Tradition: Respect, commitment and acceptance of the customs and ideas that traditional culture or religion provide.	Group	Accepting my portion in life, moderate, devout, detachment, respect for tradition, humble

The single values can be classified in a circular structure, where the closer the values are in either direction around the circle, the more positive the relationship between them; The more distant they are, the more negative their interrelationship (Schwartz, 1994; 2007). This paper further focuses on individual values, rather than the higher level structural view.

2.2 Schwartz's General Portrait Value Questionnaire

The values model of Schwartz has been operationalized in different ways throughout the years. Differences regard: the number of specific addressed values; the formulation of the requests for an answer; and the response scales. The Portrait Values Questionnaire (PVQ) is a relatively recent way of operationalizing. According to Schwartz, the PVQ intends to reduce cognitive complexity of the items, through presenting respondents short verbal portraits of different people: the person's goals, aspirations, or wishes that point implicitly to the importance of a single value (Schwartz, in http://www.europeansocialsurvey.org/, section on questionnaire development - Chapter 7). The portrait is drawn in two sentences. One sentence uses wordings like: it is (very) important to him/her. The other sentence uses the words he/she thinks; he/she likes, he/she believes. For each portrait, respondents have to answer: "How much like you is this person?". Answers are given on a 6 point asymmetric bipolar categorical scale (very much like me, like me, somewhat like me, a little like me, not like me, not like me at all). People are thus asked to compare the portrait to themselves, rather than themselves to the portrait, and focus therefore on the similarities rather than differences between the portrait and themselves (Schwartz, 2007). The original PVQ contains 40 items (see Appendix 1).

2.3 Schwartz's PVQ within the ESS

Given space restrictions, the operationalization of Schwartz' values model within the ESS had to be reduced to less then the original 40 items. As a result, the PVQ employed in the ESS contains 21 items and is intended to measure the same 10 basic values as former instruments. Table 2 presents the survey items, organized per value.

Table 2: Items of the ESS instrument

Value type	Items (abbreviated labels as used in ESS between brackets)
Benevolence	- It's very important to him to help the people around him. He wants to care for their well-being. (iphlppl) - It is important to him to be loyal to his friends. He wants to devote himself to people close to him. (iplylfr)
Universalism	- He thinks it is important that every person in the world should be treated equally. He believes everyone should have equal opportunities in life. (ipeqopt) - It is important to him to listen to people who are different from him. Even when he disagrees with them, he still wants to understand them. (ipudrst) - He strongly believes that people should care for nature. Looking after the environment is important to him. (impenv)
Self-direction	- Thinking up new ideas and being creative is important to him. He likes to do things in his own original way. (ipcrtiv) - It is important to him to make his own decisions about what he does. He likes to be free and not depend on others. (impfree)
Stimulation	- He likes surprises and is always looking for new things to do. He thinks it is important to do lots of different things in life. (impdiff) - He looks for adventures and likes to take risks. He wants to have an exciting life. (ipadvnt)
Hedonism	- Having a good time is important to him. He likes to 'spoil' himself. (ipgdtim) - He seeks every chance he can to have fun. It is important to him to do things that give him pleasure. (impfun)
Achievement	- It's important to him to show his abilities. He wants people to admire what he does. (ipshabt) - Being very successful is important to him. He hopes people will recognise his achievements. (ipsuces)
Power	- It is important to him to be rich. He wants to have a lot of money and expensive things. (imprich) - It is important to him to get respect from others. He wants people to do what he says. (iprspot)
Security	- It is important to him to live in secure surroundings. He avoids anything that might endanger his safety. (impsafe) - It is important to him that the government ensures his safety against all threats. He wants the state to be strong so it can defend its citizens. (ipstrgv)
Conformity	- He believes that people should do what they're told. He thinks people should follow rules at all times, even when no-one is watching. (ipfrule) - It is important to him always to behave properly. He wants to avoid doing anything people would say is wrong. (ipbhprp)
Tradition	- Tradition is important to him. He tries to follow the customs handed down by his religion or his family. (imptrad) - It is important to him to be humble and modest. He tries not to draw attention to himself. (ipmodst)

2.4 Available Tests of Schwartz's Measurement Instrument within the ESS

Five studies are known till date that have tested the model and operationalization of Schwartz within the ESS (see Table 3).

Schwartz (2007) employed Smallest Space Analysis (SSA), a type of Multidimensional Scaling (MDS), to demonstrate cross-cultural compatibility of the ESS instrument. Nonetheless, the drawing of boundaries around items remains arbitrary, illustrated by: (a) the inclusion of the hedonism value in the openness-to-change orientation in Schwartz (2007), rather than in the theoretically expected self-enhancement orientation (Schwartz, 1994); and (b) the finding that tradition emerges in another location in Schwartz (2007) when compared with previous theory (Schwartz, 1994). Moreover, the analysis of ESS data by Schwartz (2007) showed a low reliability (Cronbach alpha between .36 and .7) of the scales of the basic values. This indicates a loose relationship between basic values and indicators.

Mohler and Wohn (2005) have tested Schwartz's value theory, following the same SSA methodology. In contrast to Schwartz (2007), they could not confirm the theory however, and provide two possible reasons for that: (a) the abbreviated version of the ESS might contain substantial errors and may not cover the initial value constructs adequately; and (b) the random samples of the eligible residential populations aged 15+ of the ESS might be too different from the student-teacher samples that constitute the ground for the development of Schwartz's theory. Additionally, another reason could be the use of raw data by Mohler and Wohn versus the recoded data, based on deviations from the individual means, used by Schwartz.

The latter three studies of Table 3 employed Multiple Group Confirmatory Factor Analysis (MGCFA), and found correlations bigger than one and very close to one between

Table 3: Studies that have tested the ESS values-model

	Mohler and Wohn (2005)	Schwartz (2007)	Davidov and Schmidt (2007)	Davidov, Schmidt and Schwartz (2008)	Davidov (2008)
Aim	To replicate the model with ESS data	To replicate the model with ESS data	To test equivalence across countries	To test equivalence across countries	To test equivalence across countries and across time
Data	1st round ESS raw data from 19 countries	1st round ESS corrected data, (centred value scores)	1st round ESS raw data, from the 3 Benelux countries	1st round ESS raw data, from 20 countries	2nd round ESS raw data, from 25 countries
Method	MDS per country	MDS-SSA	1st order MGCFA	1st order MGCFA	1st order MGCFA
Deviations from the base model	- Change sequence several values in several countries - Join several values in several countries	*Pooled data:* - Location of tradition value - Hedonism was positioned between openness and self enhancement rather than in self-enhancement *Data per country:* - Join some values for some countries - Change some paths	- Join 3 sets of values - Add paths from new values sets to indicators of other values	- Join 3 sets of values - Add paths from new values sets to indicators of other values	- Join 3 sets of values - Add paths from new values sets to indicators of other values

several value constructs. The highly correlated values are more specifically: Universalism with Benevolence; Conformity with Tradition; and Power with Achievement. Only one of these studies provides the detail of the correlations for the three problematic value pairs (Davidov et al., 2007), and is resumed in Table 4. The values within each of the problematic value pairs related so strongly to each other that they cannot be modelled separately (Davidov, 2008). In order to solve this problem, all three Davidov studies group three pairs of the original ten basic values and provides new labels: Universalism with Benevolence becomes UNBE; Conformity with Tradition becomes COTR; and Power with Achievement becomes POAC. The substantial justification behind this grouping of values provided was that the original values are adjacent in the circular structure and therefore theoretically related. However a disadvantage of this approach is that one can not make use of the original values anymore. One has to use the more abstract orientations which have been suggested to exist behind the adjacent values. As we think that working with the original values is more attractive than with the general orientations, we will further elaborate this problem in the following section in order to see if the grouping is really necessary or a consequence of the choice of the items in the ESS.

2.5 More Depth on the Problem and a Possible Explanation

Let us illustrate the problem by an example from the ESS: the relationship between the values Power and Achievement in the UK, Austria and The Netherlands. In table 5 we present the correlations as obtained in the different countries for these variables. The table shows that in all three countries the correlation between the Power items is lower than the correlation between these items and the Achievement items.

In Figure 1 we present the model and the obtained estimates of the parameters of the model, based on these correlation matrices. We see that in all three countries the correlation between the two values is estimated to be very close to 1 suggesting that these values are indistinguishable. Davidov et al. follow Campbell and Fiske (1959) who say that such high correlations indicate lack of discriminant validity and consequently decided in several papers to treat the combination of these two values as one value. But the question is, what value does the combination of Achievement and Power represent?

Therefore, let us look for a moment to the UK data to see why this happens. The correlations within each value are respectively .305 and .587. If we assume that for each value the two items are equally good, the loading would be respectively .55 and .75. From Table 5 we know that the correlation between the items of both values is larger than .4. Consequently the correlation between these two values

Table 4: Correlations higher or close to one reported in Davidov et al. (2008) study

Value Pair	Values	Overall correlation (20 countries)	Number of countries with correlation >1.00	Number of countries with correlation between 0.90-1.00	Maximum correlation
COTR	Conformity, Tradition	0.97	10	8	1.59
POAC	Power, Achievement	0.94	7	9	1.09
UNBE	Universalism, Benevolence	0.95	3	7	1.05

Table 5: Sample correlations (in the sequence: UK, AT, NL)

		power		achievement	
		imprich	iprspot	ipshabt	ipsuces
power	imprich	1.000			
		0.305			
	iprspot	0.310	1.000		
		0.299			
achievement		0.406	0.407		
	ipshabt	0.373	0.419	1.000	
		0.413	0.340		
		0.440	0.417	0.587	
	ipsuces	0.361	0.406	0.561	1.000
		0.446	0.404	0.569	

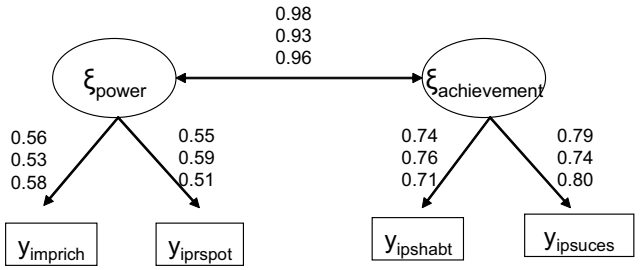

Figure 1. Lisrel estimates of model parameters (in the sequence: UK, AT, NL)

has to be close to 1.0 because the observed correlation .4 = .55x.75xρ, where ρ is the correlation between the values.

For the values Conformity and Tradition, and Benevolence and Universalism similar results have been obtained (see Appendices 2 and 3). Therefore, the Davidov studies also combine these different pairs of values and treat them as single values in the three papers mentioned above. We would like to question this approach. Is it true that these values are inseparable or is this a problem of the specific PVQ version used in the ESS?

A closer look at the face validity of the items for the problematic values aids in further understanding the problem (Saris and Gallhofer, 2007). The 40 items of the PVQ are shown in Appendix 1. Below, we show the set of measures from the PVQ, for each of the problematic values, starting with the value Power. The items in the original PVQ are:

> 2. It is important to him to be rich. He wants to have a lot of money and expensive things. ESS/BEING RICH
> 17. It is important to him to be in charge and tell others what to do. He wants people to do what he says. ESS/IN CHARGE
> 39. He always wants to be the one who makes the decisions. He likes to be the leader. IN CHARGE

We have indicated that the first two items (item 2 and item 17) have been used by the ESS for their shorter version of the questionnaire. One could also have chosen the last two items (item 17 and item 39). The latter seem to be quite comparable because "to be in charge" is quite comparable with "to make the decisions" and "if one likes to be a leader" "one wants people to do what one says". These two items 17 and 39 are rather similar and seem to be direct measures of what we mean by "having power". Item 2 refers to a quite different aspect. It may be that "being rich" gives people power but it is not a direct measure of "power" like the other two items. It may be one of the possible causes of power. Therefore, it may be that item 2 correlates not very highly with the other two items. If this item correlates more with items from another value, for example "achievement", this may lead to a problem. This is indeed the fact, as can be seen in table 5. If one estimates, based on such a correlation matrix, a simple structure two factor model like presented in Figure 1, then there is no other solution possible, as we have shown

above, then maximizing the correlation between the different values. In such cases one will get an estimated correlation between the values close to 1.0 or even larger than 1.0 if the differences in the correlations are too big. This phenomenon would not occur if the items for "power" would have been more homogeneous; i.e. if items 17 and 39 were chosen for the ESS instead of 2 and 17.

A similar argument can be made with respect to the other two values. We continue with the value "Universalism". In the PVQ the following items have been used for this value:

> 3. He thinks it is important that every person in the world be treated equally. He wants justice for everybody, even for people he doesn't know.[2] ESS/EQUALITY
> 8. It is important to him to listen to people who are different from him. Even when he disagrees with them, he still wants to understand them. ESS/OPEN-MINDEDNESS
> 19. He strongly believes that people should care for nature. Looking after the environment is important to him. ESS/ENVIRONMENTALISM
> 23.He believes all the worlds' people should live in harmony. Promoting peace among all groups in the world is important to him. PEACE
> 29. He wants everyone to be treated justly, even people he doesn't know. It is important to him to protect the weak in society. EQUALITY
> 40. It is important to him to adapt to nature and to fit into it. He believes that people should not change nature. ENVIRONMENTALISM

For the ESS the first three items have been chosen. Also these items are rather different in meaning. Item 3 is a typical measure for "equality". Item 19 is a typical indicator for "environmentalism" what is something very different from "equality". Item 8 is probably an indicator for "openmindedness". This is again quite a different variable. So it is rather likely that these items do not correlate much with each other and may be more correlated with items for other values. This is indeed the case for the items of Universalism (see Appendix 3), and therefore it is understandable that again a high correlation between these two values has been found. However, if the items 3 and 29 would have been chosen to represent this value, the correlation within this value would have been much higher and the correlation with items of other values lower and so the correlation between the values would not have been so high.

Finally we have to discuss the value Tradition. This value was measured by the following items in the PVQ:

> 9. He thinks it's important not to ask for more than what you have. He believes that people should be satisfied with what they have. HUMBLE
> 20. Religious belief is important to him. He tries hard to do what his religion requires. ESS/RELIGION
> 25. He believes it is best to do things in traditional ways. It is important to him to follow the customs he has learned. ESS/TRADITION
> 38. It is important to him to be humble and modest. He tries not to draw attention to himself. HUMBLE

The same argument can be made again. The items 20 and 25 chosen for the ESS are quite different and correlate probably not very much. Maybe one or both items correlates higher with items for the value Conformity and thus we can expect a high correlation between these values. The data provided in Appendix 2 confirm this suspicion. On the other hand, if for the ESS the items 9 and 35 would have been chosen, this problem would not have occurred because these items are more similar and will be more correlated and so the correlation between the values will also be lower. Below, we will show that this explanation is correct on the basis of a German study using the complete PVQ.

3 Method

In order to show that the high correlations are due to the choice of the items we will make use of the study of Schmidt et al. (2007). In this study two samples of students were used to test the PVQ instrument. Sample 1 consisted of 397 German students that answered to the 40 items of the PVQ using the following response scale: 1 very similar; 2 similar; 3 some what similar; 4 rather dissimilar; 5 dissimilar; 6 very dissimilar. This is a bipolar symmetric scale.[3] Sample 2 consisted of 321 German students that answered to the 40 items of the PVQ using the following response scale: 1 very much like me; 2 like me 3 some what like me; 4 a bit like me; 5 not like me; 6 not at all like me. This is a bipolar asymmetric scale.[4]

For each topic we have done 3 analyses.[5] First we estimate the two factor simple structure model using the full set of data (i.e. the original 7-10 items for each set of values, rather than the subset of 4-5 items selected for the ESS) from both German samples. After that we will estimate the two factor models based on the items chosen for the ESS and finally we will estimate the two factor model using some items which could also have been chosen from the larger set for each value. In this way we can show that the choice of the items has caused the high correlation between the values. We can also show that there is a choice possible of items which are more homogeneous and therefore leads to a lower

[2] The second part of the statement is formulated differently for the ESS (see Table 2).

[3] The data from sample 1 is in the file WERTE5A.SAV. This data was collected by S. Bamberg and P. Schmidt, University of Giessen, Germany.

[4] The data from sample 2 is in the file: 2INSTRUM.SAV. This data was collected by S. Bamberg and P. Schmidt, University of Giessen, Germany.

[5] We did not analyze all value items at the same time because we wanted to show the problems for the combinations which Davidov et al. had made.

correlation between the values. Below, we will provide the results in detail for one pair of values, the same as before (Power and Achievement) and give the results of the other pairs in a shorter way.

4 Results

The results of our re-test in three analytical steps will be presented, for each of the problematic value pairs.

4.1 Results for Power and Achievement

First, the correlations between the items for Power and Achievement are analyzed (see Table 6) and the two factor simple structure is estimated.

The two factor model assuming a simple structure does not fit very well to the data. Especially the first Power item loads very weakly on the Power factor and the program Jrule[6] (van der Veld, Saris, and Satorra, 2009) suggests that a loading on the second factor for this item should be introduced, based on the analyses of modifications indices (MI) and expected parameter changes (EPC) (Saris, Satorra and Van der Veld, 2009). If we do that the loading on the Achievement factor is .51/.52 while the same item loads .05/.12 on the Power factor.[7] So being rich is more seen as an Achievement item than as a Power item. The correlation between the two values is .58/.52 using this model.

Second, given the results presented above one can imagine that something will go wrong if the problematic items (2) and item (17) are chosen as indicators for the Power value in the ESS. In that case one can expect a low correlation between the Power indicators (.287/.338) and a stronger correlation between the first Power item and the Achievement items (.276/.355 and .485/.513). If that is the case, one can expect that one gets a very high estimate of the correlation between these two values if a simple structure[8] is specified for the factor model. This is indeed the case because now the correlation is .89/.84 using a simple structure two factor model and not .58/0.52 as we have seen before for the full model.

Third, we have suggested that the correlation would be rather different if the ESS would have chosen other items from the PVQ to represent Power. So below, in table 7, we show the correlation matrices for the two German samples where for the value Power not the items 2 and 17 have been chosen, but the items 17 and 39.

It will be clear that now the correlation between the Power items is much higher and none of the correlations with the items of the other value is higher than this correlation. Therefore, there is no reason to expect a high correlation between these two values. The simple structure two factor model is again estimated on the basis of these correlation matrices. The results are presented in figure 2.

These results show indeed that for an alternative selection of items, the correlations between the values in both samples is much lower than the correlation found in the ESS and the correlation found in these samples if the ESS items were chosen. These results do not give any indication that these two values have to be combined. So the reason that the two values had to be combined in the Davidov et al. studies was a consequence of the selection of the items for the Power value in the ESS.

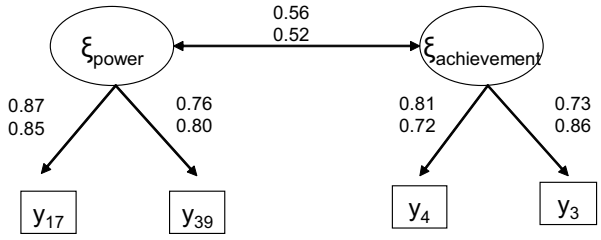

Figure 2. Parameter values of the model of Power and Achievement (sequence: sample 1, sample 2)

4.2 Results for Conformity and Tradition

Following the same 3-step sequence of reasoning as in the previous section, this section proceeds to evaluate the Conformity-Tradition pair of values. Firstly, if we analyze the full model for Conformity (items 7, 16, 28 and 36) and Tradition (items 9, 20, 25, and 38), the correlation between the values is .94 (in both samples) but the model does not fit. Jrule (van der Veld et al., 2009) suggests for both samples that the items 7 and 28 should be items for Tradition and not for Conformity. If these loadings are allowed, these items load indeed not significantly anymore on the Conformity factor but rather high on the Tradition factor. In this new model the correlation between the two values is .70/.72 for the first respectively second sample.

Secondly, for the ESS the items 7 and 16 are chosen for Conformity and the items 20 and 25 for Tradition. Given that item 7 is more an indicator for Tradition than for Conformity, one can expect again problems and a high correlation. In this case the correlation is indeed 1.0 in both samples.

Thirdly, we have suggested above that the correlation would be rather different if the ESS would have chosen other items from the PVQ to represent the factor Tradition. So below, in table 8, we show the correlation matrices for the two German samples where for the value Tradition not the items 20 and 25 were chosen, but the items 9 and 38.

For both samples, the correlations between these Tradition items are higher than for the items selected by the ESS and none of the correlations with the items of the other value is higher than this correlation. Therefore, there is no reason to expect a high correlation between Conformity and Tradition. The simple structure two factor model is again estimated on the basis of these correlation matrices and the results are presented in figure 3.

[6] Jrule is a program developed to detect misspecifications in models.

[7] These numbers, just as the following, refer to the first respectively second sample.

[8] This is also the model that has been used by Davidov et al. in their different publications.

Table 6: Correlations between the items for Power and Achievement of the PVQ (sequence: sample 1 and 2)

		power			achievement			
		2	17	39	4	13	24	32
power	2	1.000						
	17	.287 .338	1.000					
	39	.281 .300	.662 .679	1.000				
achievement	4	.276 .355	.412 .337	.327 .264	1.000			
	13	.485 .513	.338 .368	.356 .369	.594 .613	1.000		
	24	.217 .455	.176 .304	.269 .321	.335 .474	.443 .675	1.000	
	32	.421 .480	.378 .350	.406 .325	.381 .435	.556 .676	.500 .680	1.000

Table 7: Correlations between Power and Achievement items (sequence: sample 1 and 2)

		power		achievement	
		17	39	4	13
power	17	1.000			
	39	0.662 0.680	1.000		
achievement	4	0.410 0.337	0.324 0.264	1.000	
	13	0.337 0.366	0.354 0.367	0.594 0.613	1.000

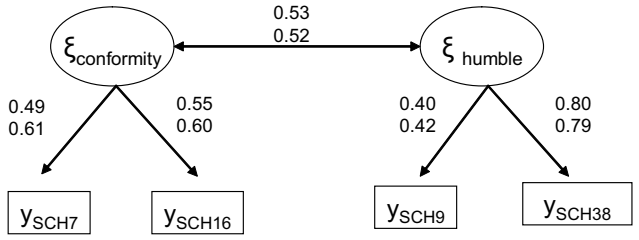

Figure 3. Parameter values of the model of Conformity and Tradition (sequence: sample 1, sample 2)

Overall, the results show again that the correlations between the values in both samples is much lower than the correlation found in the ESS and the correlations found in the German samples if the ESS items were chosen. So the combination of the values in the ESS, as suggested by the Davidov studies, is again a consequence of the selection of the items for the Tradition value in the ESS.

4.3 Results for Universalism and Benevolence

Following the same 3-step sequence of reasoning as previously, this section first analyzes the full two factor model for Universalism (items 3, 8, 19, 23, 29, 40) and Benevolence (items 12, 18, 27, and 33). After adjusting for the misspecification that item 8 belongs to Benevolences and not to Universalism, the correlation between the values is .59/.60. Second, if the items selected for the ESS are used, the correlation is considerably higher than in the full model (.71/.68) but not so high as found in other countries in the ESS. However the increase can be observed again. Third, we have suggested above that the correlation would be rather different if the ESS would have chosen other items from the PVQ to represent the factor Universalism. So below, in table 9, we show the correlation matrices for the two samples where for the value Universalism not the items 3, 8 and 19 were chosen, but the items 3 and 29.

The correlation between the new selection of Universalism items is higher than between the ESS items, and none of the correlations with the items of the other value is higher than this correlation. Therefore, there is no reason to expect a high correlation between these two values. The simple structure two factor model is again estimated on the basis of these correlation matrices and the results are presented in figure 4.

For both samples, the results show again that the correlations between the values with re-selected items are much lower than the correlations found in the ESS, and the corre-

Table 8: Correlations between Conformity and Tradition items (sequence: sample 1, sample 2)

		conformity		tradition	
		7	16	9	38
conformity	7	1.000			
	16	0.273 0.336	1.000		
tradition	9	0.082 0.187	0.136 0.080	1.000	
	38	0.216 0.241	0.233 0.262	0.318 0.336	1.000

Table 9: Correlations between Universalism and Benevolence items (sequence: sample 1 and 2)

		universalism		benevolence	
		3	29	12	18
universalism	3	1.000			
	29	0.477 0.525	1.000		
benevolence	12	0.250 0.334	0.443 0.481	1.000	
	18	0.135 0.090	0.281 0.104	0.394 0.221	1.000

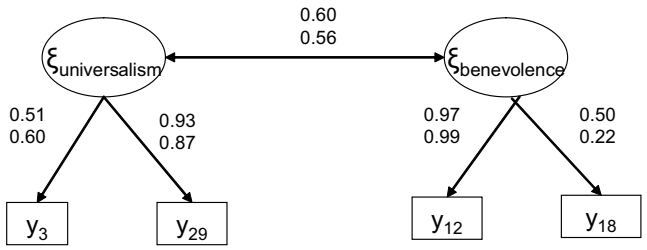

Figure 4. Parameter values of the model of Universalism and Benevolence (sequence: sample 1, sample 2)

lations found in the German samples if the ESS items were chosen. This confirms that the reason for the combination of values in the ESS, as suggested by the Davidov studies, was a consequence of the selection of the items for the Universalism value in the ESS.

5 Conclusions and further Research

Based on the analyses we have done we would like to draw the following conclusions. Firstly, the too high correlations between the values Power and Achievement, Conformity and Tradition, and Universalism and Benevolence, which have been reported by Davidov et al. in several publications for the ESS, are not present between the same values in the Portrait Values Questionnaire (PVQ) in the German study (Schmidt et al. 2007) we have used here. If we select from the PVQ instrument the items which are used in the ESS then we get indeed much higher correlations than if all items of the full model are used.

We could have done the same analysis for other values but we did not do so because the purpose of the paper was to show the reason for the obtained correlations in the ESS. In a forth coming paper we analyze the full set of values of the PVQ.

Secondly, these high correlations are caused by the selection of the items in the ESS, because the correlations between the values of each of the three problematic pairs become much lower if one chooses other items for the values Power, Tradition and Universalism. More specifically, the reason for the too high correlations between the values is the lack of homogeneity between the chosen items.

Thirdly, for using the already available data of the ESS there are two possibilities. One option is to use four pure values and three higher order orientations as suggested by the Davidov et al. studies. The other possibility is to use the 7 pure values (the 10 proposed values by Schwartz, minus the problematic Power, Tradition and Universalism values). It depends on the application what the best choice would be.

One should however also be careful with the choice of items we have made. We think that the suggested items for the value Power indeed measure Power. The two items suggested for Universalism, however, can not be seen as indicators for Universalism but rather as indicators for the value "Equality". Schwartz (1994) has also used the term Equality to refer to a subset of Universalism (see Table 1). Furthermore, we think that the two suggested items for the value

Tradition can not be seen as indicators of Tradition but rather as indicators for "Humble". Schwartz (1994) also used the term Humble to refer to a subset of Tradition (see Table 1). Equality and Humble are clearly different from the original values even though the items were chosen from the complete set of items for the original values. This shows that these sets of items for each value were very heterogeneous.

We have observed that in the German study several items of the PVQ did not load significantly on the values they were expected to indicate. Therefore, this instrument also requires a more careful check before the composite scores, based on the specified items, can be used for further research. It will be clear from our tests that the composite scores of different values will be contaminated because of undetected cross loadings. This contradicts the results of Schmidt et al. (2007), but we used a more precise procedure (van der Veld et al., 2009; Saris et al., 2009) to detect misspecifications in the models.

In this paper we have concentrated on the six values that were combined into three pairs by the Davidov et al. studies. It would be relevant to do similar analyses for the other values in many different countries, because it may be that the selection of the items for all values in the ESS were done in a similar way, trying to create diversity in the items rather than homogeneity. This can have had a considerable effect on the definition of the values and on the means and the correlations between the factors obtained with this instrument.

References

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait multimethod matrices. *Psychological Bulletin*, *56*, 81-105.

Davidov, E. (2008). A cross-country and cross-time comparison of the human values measurement with the second round of the European Social Survey. *Survey Research Methods*, *2*(1), 33-46.

Davidov, E., & Schmidt, P. (2007). Are values in the Benelux comparable? In G. Loosveldt, M. Swyngedouw, & B. Cambré (Eds.), *Measuring meaningful data in social research* (p. 373-386). Leuven (Belgium): Acco.

Davidov, E., Schmidt, P., & Schwartz, S. (2008). Bringing Values Back In: The Adequacy of the European Social Survey to Measure Values in 20 countries. *Public Opinion Quarterly*, *72*(3), 420-445.

Jowell, R., Kaas, M., Fitzgerald, R., & Eva, G. (2007). The European Social Survey as a measurement model. In R. Jowell, C. Roberts, R. Fitzgerald, & G. Eva (Eds.), *Measuring attitudes cross-nationally. Lessons from the European Social Survey* (p. 1-32). London: Sage Publications.

Mohler, P. P., & Wohn, K. (2005). *Persönliche Wertorientierungen im European Social Survey.* ZUMA-Arbeitsbericht 2005/01.

Saris, W. E., & Gallhofer, I. (2007). *Design, evaluation and analysis of questionnaires for survey research.* Hoboken (New Jersey): Wiley Interscience.

Saris, W. E., Satorra, A., & van der Veld, W. (2009). Testing structural equation models or detections of misspecifications? *Structural Equation Modeling*. (forthcoming)

Schmidt, P., Bamberg, S., Davidov, E., Hermann, J., & Schwartz, S. H. (2007). Die Messung von Wetern mit dem "Portrait Value Questionnaire". *Zeitschrift für Sozialpsychologie*, *38*, 249-263.

Schwartz, S. (1994). Are There Universal Aspects in the Structure and Contents of Human Values? *Journal of Social Issues*, *50*(4), 19-45.

Schwartz, S. (2007). Value orientations: measurement, antecedents and consequences across nations. In R. Jowell, C. Roberts, R. Fitzgerald, & G. Eva (Eds.), *Measuring attitudes cross-nationally. Lessons from the European Social Survey* (p. 169-203). London: Sage Publications.

Van der Veld, W., Saris, W. E., & Satorra, A. (2009). *Jrule, Judgement Rule Aid for Structural equation models.* vdveld@telfort.nl.

Appendix 1: PVQ items presented on the ESS website[a]

Benevolence
12. It's very important to him to help the people around him. He wants to care for other people.
18. It is important to him to be loyal to his friends. He wants to devote himself to people close to him.
27. It is important to him to respond to the needs of others. He tries to support those he knows.
33. Forgiving people who might have wronged him is important to him. He tries to see what is good in them and not to hold a grudge.

Universalism
3. He thinks it is important that every person in the world be treated equally. He wants justice for everybody, even for people he doesn't know.
8. It is important to him to listen to people who are different from him. Even when he disagrees with them, he still wants to understand them.
19. He strongly believes that people should care for nature. Looking after the environment is important to him.
23. He believes all the worlds' people should live in harmony. Promoting peace among all groups in the world is important to him.
29. He wants everyone to be treated justly, even people he doesn't know. It is important to him to protect the weak in society.
40. It is important to him to adapt to nature and to fit into it. He believes that people should not change nature.

Self-direction
1. Thinking up new ideas and being creative is important to him. He likes to do things in his own original way.
11. It is important to him to make his own decisions about what he does. He likes to be free to plan and to choose his activities for himself.
22. He thinks it's important to be interested in things. He likes to be curious and to try to understand all sorts of things.
34. It is important to him to be independent. He likes to rely on himself.

Stimulation
6. He thinks it is important to do lots of different things in life. He always looks for new things to try.
15. He likes to take risks. He is always looking for adventures.
30. He likes surprises. It is important to him to have an exciting life.

Hedonism
10. He seeks every chance he can to have fun. It is important to him to do things that give him pleasure.
26. Enjoying life's pleasures is important to him. He likes to 'spoil' himself.
37. He really wants to enjoy life. Having a good time is very important to him.

Achievement
4. It's very important to him to show his abilities. He wants people to admire what he does.
13. Being very successful is important to him. He likes to impress other people.
24. He thinks it is important to be ambitious. He wants to show how capable he is.
32. Getting ahead in life is important to him. He strives to do better than others.

Power
2. It is important to him to be rich. He wants to have a lot of money and expensive things.
17. It is important to him to be in charge and tell others what to do. He wants people to do what he says.
39. He always wants to be the one who makes the decisions. He likes to be the leader.

Security
5. It is important to him to live in secure surroundings. He avoids anything that might endanger his safety.
14. It is very important to him that his country be safe from threats from within and without. He is concerned that social order be protected.
21. It is important to him that things be organized and clean. He doesn't want things to be a mess.
31. He tries hard to avoid getting sick. Staying healthy is very important to him.
35. Having a stable government is important to him. He is concerned that the social order be protected.

[a] The original scale was in German and can be found in the paper of Schmidt el al. (2007)

Conformity
7. He believes that people should do what they're told. He thinks people should follow rules at all times, even when no-one is watching.
16. It is important to him always to behave properly. He wants to avoid doing anything people would say is wrong.
28. It is important to him to be obedient. He believes he should always show respect to his parents and to older people.
36. It is important to him to be polite to other people all the time. He tries never to disturb or irritate others.

Tradition
9. He thinks it's important not to ask for more than what you have. He believes that people should be satisfied with what they have.
20. Religious belief is important to him. He tries hard to do what his religion requires.
25. He believes it is best to do things in traditional ways. It is important to him to follow the customs he has learned.
38. It is important to him to be humble and modest. He tries not to draw attention to himself.

Appendix 2: Analysis of correlations between Conformity and Tradition

Table 1: Correlations between Conformity and Tradition items (sequence: UK, AT, and NL)

		conformity		tradition	
		ipfrule	ipbhprp	ipmodst	imptrad
conformity	ipfrule	1.000			
		0.505			
	ipbhprp	0.451	1.000		
		0.436			
tradition		0.290	0.338		
	ipmodst	0.286	0.413	1.000	
		0.282	0.312		
		0.331	0.341	0.185	
	imptrad	0.306	0.419	0.306	1.000
		0.304	0.379	0.243	

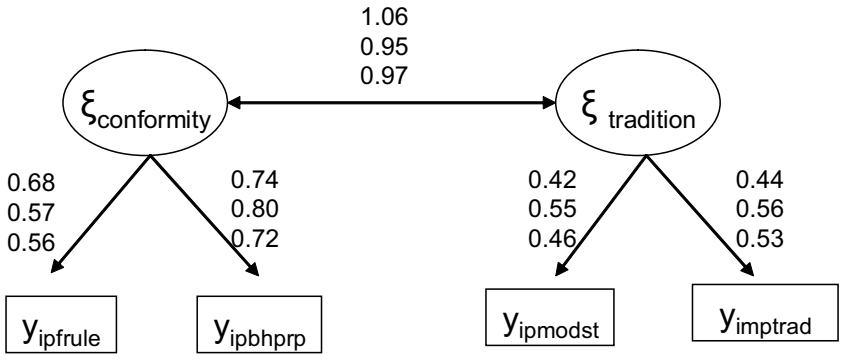

Figure 1. Parameter values of the model (sequence: UK, AT, and NL)

Appendix 3: Analysis of Correlations between Universalism and Benevolence

Table 1: Correlations between Universalism and Benevolence items (sequence: UK, AT, and NL)

		universalism			benevolence	
		ipeqopt	ipudrst	impenv	iphlppl	iplylfr
universalism	ipeqopt	1.000				
		0.366				
	ipudrst	0.477	1.000			
		0.377				
		0.264	0.322			
	impenv	0.438	0.431	1.000		
		0.295	0.304			
benevolence		0.248	0.347	0.323		
	iphlppl	0.413	0.444	0.417	1.000	
		0.291	0.337	0.329		
		0.177	0.278	0.327	0.426	
	iplylfr	0.413	0.433	0.465	0.459	1.000
		0.273	0.314	0.301	0.368	

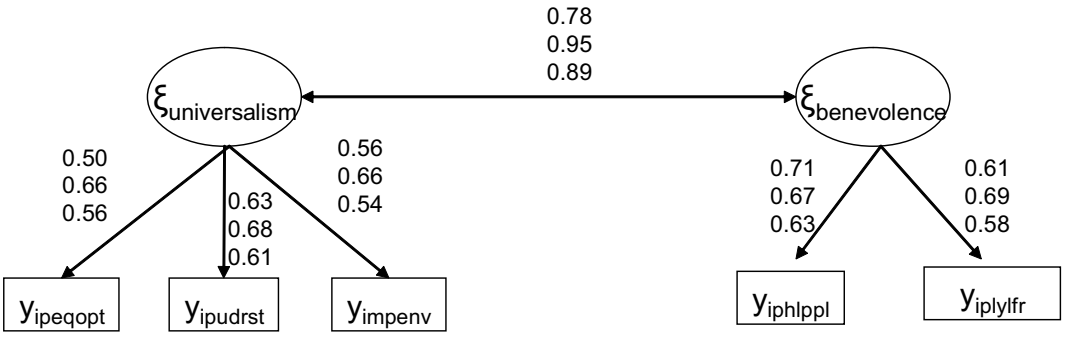

Figure 1. Parameter values of the model (sequence: UK, AT, and NL)