



Reliability/Validity Report

Instrument:

Personal Profile System®

Language:

Estonian

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The *Personal Profile System*[®] (PPS) is a measure of interpersonal behavior among normal people, which reflects respondents' perceptions of their own feelings and behavior on four dimensions--Dominance (D), Influence (I), Supportiveness (formerly Steadiness; S), and Conscientiousness (C). For the purpose of examining the validity and reliability of the PPS in Estonian, data from a sample of 908 respondents was obtained. This is the second data collection on the Estonian PPS.

I. Summary

Based on the data analysis, the following information was found. The reliabilities of all four scales are acceptable and three scales have increased reliabilities since the previous data collection. However, the inter-scale correlations between the D and S scales and between the I and C scales are unacceptably high given our current standards. As we have already approved the Estonian PPS for use this report is meant to give suggestions on improving the current Estonian PPS. More specific information on the next steps for improving the Estonian PPS can be found in Section III of this report.

II. Details of Analysis

A. Sample Size and Demographic Composition

The sample size of 908 exceeded the minimum of 800 required to analyze PPS data. The sample was well distributed across each demographic variable.

B. Reliability

In determining whether the translated response form is acceptable for use, we first need to examine the reliability of its scales. Reliability indicates whether a scale is measuring a construct (i.e., a concept such as conscientiousness) *consistently*. Reliabilities are determined using Cronbach's alpha coefficient (which is a function of the average correlation among all possible item pairs and the number of items on a scale). Scale reliabilities must be equal to or greater than .70 in order for a scale to be acceptable for use. As shown in Appendix 1, the reliabilities of all four scales are above the .70 cutoff. As mentioned above, three of the scales reliabilities have increased since the last data collection (I from .73 to .84, S from .76 to .81 and C from .71 to .82).

C. Validity

The next step in determining whether the translated response form is acceptable for use is assessing the validity of its scales. Validity is whether a scale measures *what it is said to measure*.

- 1) The first method used to assess the validity of the scales is examining the distribution of item responses. Often, certain items on a response form are either rejected or accepted by too many participants. Although it is common that in most data sets at least one or two items will be deemed as “popular” or “unpopular”, it is important to recognize when too many items fall under these two categories. Items that are accepted or rejected by the majority of the sample population provide information on the sample population as a whole, but little meaningful information on individual respondents. In the Estonian data set, all items have acceptable distributions.
- 2) The second method we use to assess validity is to examine scale intercorrelations. The DiSC[®] model predicts a strong correlation between D and S and I and C. However, if the correlation between two scales is within .08 of the scales’ reliabilities or higher, then the scales are actually measuring only one construct rather than the two they are designed to measure. As seen in Appendix 1, the correlations between D and S and between I and C are too high. In other words, the fact that these correlations are very similar to the scale reliabilities suggests that only one concept (e.g., dominant vs. not dominant) is being measured, rather than two (e.g., dominance and supportiveness).

Under our current standards we would require that you rewrite several items and collect new data to correct this problem before the instrument was designated acceptable for use. However, as we have already given you permission to use this instrument, we are only going to recommend that you make changes to improve its validity. Further instructions on how to improve the instrument’s validity are included in section III: “Next Steps”.

- 3) The third method we use to assess scale validity is factor analysis. Factor analysis provides information on which items are highly correlated and thus, group together to form a scale. Factor analysis supports the existence of the DiSC model in an Estonian population. However, it also demonstrates that for each dimension certain items are not grouping together to form a valid scale. Item-scale correlations were run to confirm this finding. Section III provides information on which items can be replaced as well as models for new items.

III. Next Steps

A. New Item Development

As mentioned, in order to improve the validity of the Estonian PPS, several items on each of the D, I, S, and C scales should be replaced. In addition, it is our

recommendation that at least 3 extra items per scale be developed. The following are suggestions in developing new items:

- 1) New items should measure the intended concept. For example, all of the items that are currently on the Dominance scale should measure a specific pattern of behavior. New items should address aspects of that behavioral response.
- 2) New items should be easy to understand. Avoid items that are too long or too complicated. Two people reading the same item should interpret the meaning of the item similarly.
- 3) Do not write items that are so common or uncommon that most people will respond in the same manner to the item.
- 4) New items should differentiate between people who are high and low on a scale. For example, two people should answer an item on the Supportiveness scale differently if they differ in the degree to which they behave supportively. Ineffective items will not distinguish between a person who behaves supportively and a person who does not behave dominantly.

B. Item Replacements

- 1) Dominance: The following item could be replaced because it is too strongly (either positively or negatively) correlated with scales others than D:

D20 Assertive

The following items are the best measures of the D scale and can be used as models when creating new items. Be sure that new items are a good measure of Dominance and are unrelated to Supportiveness.

D26 Confident
D1 Daring
D12 Independent

If you choose to try to improve the response form, four new D items will need to be developed (including the extra 3 items).

- 2) Influence: The following items could be replaced because they are too strongly (either positively or negatively) correlated with scales others than I:

I12 *missing from the response page
I20 *missing from the response page
I14 Playful

The following items are the best measures of the I scale and can be used as models when creating new items. Be sure that new items are a good measure of Influence and are unrelated to Conscientiousness.

I23 Good Mixer
I26 High Spirited
I7 Expressive

If you choose to try to improve the response form, six new I items will need to be developed (including the 3 extra items).

- 3) Supportiveness: The following items could be replaced because they are too strongly (either positively or negatively) correlated with scales others than S:

S13 Considerate
S20 Sympathetic
S4 Conventional
S5 Tactful
S8 Modest

The following items are the best measures of the S scale and can be used as models when creating new items. Be sure that new items are a good measure of Supportiveness and are unrelated to Dominance.

S23 Lenient
S24 Contented
S9 Agreeable

If you choose to try to improve the response form, eight S items will need to be developed (including the 3 extra items).

- 4) Conscientiousness: The following items could be replaced because they are too strongly (either positively or negatively) correlated with scales others than C:

C19 Fearful
C20 Impartial
C28 Respectful
C6 Calm

The following items are the best measures of the C scale and can be used as models when creating new items. Be sure that new items are a good measure of Conscientiousness and are unrelated to Influence.

C23 Refined
C26 Precise

C4 Controlled

If you choose to try to improve the response form, seven extra C items will need to be developed (including the 3 extra items).

C. Data Collection

If new items are to be developed, you will need to have them translated into English by someone who was not involved in developing the items in Estonian. Then, please send two copies of the full response form. One copy should be the response page as you plan to use it (in Estonian). The second copy needs to be the response page translated into English. Please send both copies of the response form to Inscape Publishing's Rights Specialist, Terra Krebsbach.

After the response form is approved, you can begin data collection. You will simply need to go through the data collection process as you did before. You will need to collect data from a minimum of 800 respondents.

In the next analysis, if certain items don't have acceptable reliability and validity we will have extra items to use as a replacement. Given this, we hope that the next analysis will allow us to create a response form with improved validity.

Appendix 1

Scale reliabilities and intercorrelations for the four PPS scales.

Reliabilities are shown in bold along the diagonal, and the scale intercorrelations are shown within the body of the table.

Total scales (“Most” minus “Least”)

	D	I	S	C
D	.78			
I	.10	.84		
S	-.79	-.37	.81	
C	-.42	-.80	.28	.82