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## The Pitfalls of Poor Psychometric Properties: A Rejoinder to Hofstede's Reply to Us

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### Abstract

*Hofstede (this issue) has taken exception to our conclusions (Spector, Cooper, Sparks, et al., 2001) that the poor internal consistency reliabilities of his Values Survey Module 1994 (VSM94) should be cause for concern. He suggests that (1) individual level psychometric properties for a scale are irrelevant when one uses it to make inferences to a group (or country) level, (2) that our samples were poorly matched on demographics (and were not very representative) and this prevented our finding internal consistency at the country (ecological) level, and (3) the VSM94 must be reliable because there is so much evidence for validity. We will address each of these points, explaining our case for concern.*

### INDIVIDUAL LEVEL PSYCHOMETRIC PROPERTIES DON'T MATTER

Hofstede argues that the VSM94 was designed to assess values at the aggregate (country) and not the individual person level. Therefore, the psychometric properties at the individual level are irrelevant.

We first wish to point out that we reported the internal consistencies at the aggregate level, and results were not appreciably different from those at the individual level. Furthermore, Hofstede is absolutely correct that one must be careful about the ecological fallacy in mixing levels when

drawing inferences. For example, if power distance correlates with mean personal income at the country level, one cannot assume that among individuals within a country, the same two variables will be related. However, we did not argue that if the scale lacks internal consistency at the individual level it will lack it at the country level. Statistically it is possible that the items don't relate at one level but they do at another. However, our results found internal consistency problems at both levels, which we believe is cause for concern.

A second issue concerns the real nature of what the VSM94 assesses— individual values or collective values. Morgeson and Hofmann (1999) noted that when individuals are used as informants to provide information about collectives, items should be framed at the target level. In other words, to assess country level values, questions should ask individual participants, not about their own values, but about the values of people within their country. Klein, Dansereau, and Hall (1994) provided a similar perspective and noted that asking respondents to report on their own unique experience is appropriate if one assumes they are independent of the larger collective. Klein, Conn, Smith, and Sorra (2001) provided empirical support for this with a study in which referent (self versus group) affected the extent to which participants agreed with one another in their ratings about work. The researchers argued that the individual referent focused attention on the person's own feelings and provides a less accurate measure of the group level construct.

A close inspection of the VSM94 makes it clear that the focus is on the individual's values, as the instructions state, "This section of the questionnaire is concerned with your values in life and what is important to you." The first section asks the respondent to indicate how important each item is to him or her. Another section asks the individual to indicate agreement with several statements. Given the individual focus of the items, we are unconvinced by the arguments that individual level internal consistency can be ignored if one uses the VSM94 (or many other scales for that matter) at the country level.

As long as one is using a scale that reflects an individual level construct (as opposed to a group level construct), the items should intercorrelate with one another at the individual level. If they don't the scale cannot be said to assess a single construct, and the aggregation cannot be said to reflect a single culture or country level difference. Either the items assess different constructs, or these values comprise two or more unrelated components, a situation found with global Type A measures that have been abandoned by most researchers in favor of component measures (Edwards, Baglioni, & Cooper, 1990), and with measures of cynicism in police officers that were initially thought to be unidimensional but later proved to be multidimensional (e.g. Regoli, Crank, & Rivera, 1990).

## POORLY MATCHED DEMOGRAPHICS CAUSED POOR ECOLOGICAL INTERNAL CONSISTENCY

Hofstede correctly notes that our sampling was not ideal. Our original plan to collect representative samples from each country was not totally achieved, and whereas some of us were able to use methods designed to yield fairly representative samples, a few were only able to get data from a small number of organisations. He suggests that this less than perfect approach had two important consequences—it attenuated the aggregate level internal consistencies and it invalidated results based on these datasets.

Hofstede raised an interesting issue that perhaps demographic differences among our samples attenuated internal consistency results. This would be particularly likely for the masculinity scale, because it has been shown that men and women from within the same country differ (Hofstede, 1984). Since some of our samples had a greater proportion of males than others, might this have produced distortions? We tested this idea by statistically controlling for gender, as well as organisational level, which Hofstede also mentioned. We did this by limiting the analysis to only managers, by limiting the analysis to only managers at the middle level or to the senior level, and by analysing for males only and for females only. If Hofstede is correct, this last control should have improved the internal consistency of the masculinity scale in particular, because of gender differences in means (Hofstede, 1984). Unfortunately, these controls had little effect on internal consistencies, and in many cases the coefficient alphas were even worse. For example, the 0.29 alpha for masculinity in our entire sample was reduced slightly to 0.23 for males only, and increased slightly to 0.35 for females only. Uncertainty avoidance which was 0.49 for the entire scale reduced to -0.09 for both males and females separately. Results were not much different when we controlled for gender and level together. Consequently, demographic differences among our samples do not explain the lack of internal consistency at the aggregate level.

The other issue is whether our sampling procedure is inferior to that used by Hofstede and some other researchers who gathered all data from a single multinational organisation, and whether this essentially invalidated our results. Clearly the use of a single organisation provides the benefits of controlling for many organisational factors. However, it carries the liability of limited generalisability. Individuals who worked for a single company like IBM where Hofstede did his pioneering work are not necessarily good representatives of their native countries. Our plan was to achieve samples that were more representative of the native populations in each country by sampling from a variety of companies, and preferably from native organisations rather than American multinationals, and in almost all cases this latter goal was achieved. The correspondence between our results and Hofstede's for some of these scales is quite remarkable, and argues against our having samples that cannot generalise.

## THE VSM94 MUST BE RELIABLE BECAUSE IT IS VALID

Hofstede is correct that validity assumes a certain level of reliability. The fact that the VSM94 significantly relates to other variables presupposes it can consistently measure something, but this does not mean it has internal consistency. If we repeatedly assess a person's weight (in grams) and telephone area code and then sum the result, we will likely get a reliable total score, but this doesn't presuppose both components measure the same thing and that the combination is meaningful. It is possible that the combination of weight and area code would correlate with height since one of the components (weight) does, but this does not provide construct validity to the combination, which is rather meaningless in our example. Our concern with the VSM94 is not that it cannot predict other variables, and not that it does not provide a relatively stable (test-retest reliability) measure, but that it lacks internal consistency. This leads to the conclusion that the scales (except for individualism in some samples and long-term orientation) do not assess a single homogeneous construct. As we stated in our original paper, we wonder what the combination might be. It is possible that these values are multi-dimensional and the individual items assess different subcomponents. It is possible that some items tap the hypothesised values and others additional constructs. More scale development work would seem in order to further develop these scales, and this might contribute to a richer understanding of these values. If we are concerned with the values of people and how they vary between countries, this should begin at the individual level, and then move to the aggregate. If our concern is with value constructs that are meaningful only at the country level, then the assessment procedure should focus on that level, perhaps by asking individuals to report on the values of people in general or on other methods that more directly reflect country level phenomena rather than individual.

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