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# THE OPQ AND THE BIG FIVE

*N.A. Stanton, G. Mathews, N.C. Graham and C. Brimelow*

Saville and Holdsworth[1] claim several advantages for their Occupational Personality Questionnaire (OPQ). It is reported to be based on a conceptual model providing a comprehensive coverage of personality, and to be psychometrically sound. However, the OPQ manual[1] and subsequent updates to the manual issued by Saville and Holdsworth Ltd (SHL), provide insufficient evidence to assess the psychometric status of the OPQ.

The most comprehensive versions of the OPQ measure 30 scales derived from a conceptual model based on existing personality inventories, repertory grid studies and criteria for occupational success, with an additional social desirability scale. However it is far from clear that the scales actually measure different constructs. Two studies are described briefly in the manual, but both are technically flawed as a basis for establishing factorial independence. This is primarily because the number of factors extracted was determined using the Kaiser-Guttman test which has been thoroughly discredited by Zwick and Velicer[2] who report that "the procedure is very likely to provide a grossly wrong answer".

The Kaiser-Guttman criterion in fact seems to have indicated a 19-factor solution for the questionnaire. Following further analyses (which are not presented in the manual) SHL added three higher-order dimensional models to the 30-scale Concept model. These are; the Factorial model (14 scales), the Octagon model (8 scales) and the Pentagon model (5 scales). In arriving at these models SHL appear to have disregarded their own, admittedly inaccurate, criterion for the number of factors. They claim that the Factorial model is the most "technically sound" OPQ solution, but they do not report using any number of factor criteria of more validity than the Kaiser-Guttman rule, or conducting any factor analysis of inter-scale correlations. It is further claimed that the

general level of correlation is low enough to indicate that the scales are sufficiently independent. However, the OPQ version used (Concept 4) is ipsatively scored. This method of scoring is likely to create an illusion of independence because of the artefactual influences on intercorrelations of ipsative scores[3].

In summary, SHL have not presented adequate evidence that any of their dimensional models has a satisfactory basis, and their data purporting to show scale independence are clearly spurious. Evidence of the predictive validity of the OPQ is also very limited[4].

## STUDY

The study included 94 undergraduates with a mean age of 20.9 years. The use of a student sample can be justified on two counts. First, one of the stated aims of the OPQ is for use in graduate selection of personnel. Second, although SHL's data show some differences in scale means between graduate applicants and white-collar workers, these differences are relatively small. SHL supplied a version of the OPQ Concept 5 for use in this study. The OPQ was administered using standard procedure on two occasions, five weeks apart.

## RESULTS

The results confirmed high levels of reliability on most of the scales from the retest study within a five-week interim period. This finding is comparable to those reported by SHL[1]. Inspection of the interscale correlation matrix reveals some unexpectedly large correlations (see Table I). Table I compares the findings of the present study with those reported by SHL[5]. The difference in the distribution of the magnitudes of correlation coefficients across the two

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We would like to thank Saville and Holdsworth Ltd for supplying the OPQ test materials and compiling the raw data. We are also grateful to Peter Biczó for assistance with the data collection.

	SHL[5]	Present study
00-09	170	124
10-19	127	130
20-29	83	99
30-39	40	51
40-49	12	14
50-59	3	10
60-69	0	6
70-79	0	1

**TABLE I.**  
Frequency Distributions of Coefficient Magnitudes for OPO Scale Intercorrelation Matrices Found by SHL[5], and in the Present Study

studies confirms that SHLs[5] use of ipsative scores artifactually reduced the magnitude of inter-scale correlations.

The number of factors to be extracted was determined by parallel analysis[6], a highly accurate criterion for number-of-factors[2]. This indicated that five factors should be extracted. The rotated factor pattern matrix accounted for 50 per cent of the variance. (Further details of the factor analysis and other aspects of this study can be sought from[7].) Correlations between the factors were low. Table II summarises interpretations of the five factors obtained.

One relevant comparison is with SHLs five-factor Pentagon model. Another comparison is with the Big Five model of

Five factor model — major loadings	SHL Pentagon model — defining scales	Big Five and related personality dimensions
<i>Factor 1</i> Outgoing Affiliative Socially confident Controlling Emotional control (-)	<i>Extroversion</i> Persuasive Controlling Independent Socially confident Modest (-) Democratic (-) Caring (-) Outgoing Affiliative	Extroversion Energy Sociability
<i>Factor 2</i> Competitive (-) Caring Democratic Achieving (-) Critical (-) Modest Independent (-)	<i>Vigorous (?)</i> Competitive Achieving Active Decisive	Agreeableness Will (-) Independence (-) Dominance (-)
<i>Factor 3</i> Detail conscious Forward planning Conscientious Socially desirable	<i>Methodical</i> Data rational Forward planning Practical Detail conscious Conscientious	Conscientiousness Conscience control Super-ego strength Obsessionality Socialisation
<i>Factor 4</i> Relaxed (-) Worrying Tough-minded (-) Optimistic (-)	<i>Emotional stability</i> Relaxed (-) Worrying Tough-minded (-) Emotional control (-) Optimistic (-) Critical	Neuroticism Emotionality Anxiety
<i>Factor 5</i> Innovative Artistic Behavioural Independent	<i>Abstract</i> Artistic Behavioural Conceptual Innovative Traditional (-) Change-oriented	Openness Affection Conservatism (-)

**TABLE II.**  
Correspondences between the Five Factor Model, the SHL Pentagon Model, and the Big Five and Related Personality Dimensions

personality structure[8,9]. There is a growing consensus among personality psychologists that the Big Five factors — Extroversion, Will, Emotionality, Conscience and Affection — account for much of the variability in human personality[10]. Factor 1 corresponds to Brand's[8] Extroversion dimension and, to some extent, with the SHL Extroversion dimension. Factor 2 is similar to Brand's[8] Will dimension but, in terms of the Pentagon model, it is a mixture of Vigorous and the more antisocial elements of Extraversion. Factor 3 can be identified with Brand's[8] Conscience, and also with the SHL Methodical dimension. Factor 4 seems close to Neuroticism[8] and Emotional Stability (SHL, Pentagon). Factor 5 is similar to the Pentagon Abstract dimension[1] and is linked to Brand's[8] Affection.

There are two practical implications of this research. First, some of the distinctions made by the Concept model between different aspects of personality may be invalid and misleading. Therefore the profiling of a candidate along the 30 scales must be called into question. If some of these 30 scales cannot be regarded as separate, then it may be inappropriate to use them as the basis for selection and assessment. Second, it follows that the OPQ could be more economical in terms of length and duration for completion. A considerably shorter questionnaire could be used to measure the five factors only. Rather than consisting of 300 items and taking 1.5 hours to complete, the OPQ could, in practice at least, consist of 50 items and take 15-20 minutes to complete. This would contribute a major saving in terms of administration and scoring time, and could make the candidate more predisposed to answer the questionnaire.

## CONCLUSIONS

The present study shows that the "Big Five" personality factors[8,9] can be identified in the five higher-order factors of the OPQ. The five-factor solution provides some justification for the use of the SHL Pentagon model, but the present data provide no support for the other SHL higher-order models. Use of the Concept model scales cannot be recommended until psychometrically sound item analyses have demonstrated their factorial independence.

Determination of the primary factor structure of the OPQ is an important goal for future research.

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