

## EXTRAVERSION, FIELD-DEPENDENCE, AND THE STROOP TEST

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*Summary.*—Scores on extraversion, neuroticism, and psychoticism were correlated with each other, and with scores on the rod-and-frame test and the Stroop test, for 97 male and 97 female Ss, and the resulting tables of correlations factor-analyzed for the sexes separately. Of interest for the study of personality was a factor containing loadings on extraversion, field dependence, speed on the Stroop colour and word naming tasks, and Stroop interference. Loadings were much higher and more clearly marked for men than for women. Women were significantly more field-dependent than men. The results are in line with expectation.

It is important to supplement personality questionnaires, and the information contained therein, by objective, laboratory tests; in this way it becomes possible to guard against deliberate falsification of scores (which is difficult if not impossible in laboratory experiment, where the very purpose of the study is obscure to S), and to link information in one field with that in another, thus permitting greater theoretical advance. In the present study a personality inventory, measuring extraversion, neuroticism and psychoticism (Eysenck & Eysenck, 1968) was given, and the scores correlated with those of two objective laboratory tests for 97 male and 97 female students of mean age 20 yr. One of the tests was the rod-and-frame test (Witkin, *et al.*, 1962); Eysenck (1967) has argued that extraverts would be expected to be more field-dependent and quoted several studies suggesting this. In this study, deviation scores from the upright were computed and averaged over eight trials.

The second test was the Stroop test (Jensen & Rohwer, 1966). The scores were (a) time in seconds to name colours, (b) time in seconds to name colour-words, (c) time in seconds to name colour-words when printed in contrasting colour, and (d) time on the colour-word card minus time on the colour card (interference score). The version of the Stroop test employed here contained the colours red, blue, green, yellow and orange, randomly arranged with the restriction that no similar colours appeared together. The same procedure was followed in the construction of the word and colour cards. The four Stroop subtests were given in the above order in a single session with R. N. Bone as E.

Product-moment correlations<sup>1</sup> were calculated between the 8 variables for men and women combined, and separately; we shall discuss the results from the separate analyses because on field-dependence there was a significant difference between the sexes, women being more field-dependent. This difference gave rise to a confusing factor, linking sex with field-dependence. The matrices of correlations were factor analyzed using a principal components method and rotating factors having eigenvalues above unity by Promax into oblique simple structure. For the males the first factor had high loadings on the 4 Stroop scores and is thus test-specific. The second factor had loadings on the three personality variables and is thus also test-specific. The third factor is of more general in-

<sup>1</sup>Tables of correlations are on file as Document NAPS-01797. Order from ASIS National Auxiliary Publications Service, c/o CCM Information Corp., 866 Third Ave., New York, N. Y. 10022. Remit \$2.00 for microfiche or \$7.40 for photocopy.

terest. It has loadings on extraversion (.54), field-dependence (.58), Stroop interference score (.34), and negative loadings on the Stroop scores a and b, i.e., length of time to read the colours and the words (— .65 and — .45). Extraverts thus emerge as field-dependent, more prone to interference, and quicker to read the simple Stroop cards (a speed factor of this kind was already shown to be characteristic of extraverts by Eysenck, 1947).

For women, the results are along the same lines, but much less clear. Loadings on extraversion (.21), Stroop interference (.11), and the two Stroop speed scores (— .18 and — .09) are much lower than for the men; the loading for field-dependence is much higher (.98). It is possible that the greater field-dependence of the women may have something to do with this difference in factor loadings; however that may be, the results obtained from the women support the results obtained from the men only weakly, if at all. Not much attention has been given to sex differences in this respect hitherto; it may be necessary to do so in future.

Women also show some differences in other factors, although these are not as marked. The questionnaire factor loading on extraversion, neuroticism and psychoticism comes out very much the same for women, but the Stroop factor is divided in two, with the speed scores (a and b) on one factor, and the interference scores (c and d) on the other. The speed factor here has negative loadings on neuroticism (— .50) and psychoticism (— .64); the loadings of the Stroop scores are — .80 and — .83. It is perhaps not unexpected that Ss scoring higher on these pathological factors should respond more slowly, but it is not clear why this finding should be restricted to the women. Nothing similar is found in the analysis for the male sample.

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Accepted April 5, 1972.