BIG-FIVE ADJECTIVE MARKER SCALES FOR USE WITH COLLEGE STUDENTS

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Summary.—This report evaluated the psychometric integrity of an 80-item bipolar adjective scale which assesses the dimensions of the five-factor model of personality. Using a college sample of 149 women and 30 men, a principal components analysis employing an orthogonal Procrustes rotation identified the five factors which were comparable to factor structures found with adults. Researchers can therefore have some confidence in using these marker scales with college students.

The five-factor model has emerged as an attractive taxonomy of personality traits (McCrae & John, 1992). The dimensions of Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness have been shown to be remarkably robust, not only in terms of structure and stability (Costa & McCrae, 1994), but also in terms of description and prediction of salient life outcomes (e.g., Piedmont & Weinstein, 1994). Although there are commercially available instruments designed to capture these five dimensions, the expense, time involvement to complete, and scoring complexity make them logistically impractical for use in small preliminary studies designed to address modest empirical questions. As such, simpler, more economical measures of the five factors have been developed (e.g., Goldberg, 1992; Saucier, 1994). These adjective-based instruments serve as broad markers of the five factors and can be used as general stand-ins for their more sophisticated relatives.

Although these different adjective marker scales essentially capture the same constructs (Costa & McCrae, 1992), the one developed by McCrae and Costa (1985) offers two advantages. First, it was built on the work of Cattell (1945) and Norman (1963) who were early pioneers on the five-factor model and provides a useful theoretical pedigree. Second, McCrae and Costa have provided strong evidence of convergent and discriminant validity for these scales over raters and instruments (McCrae & Costa, 1985, 1987). However, McCrae and Costa worked exclusively with adults, and no psychometric evidence has been provided for college students. The purpose of this report is to fill this gap. The factor structure of the scale in a college sample was

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compared with previous data from adults to evaluate comparability and help establish the scale as valid for this population.

METHOD

Subjects were 149 women and 30 men, mostly Caucasian, between the ages of 17 and 24 years. All subjects volunteered. Data were aggregated from several studies. Subjects completed the 80-item bipolar adjective scale developed by McCrae and Costa (1985). Each adjective pair is rated on a 7-point scale. Half the items are reverse scored to control for acquiescence. Scores for each dimension are found by summing responses on the relevant items.

RESULTS AND DISCUSSION

Descriptive statistics and alpha reliabilities are presented in Table 1. Women scored significantly higher on Extraversion ($t_{177} = 2.03, p < .05$) and Agreeableness ($t_{177} = 2.34, p < .05$), suggesting a more outgoing and trusting interpersonal style. Alphas are all quite high. The average interscale correlation was .10, suggesting that these dimensions are relatively orthogonal. However, there were some notable exceptions: Extraversion and Agreeableness ($t_{177} = .51, p < .001$) and Neuroticism and Conscientiousness ($t_{177} = -.36, p < .001$). Such associations are not surprising, having been found with other measures of the five-factor model, and are in fact theoretically relevant (see Piedmont, 1994). This increases confidence that these scales capture the dimensions of the five-factor model in ways similar to other such measures.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Women, $n = 149$</th>
<th>Men, $n = 30$</th>
<th>Alpha, $n = 179$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuroticism (N)</td>
<td>M = 30.39, SD = 11.0</td>
<td>M = 47.30, SD = 10.4</td>
<td>.80</td>
</tr>
<tr>
<td>Extraversion (E)</td>
<td>M = 71.92, SD = 11.6</td>
<td>M = 67.33, SD = 9.6</td>
<td>.83</td>
</tr>
<tr>
<td>Openness (O)</td>
<td>M = 60.77, SD = 9.4</td>
<td>M = 60.00, SD = 7.6</td>
<td>.71</td>
</tr>
<tr>
<td>Agreeableness (A)</td>
<td>M = 82.29, SD = 12.1</td>
<td>M = 86.63, SD = 11.8</td>
<td>.83</td>
</tr>
<tr>
<td>Conscientiousness (C)</td>
<td>M = 118.90, SD = 11.8</td>
<td>M = 114.03, SD = 12.8</td>
<td>.81</td>
</tr>
</tbody>
</table>

Scores were subjected to a principal components analysis with five factors extracted and orthogonally rotated. Using the factor structure found with raters by McCrae and Costa (1987) as the target matrix, the factor loadings were subjected to an orthogonal Procrustes rotation (Schönemann, 1966). Congruence coefficients were calculated between the new Procrustes loadings and the loadings in the target matrix. Coefficients of .89, .92, .88, .90, and .85 were found for Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness, respectively. Using the critical values provided by McCrae, Costa, Bond, and Paunonen (in press) as reference points,
these obtained values are all significant, demonstrating that the factor structure of the present data set is equivalent to that found with adult data. Overall, the results of this study support the use of these adjective scales with college students.

REFERENCES


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