



### Study 5

## Extreme Response Set Based on Personality Components?

### Source:

Naemi, B. D., Beal, D. J., & Payne, S. C. (2009). Personality predictor of Extreme Response Style. *Journal of Personality, 77*(1), 261-286.

### Aim of Naemi et al's study:

Extreme response style (ERS) refers to the tendencies to overuse the endpoints of Likert-type scales. The authors attempt, just as earlier researchers who reported mixed results, to find personality variables that account for this response tendency. Theoretical considerations led them to hypothesize, specifically, that the traits 'intolerance of ambiguity,' 'simplistic thinking,' and 'decisiveness' are ERS-inducing personality conditions.

### Method:

Extreme response style is operationalized (1) by summing responses 1 and 6 across 200 items of a questionnaire battery; by a 'contentless' measure designed by Greenleaf (1962), whose scale uses 16 items; and by an alternate Greenleaf score controlling influences of locations of the 16 items in the questionnaire, i.e., to diminish fatigue effects. Intolerance of ambiguity was measured by 25 items of a self-report questionnaire (Budner, 1962) and simplistic thinking by using eight items in order to test the preferences for simple or dichotomized answers to questions similar to Rokeach's (1960) dogmatism items. Decisiveness, a tendency to quickly 'seize' on an answer, as opposed to including confidence or fear of making errors, was measured by eight items (Need For Closure Scale (NFCS, Webster & Kruglanski, 1994) and from two other scales.

### Procedure:

132 undergraduates served as participants in this study. In order to exclude response style effects for measuring ERS, which are to be expected from self-reports, each participant invited one friend for assessing his (the participant's) personality on the three variables so that ERS tendencies of friends did not have systematic ERS effects on the personality ratings. Demographic and speed variables played a role, but need not be considered here.

Table 1

Input for factor analysis:

```
.65
.15 .33
.29 .25 .25
.30 .12 .25 .50
.28 .21 .22 .70 .45
.52 .40 .18 .18 .14 .23
.34 .46 .23 -.07 -.04 -.05 .48
.10 .23 .55 .17 .15 .29 .26 .33
```

For names of variables, see Tables 2 and 3

Eigenvalues:

3.27 1.79 1.25 0.70 ...

Varimax results

Naemi et al. applied in the first place multiple regression analysis, not factor analysis. I subjected their correlation data of Table 1 to PCA and its factors to Varimax rotation.

Table 2

Varimax-rotated loadings of PCA factors:

|   | F1<br>Ambiguity<br>Simplicity | F2<br>Extreme<br>Response<br>Set | F3<br>Decisive<br>ness | Variables           |              |
|---|-------------------------------|----------------------------------|------------------------|---------------------|--------------|
| 1 | <b>.83</b>                    | .31                              | -.08                   | Peer                | Ambiguity    |
| 2 | <b>.78</b>                    | .14                              | .19                    | Peer                | Simplicity   |
| 3 | .11                           | .20                              | <b>.82</b>             | Peer                | Decisiveness |
| 4 | .12                           | <b>.86</b>                       | .10                    | ERS Overall         |              |
| 5 | .08                           | <b>.74</b>                       | .10                    | ERS Greenleaf       |              |
| 6 | .11                           | <b>.83</b>                       | .18                    | ERS Alternate Green |              |
| 7 | <b>.74</b>                    | .10                              | .16                    | Self                | Ambiguity    |
| 8 | <b>.69</b>                    | -.29                             | .38                    | Self                | Simplicity   |
| 9 | -.11                          | .11                              | <b>.87</b>             | Self                | Decisiveness |
| % | 26.4                          | 24.9                             | 18.8                   | Sum: 17.1           |              |

Varimax factor interpretation:

Two of the three hypothetical determinants of ERS, 'intolerance of ambiguity' and 'simplicity', are factorially identical by loadings on F1, whether applied to peer or self ratings. 'Decisiveness' has no noticeable F1 loading; this trait is unique statistically by requiring a separate factor (F3, peer-, and self-report). F2 is clearly interpretable as ERS. F2 loadings of personality variables, however, are too small for claiming that they are affected by extreme rating on personality variables.

Criticism:

The main claim of this study, namely that ERS is based on personality variables, has not been achieved by factor analysis. FA with simple structure rotation divides the variables up into personality ('intolerance of ambiguity' and 'simplicity') and ERS, while 'decisiveness' turns out to be a different variable.

Varimin results

Table 3

Varimin loadings:

| No. | F1<br>Extreme<br>Response<br>Set (etc.?) | F2<br>Ambiguity-<br>Simplicity | F3<br>Decisive-<br>ness |                        |              |
|-----|--|--------------------------------|-------------------------|------------------------|--------------|
| 1   | .66                                      | -.48                           | .35                     | Peer                   | Ambiguity    |
| 2   | .70                                      | -.43                           | .03                     | Peer                   | Simplicity   |
| 3   | .63                                      | .36                            | -.45                    | Peer                   | Decisiveness |
| 4   | .56                                      | .41                            | .53                     | ERS Overall            |              |
| 5   | .48                                      | .37                            | .44                     | ERS Greenleaf          |              |
| 6   | .58                                      | .43                            | .45                     | ERS Alternate Greenlf. |              |
| 7   | .63                                      | -.43                           | .02                     | Self                   | Ambiguity    |
| 8   | .52                                      | -.51                           | -.42                    | Self                   | Simplicity   |
| 9   | .61                                      | .33                            | -.55                    | Self                   | Decisiveness |
|     |  |                                |                         |                        |              |
| %   | 36.0                                     | 17.7                           | 16.4                    | Sum: 70.1              |              |

#### Interpretation of Varimin factors:

F1 is a general factor explaining twice as much variance than F2 and F3. Since the three main independent variables, i.e., numbers 4, 5, and 6, represent ERS and since the three personality variables are supposed to be prime determinants of ERS, this factor can be taken to represent ERS. The three ERS variables have slightly, but still remarkably lower F1 loadings compared with personality variables 1, 2, 3 and 7, 8, 9. It seems as if these rating variables have been somewhat affected by acquiescence that the authors did not control. Thus, acquiescence might have contributed some variance to F1.

F2, which is bipolar, has negative loadings on 'intolerance of ambiguity' and 'simplicity'. The F2 loading of the 'decisiveness' and of the three ERS variables seem to merely indicate that the attributes of the two negatively loading personality variables differ to some extent from the other variables. Since 'decisiveness' is characteristic of speed of decision taking, compared with 'fear of ambiguity' and 'need of simplicity', F2 seems to represent this particular trait that, as the authors also found, correlates with ERS.

The positive and negative loadings of F3 might suggest that 'intolerance of ambiguity' is psychologically considerably different from 'decisiveness'.

#### Evaluation:

The meaning of F1 (ERS and ERS-affected variables) is prominent and proves that personality variables, at least 'intolerance of ambiguity' and 'simplicity', are indeed highly correlated with ERS. The expected interaction between ERS and these personality variables has not been revealed by simple structure rotation. A possibly volitional and temperamental component of 'decisiveness', contrasting with needs of cognition ('intolerance of ambiguity' and need of 'simplicity') which are less action-prone is noticeable by Varimin as well as by Varimax rotation

Table 4

Minimal pairs:

| Bold numbers represent loadings of pairs of variables for a focal factor. Non-bold numbers are loadings of paired variables for non-focal factors |                         |              |                 |      |              |
|---|-------------------------|--------------|-----------------|------|--------------|
| Var. No.  | F1 Extreme Response Set | F2 Ambiguity | F3 Decisiveness |      |              |
| 1   | .66                     | <b>-.48</b>  | .35             | Peer | Ambiguity    |
| 3   | .63                     | <b>.36</b>   | -.45            | Peer | Decisiveness |
| 7   | .63                     | <b>-.43</b>  | .02             | ERS  | Ambiguity    |
| 9   | .61                     | <b>.33</b>   | -.55            | ERS  | Decisiveness |
| 1   | .66                     | <b>.48</b>   | <b>.35</b>      | Peer | Ambiguity    |
| 3   | .63                     | <b>.36</b>   | <b>-.45</b>     | Peer | Decisiveness |
| 7   | .63                     | <b>-.43</b>  | <b>.02</b>      | Self | Ambiguity    |
| 9   | .61                     | <b>.33</b>   | <b>-.55</b>     | Self | Decisiveness |

Comment:

An interpretation of F1 cannot be based on the minimal pair procedure. F2 reveals particular attributes of 'ambiguity' by paired comparison. 'Ambiguity' and 'decisiveness' show additional loading contrast with F3 which seems to be due to unique qualities of 'decisiveness'.