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## Relationship between indecisiveness and neuroticism: the moderating effect of a tough-minded culture

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### Abstract

This paper investigated the relationship between the total number of Can't Decide (CD) scores on an extensive (440 item), computer administered personality test (Eysenck Personality Profiler; EPP) and the personality trait scores from that test. Across a diverse range of occupational groups, the CD score was moderately, positively correlated with Neuroticism ( $r = 0.24$ ,  $P < 0.001$ ) but the size of the correlation varied substantially according to the occupational group of the test-takers. Moderated regression analysis indicated that the average psychoticism score of the group interacted with CDs to predict an individual's neuroticism. This relationship shows how the tough-mindedness of the 'occupational culture', as defined by the scores of peers, moderates neuroticism of the participants. The results underpin the importance of looking at test-taking styles and how they interact with the environment. This quasi-experimental study represents a new approach to investigating neuroticism, whilst avoiding the ethical issues of conducting actual experimental studies. © 1999 Elsevier Science Ltd. All rights reserved.

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### 1. Introduction

The tendency to response sets when completing personality questionnaires may distort results (Kline, 1995) because they relate to a consistent tendency to choose a particular response style to each item of a questionnaire. For example, the tendency to agree is labelled 'acquiescence' and to disagree 'criticalness' (Murphy & Davidshofer, 1994). It has been found that specific personality differences exist between those people who tend to agree with responses and those who tend to disagree, using questionnaires without reverse scored items. Couch and Keniston (1960) reported

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<sup>1</sup> The Eysenck Personality Profiler (EPP) and the short version of the EPP (EPP-S) are available from Dr C.J. Jackson

evidence of specific differences in the personality profiles for the ‘yeasayer’ and the ‘naysayer’. It was concluded that the former represented an extraverted, impulsive character, lacking reservation and internal control, whilst the latter was characterised by an ‘anal’ personality in which impulses were suppressed and emotional stimuli impinging on themselves were rejected. More recent studies have confirmed these findings (Kline, 1995).

A response tendency which may not be as prevalent in the real world as once thought (Ones, Viswesvaran, & Reiss, 1996), but which cannot be easily corrected, relates to the social desirability of the items (Edwards, 1957; Furnham, 1986). That is, for a variety of reasons, participants give a socially desirable rather than an honest answer to a particular item. Most studies have asked participants deliberately to fake good or bad, but some have asked them to fake according to other instructions (i.e. fake a librarian or fake a mental patient), and the resulting profiles have usually been predictable (Archer, Gordan, & Kirchner, 1987; Elliot, Lawty-Jones, & Jackson, 1996; Furnham & Craig, 1987; Furnham, 1990a,b,c). It has also been shown that testing occasions can be shown to be differentially dissimulation-prone and that this proneness can be measured from the test results (Michaelis & Eysenck, 1971).

However, there are other important test-taking styles which may be extremely important to evaluate and yet have been almost totally ignored. One such test-taking style is latency of response to particular items as well as the questionnaire as a whole. Another concerns the use of a Can’t Decide (CD) category when answering a personality questionnaire. Many tests that allow a simple ‘Yes’, ‘No’ response also include a CD category (Wilson & Patterson, 1968). Furnham, Forde and Cotter (in press) reported a few overall relationships between personality scores with the Eysenck Personality Profiler (EPP; Eysenck & Wilson, 1991) and the total number of CD scores. A number of the 21 primary and 2 of the 3 superfactor scores were significantly correlated with the total CD score in a single large sample ( $N = 811$ ). High CD scores were associated with low Psychoticism, Neuroticism, Unadventurousness, Carefulness and being Inhibited.

The Eysenck Personality Profiler (EPP; Eysenck and Wilson, 1991) and the Eysenck Personality Profiler—short version (EPP-S; Eysenck, Wilson, & Jackson, 1997) are ideal questionnaires to evaluate use of the CD option as a test-taking style because of its particular scoring system. Test-takers can answer each item as ‘Yes’ (2 points); ‘No’ (0 points); ‘CD’ (1 point).

Choice of a CD in a personality test is unlikely to be similar to choosing a third (mid-point) item in a multiple choice test (Sidick, Barrett, & Doverspike, 1994) in which an approximately uniform distribution could be expected or a middle item in a three point scale used in a survey or questionnaire in which a near normal distribution could be expected. We know this because when the EPP item responses are analysed there is a bi-modal distribution with most responses as ‘Yes’ and ‘No’ and the *least* responses as CD (Furnham et al., in press). In fact, Goldberg (1981) has classified the mid-response of a personality scale as being the result of one or more of at least four processes—neutrality, uncertainty, ambiguity and situationality. Test-takers may be neutral about an EPP personality phrase if ‘Yes’ or ‘No’ answers seem like extreme responses or the question has little relevance. Alternatively, the respondents may simply be unable to answer ‘Yes’ or ‘No’ because they lack sufficient insight and thus are uncertain of their response. It also seems possible that ambiguous words in EPP items may lead to a test-taker to answer with the CD option. Goldberg also supposes that respondents will choose to use a CD option if the respondent is not consistent enough in the particular situation described by the item.

Thus the CD option represents the choice of a test-taker given that neither ‘Yes’ nor ‘No’ is

suitable. In other words, it seems likely that a CD option will be chosen when faced with two alternative extreme choices which are equally attractive or unattractive depending on the amount of item neutrality, uncertainty, ambiguity and situationality. For some subjects, the use of CDs may *relieve* the conflict experienced when subjects are unable to decide between answering such items. Here the answers of ‘Yes’ or ‘No’ represent classic ‘Approach–Approach’ or ‘Avoidance–Avoidance’ conflict as originally described by Lewin (1935) and Dollard and Miller (1950). It is also possible that each alternative will contain both an attractive and an unattractive component (‘Approach–Avoidance’) in which there is conflict both between and within each alternative answer. (Avila, Molto, Segarra, & Torrubia, 1995, used questions in a multiple choice test to represent approach–avoidance conflict.)

Arkoff (1957) presented subjects with a number of conflict inducing alternatives such as ‘Would you rather be more attractive or more intelligent?’ and ‘Would you rather be less attractive or less intelligent?’ As predicted, it was found that the time taken to make a choice or resolve the conflict was much less in the ‘approach–approach’ than in the ‘avoidance–avoidance’ situation because the ‘approach–approach’ hypothetical conflict is easier to resolve than the ‘avoidance–avoidance.’ This is because a test-taker will increasingly see an attractive option as more attractive when that option becomes closer and closer to being chosen. On the other hand, as a test-taker gets closer and closer to choosing an unattractive option, the unattractive option becomes less and less desirable, thus increasing the conflict.

Research indicates that inter- and intra-personal conflict and Neuroticism are closely, and probably causally, related (e.g. Bolger & Zuckerman, 1995; cf. Dollard & Miller, 1950; Francis & Rodger, 1994). As a result, we would expect a relationship between number of CDs and N when subjects use the CD option to reduce conflict. We would therefore expect to find *no* correlation between CD and N when subjects do not experience conflict, but a *positive* correlation between CD and N when subjects experience conflict and relieve that conflict by choosing the CD option.

Neurotics are most likely to experience conflict when in a highly tough-minded (or high in ‘psychoticism’) group. Eysenck and Eysenck (1975) define those high in psychoticism as uncaring, troublesome, cruel, inhumane, lacking in feeling and empathy, insensitive, hostile, aggressive and liking to make fools of others. Having tough-minded or psychotic colleagues presents a problem for the neurotic who is likely to be sensitive to criticism and be dependent upon a network of social support from colleagues. Without support, and in a typically hostile environment, some individuals may experience conflict (such as for example when all alternatives are unattractive and mistakes are punished. For example, ‘bikers’ (people who ride motor-bikes) are generally high in psychoticism (Jackson & Wilson, 1993). Amongst this tough, macho leisure group, some people are likely to be made fools of, attract criticism and be put under great social pressure by generally hostile colleagues. Such individuals experience conflict and this leads to increasing N and probably increasing levels of conflict as well.

On the other hand, amongst a generally tender-minded group, people in general will have less need of conflict reducing strategies. Thus amongst physicists who are relatively low in psychoticism (Wilson & Jackson, 1991), conflict will not be experienced when faced with different alternatives because their colleagues will be generally more tolerant of personal and/or job related indecision. All in all, such people are less likely to be persecuted by their colleagues within their peer group and therefore less conflict will be experienced when faced with equally attractive or unattractive alternatives.

We predicted the way subjects were likely to deal with behavioural alternatives in real-life would be mirrored when choosing between alternatives in behavioural questions of a personality questionnaire. Specifically, we hypothesised that group psychoticism (i.e. the average level of tough-mindedness of the social group that the person belonged to) would moderate CDs in the prediction of Neuroticism. In tender-minded groups, number of CDs is simply a measure of indecisiveness with no strong relationship to N. However in tough-minded groups, number of CDs is a measure of conflict and therefore more highly related to N.

## 2. Method

### 2.1. Participants

Personality data were collected from 15 different occupational or social groups. The groups were: (1) male engineers,  $n = 43$ ; (2) male computer technicians,  $n = 53$ ; (3) male bikers,  $n = 22$ ; (4) male warehouse staff,  $n = 44$ ; (5) male cosmetic sales staff,  $n = 77$ ; (6) male solicitors,  $n = 41$ ; (7) female voluntary workers,  $n = 15$ ; (8) female physicists,  $n = 133$ ; (9) male physicists,  $n = 109$ ; (10) female area managers in retail,  $n = 15$ ; (11) male area managers of a retail store,  $n = 34$ ; (12) male recruitment consultants,  $n = 13$ ; (13) female cosmetic sales staff,  $n = 19$ ; (14) female students,  $n = 78$ ; (15) male students,  $n = 75$ . We split the social groups up into males and females because there are mean differences between sex in terms of Neuroticism and Psychoticism (Eysenck, Barrett, Wilson, & Jackson, 1992). The characteristics of most of these groups are described in Jackson and Wilson (1994) and were chosen to provide a reasonable spread of high, medium and low psychoticism across the groups.

### 2.2. Questionnaire

The Eysenck Personality profiler (EPP; Eysenck & Wilson, 1991) was used in this analysis. The EPP consists of 440 questions that load on to 22 traits (including a Lie scale). Each question is answered as 'Yes', 'No' or 'CD'. Items are reverse scored as necessary.

The majority of EPP scales have satisfactory psychometric properties within a three factor personality structure when the traits are organised in the manner recommended by Eysenck et al. (1992) as shown in Table 1. Eysenck et al. (1992) reported the coefficient alphas of these scales to be all above 0.7 for both males and females except for Expressive ( $\alpha = 0.60$ ); Dogmatic ( $\alpha = 0.58$ ); Risk-taking ( $\alpha = 0.68$ ); and Manipulativeness ( $\alpha = 0.64$ ). A similar pattern was reported by Costa and McCrae (1995) although they also suggested that a five factor solution was optimal. The EPP has already been used to investigate the personality of physicists (Wilson & Jackson, 1993), the personality of motor-cyclists (Jackson & Wilson, 1993) the personality of performers (Marchant-Haycox & Wilson, 1992) and how obsessive sub-cultures moderate the relationship between N and L (Jackson & Wilson, 1994). The relationship between the EPP and test-taking style and between the EPP and intelligence has recently been investigated by Furnham, Forde and Cotter (in press a,b) respectively. Recently, a short form of the EPP (known as the EPP-S) has been developed which consists of 10 traits and possesses a clear three factor structure (Eysenck et al., 1997).

Table 1  
 Traits comprising E, N and P of the Eysenck Personality Profiler

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Extraversion (E)
1. Sociable
2. Active
3. Assertive
4. Ambitious
Neuroticism (N)
1. Dependent
2. Inferior
3. Unhappy
4. Anxious
5. Guilty
6. Hypochondriacal
Psychoticism (P)
1. Risk-taking
2. Manipulative
3. Sensation-seeking
4. Aggressive
5. Impulsive
6. Irresponsible
7. Dogmatic
8. Expressive

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Three factor classification of traits as reported by Eysenck, Barrett, Wilson, & Jackson, 1992.

### 3. Results

The means and standard deviations of each of the groups are shown in Table 2. Correlations between each of the scales across the whole dataset are shown in Table 3. Across the groups, there do not appear to be any consistently strong negative correlations between CD and personality trait scores. However, across the different occupational groups, there do appear to be large differences in the positive correlation between Neuroticism and CDs.

Two multiple regression models were used across the whole dataset (Table 4). In the first analysis, number of CDs and the average group psychoticism (AV P), a continuous variable, were regressed against Neuroticism (N). After standardization of the variables, the procedure was as follows. In Step 1, CD and Average psychoticism (AV P) were entered as main effects. Then, in Step 2, the CD  $\times$  AV P interaction was entered. The whole model was significant ( $F = 34.10$ ,  $df = 3.783$ ) and after adjustment for number of variables,  $R^2 = 0.11$ . Thus the model accounted for 11% of the variance in Neuroticism. The significant ( $P = 0.00$ ) interaction effect is shown in Fig. 1. It can be seen that, for low levels of average psychoticism, the number of CDs has virtually no differential effect on neuroticism. However, as average psychoticism increases, participants who have a high number of CDs show much higher Neuroticism scores than subjects who have a low number of

Table 2  
 Statistics of each occupational group

	N	E		N		P		L		CD	
		Mean	S.D.								
(1) Male engineers	43	25.98	4.86	4.41	3.69	16.13	3.88	10.63	5.91	14.21	19.59
(2) Male computer technicians	53	28.16	4.83	5.52	4.00	16.72	5.06	13.96	6.39	31.98	28.37
(3) Male bikers	22	21.13	5.51	9.82	5.14	21.05	3.25	10.36	5.46	23.36	24.70
(4) Male warehouse staff	44	21.22	5.40	10.39	6.28	17.83	5.97	14.97	7.67	24.34	26.71
(5) Male cosmetic sales staff	77	26.95	4.61	6.79	4.96	16.30	4.44	16.55	8.38	20.47	25.98
(6) Male solicitors	41	28.03	4.57	5.66	3.89	16.74	4.16	11.66	6.09	24.12	32.94
(7) Female voluntary workers	15	19.43	5.19	9.46	5.20	13.45	2.89	11.93	6.85	41.40	25.40
(8) Female physicists	133	20.89	5.32	9.33	4.94	12.57	4.14	16.04	7.28	38.46	35.15
(9) Male physicists	109	19.87	5.77	7.96	4.95	14.39	3.99	13.11	6.70	31.66	30.70
(10) Female area managers in retail	15	25.58	5.02	6.31	3.27	15.85	4.17	12.27	7.53	16.87	18.81
(11) Male area managers in retail	34	28.76	4.01	5.03	3.61	16.68	4.82	12.50	7.94	22.79	18.93
(12) Male recruitment consultants	13	28.69	4.90	5.69	3.58	21.21	3.85	9.08	4.27	20.85	25.42
(13) Female cosmetic sales staff	19	27.71	4.75	7.88	2.66	17.64	4.06	15.05	8.13	16.74	21.53
(14) Female students	78	19.97	4.79	16.66	6.55	17.60	4.52	13.88	6.64	52.69	48.06
(15) Male students	75	20.03	5.61	15.34	8.07	19.80	4.41	11.34	6.59	55.45	48.02

N = Number of subjects in each occupational/social group. E = Extraversion; N = Neuroticism; P = Psychoticism; L = Lie score; CD = Number of Can't Decides.

CDs. For the low CD group, there is little relationship between Average Psychoticism and Neuroticism, but for the high CD group there is a much stronger relationship.

The results of this multiple regression model were supported by a second one in which the effects of Extraversion, Psychoticism and Lying were initially partialled out. In the second analysis three steps were followed. In Step 1, Extraversion, Psychoticism and Lie scores were entered. In Step 2, CD and average psychoticism were entered and in Step 3 the interaction of these Step 2 variables were entered. Extraversion, Psychoticism and CD main effects were significant as was the interaction. Again this model was significant (adjusted  $R^2 = 0.37$ ) and  $F(6,752) = 76.27$  ( $P = 0.00$ ). The inclusion of the extra variables led to a model which could therefore explain 37% of the variance in Neuroticism.

#### 4. Discussion

This paper has shown how group psychoticism appears to moderate the relationship between CD and Neuroticism, even when other personality scores have been partialled out. It is important to present the results of the multiple regression when the other personality scores have been partialled out since the multivariate, multi-group dataset could have varied on any or all of these other dimensions in a manner that would have confounded the results presented in the simpler multiple regression. Our results show that conflict (or more precisely, relief from conflict) in tough-

Table 3  
Correlations between Can't Decide and the personality variables

	<i>N</i>	Correlation between Can't Decide and			
		E	N	P	L
(1) Male engineers	43	−0.06	0.38*	0.03	−0.08
(2) Male computer technicians	53	−0.15	0.39**	0.09	−0.15
(3) Male bikers	22	−0.17	0.57**	−0.23	0.35
(4) Male warehouse staff	44	−0.07	0.24	−0.05	0.05
(5) Male cosmetic sales staff	77	0.02	−0.09	0.05	0.03
(6) Male solicitors	41	−0.56**	0.31*	−0.15	0.01
(7) Female voluntary workers	15	−0.12	0.01	−0.07	−0.06
(8) Female physicists	133	−0.06	−0.01	0.01	−0.01
(9) Male physicists	109	0.05	0.01	−0.06	−0.07
(10) Female area managers	15	−0.05	−0.10	−0.19	0.11
(11) Male area managers in retail	34	0.16	0.24	0.20	0.09
(12) Male recruitment consultants	13	−0.25	−0.46	0.05	0.17
(13) Female cosmetic sales staff	19	0.05	0.09	0.00	0.22
(14) Female students	78	0.09	−0.14	0.01	0.24*
(15) Male students	75	−0.15	0.20	−0.30*	−0.06
Correlation between mean and Can't Decide vs scale correlation	−0.17	−0.32	−0.24	−0.15	

*N* = Number in each occupational/social group. E = Extraversion; N = Neuroticism; P = Psychoticism; L = Lie score; CD = Can't decide;

\*  $P < 0.05$ ; \*\*  $P < 0.01$

Two-tailed tests. The correlation between the mean score and the CD vs scale correlation is the correlation across groups between the means reported in Table 2 and the correlations reported in this table. It represents a check on possible confounding between the CD score and scale scores. See Fig. 2 for a plot of these correlations.

minded occupational or social groups is related to N scores. On the other hand, it seems likely that those in tender-minded groups do not perceive a conflict between the response alternatives and therefore no relationship between CD and N is apparent.

The interaction part of our regression model is the focus of this study and yet only accounts for an additional 2% and 1% of the variance in Neuroticism in Regression (a) and Regression (b) of Table 4 respectively. This does not, however, mean that the interaction effect is of little interest. Evans (1985) regarded these effect sizes as meaningful given the problems involved in detecting interactions in the field, and McClelland and Judd (1993) demonstrated that interactions can be very important even when accounting for a relatively small increment in variance. Consequently, it is relatively common in the literature to regard interactions of this type as meaningful even when the increment in variance is low (Fried, Ben-David, Tiegs, Avital, & Yeverechyahu, 1998).

Our model has not attributed causality between CD and Neuroticism since our quasi-experimental design limits this type of directional conclusion. Nevertheless, our results would support models of Neuroticism that attribute its cause in part to be the result of subjects' experiencing conflict between alternatives (Argyle, 1991; Dollard & Miller, 1950). Moreover, if such reasonable

Table 4  
Final model statistics

(a) N against CD and average psychoticism			
$R^2$	0.12		
Adjusted $R^2$	0.11		
$F(3,783)$	34.10	$P = 0.000$	
Variable	Beta	$T$	$P$
Step 1			
CD	0.21	6.01	0.00
AV P	0.21	6.11	0.00
Step 2			
CD $\times$ AV P	0.10	2.90	0.00
Increment in $R^2$ between Step 1 and Step 2 = 0.02			
(b) N against CD and average psychoticism after partialling out the effect of E, P, and L			
$R^2$	0.38		
Adjusted $R^2$	0.37		
$F(6,752)$	76.27	$(P < 0.00)$	
Variable	Beta	$T$	$P$
Step 1			
E	-0.53	-17.32	0.00
P	0.39	9.89	0.00
L	0.06	1.85	0.07
Step 2			
CD	0.13	4.33	0.00
AV P	0.06	1.89	0.06
Step 3			
CD $\times$ AV P	0.09	3.07	0.00
Increment in $R^2$ between Step 2 and Step 3 = 0.01			

E = Extraversion; N = Neuroticism; P = Psychoticism; L = Lie score; CD = Number of Can't Decides; AV P = Average psychoticism score of each group. All variables were standardised prior to input into the multiple regression.

causality was assumed, then our model is one of the few studies which show how environment interacts with cognitive style to cause Neuroticism.

According to Dollard and Miller (1950) there are three types of conflict: Approach–Approach, Approach–Avoidance and Avoidance–Avoidance. It seems most likely that test-takers may experience Approach–Approach conflict (between answers that are equally attractive) and Avoidance–Avoidance (between answers that are equally unattractive). In this study we were unable to classify items into these two types of conflict since only the total scores were available for analysis but this would be a useful line of research for further studies.

There are a number of important implications from this study:

- (1) CD is a valid measure of general decision-making avoidance as well as personality.
- (2) CD scores are moderated by work and social group pressure in the prediction of Neuroticism.
- (3) We have demonstrated the interaction of environment and person in its effect on personality (or vice versa, but this is less likely).

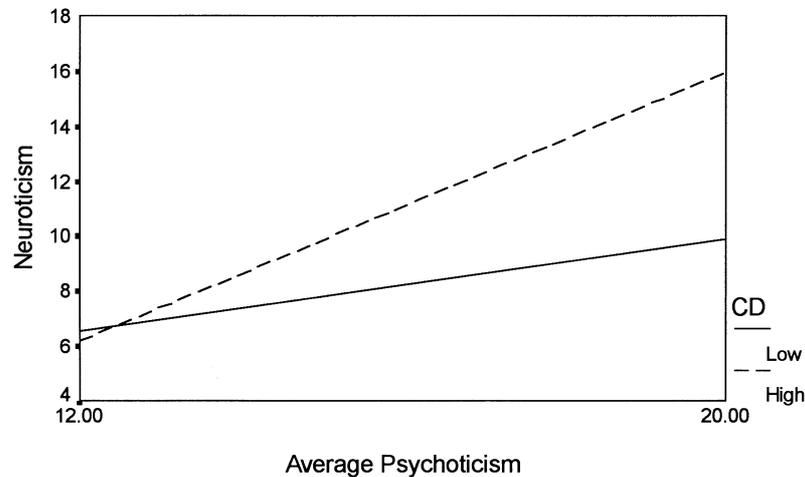


Fig. 1. Plot of Neuroticism against average psychoticism for high and low levels of CD. The low and high CD lines represent subjects who were less than half a standard deviation below, and more than half a standard deviation above, the main respectively.

- (4) This type of study makes it possible to investigate factors which influence Neuroticism in real-life without ethical problems.
- (5) There may be ethical concerns about the use of tests in job selection where the conflict experienced by test-takers may be somewhat larger.

We have, however, to add a few words of caution. It should be noted that the CD scores may be intrinsically confounded with personality scores. For example, in the EPP, a high CD score will limit the range of scores which it is possible to otherwise obtain. Thus a CD score of 10 derived from Sociability items (20 items giving a possible scale range from 0–40) reduces the range of obtainable scores to between 10 and 30 on sociability. Whether this restriction results in a positive or negative correlation between CD and the scale score may depend upon the scale mean: if subjects tend to say ‘No’ to the items of a scale (something that is typical of N items in the EPP), subjects with a high number of CDs may tend to have higher scores on the personality scale. If subjects say ‘Yes’ more often to items, such as with the E scale of the EPP, then subjects with a higher number of CDs may tend to have below average scores on that personality scale. The result that could be expected is that as the mean score of a scale increases, the correlation of that scale with the CD score decreases. Overall the effect is large, as shown in Fig. 2. However, such a confounding relationship has a much smaller effect for each particular EPP scale, as also shown in Fig. 2. The correlations across groups between the individual scales are reported in Table 3 and not all are significant. It seems that test-takers use the CD option of the EPP too rarely for the effect to be large and the spread of means across occupational groups on any particular scale may not be large enough for this effect to be meaningful. In our study only an average of 34.7 out of 440 items were chosen as CD responses—this represents less than 8% of the items.

Finally it should be noted that the study was limited by the restricted number of variables we analysed which may also moderate the relationship between CDs and Neuroticism. For example, the length of time people are within a group as well as group cohesiveness may well affect the

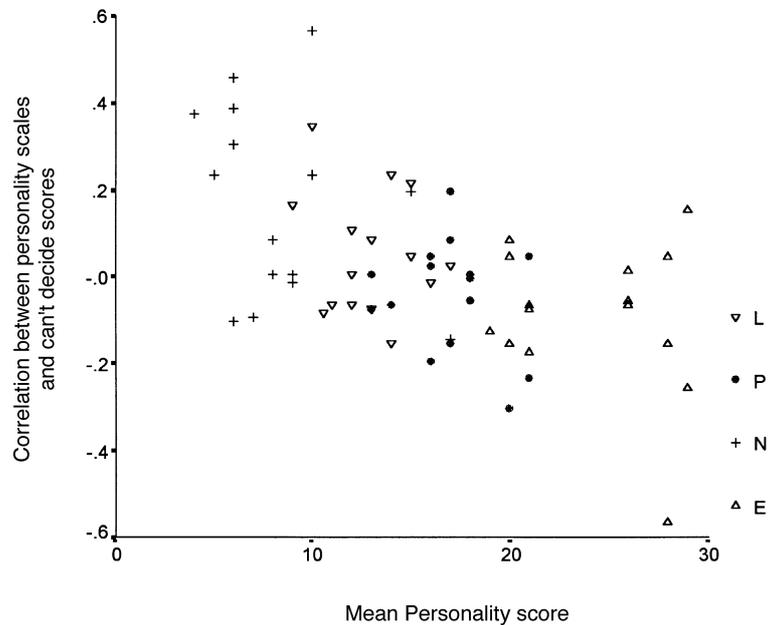


Fig. 2. Plot of the relationship between mean of the personality scales and the correlation between the scale and Can't Decide score. This is a plot of the mean personality scores of each occupational group as shown in Table 2 against that correlation between the personality score and CD score for that group taken from Table 3. Notice the strong relationship overall between these two variables is much weaker for each individual scale.

degree to which the group exerts social pressure on them to act in the manner which the group demands. We know little about the effects of such variables on an individual's Neuroticism. These unknown factors make the results reported in this study all the more impressive and we urge researchers to investigate how the group can interact with the person to influence personality.

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