

PERSONALITY IN PRIMARY SCHOOL CHILDREN :

2.—TEACHERS' RATINGS.

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SUMMARY. Teachers' ratings of emotional stability, perseverance, sociability and impulsiveness were compared with ability and achievement scores, as well as with scores on the Junior Eysenck Personality Inventory. Analysis of variance and factor analyses were performed on some 4,000 male and female primary school leavers. The results show complex interrelations between ability and achievement variables, inventory variables, and parental status and other family variables. Teachers' ratings on extraverted behaviour patterns correlated well with inventory responses on the children; teachers' ratings of emotional stability did not correlate well with children's self-ratings, possibly because of concentration of teachers on matters of school discipline and moral behaviour. Grammar school entrance was determined both by ability/achievement and by social status. For both boys and girls the pattern of inter-relations was very similar.

I.—INTRODUCTION.

In the first paper of this series, Eysenck and Cookson (1969) have described the sample of some 4,000 Staffordshire boys and girls used in this study, all of whom were in the last year of their primary school life. Also described in detail in that paper were the tests, measures and ratings used. Here we will only remind the reader that extraversion and neuroticism were measured on the Junior Eysenck Personality Inventory, which also included a Lie scale; that teachers were asked to rate the children on four 5-point scales on emotional stability, perseverance, sociability and impulsiveness (from 1=highest to 5=lowest), and that scores were available on two verbal reasoning tests, one reading test, and Mathematics and English examination results. Also available was information on size of family, ordinal position in family, and parental interest, as well as social status. In the first paper we discussed the relationship between abilities and achievement on the one hand, and inventory responses, on the other; for much of the analysis a special sub-sample was used in which equal numbers of children made up the 18 cells created by division into two sex groups, three extraversion groups, and three neuroticism groups. In the present paper we have concentrated on the results achieved by analysing the teachers' ratings in relation to all the other variables.

Previous writers have on the whole not found too much agreement between inventory responses and teachers' ratings (e.g., Sarason *et al.*, 1960; Eysenck and Pickup, 1968), and we did not expect that our data would differ widely from the earlier ones. One of the reasons for this lack of agreement may be found in the divergent views of 'abnormality' held by teachers and psychiatrists, respectively. Wickman (1928), in his classic formulation of the problem, had divergent types of behaviour rated for 'degree of abnormality' by teachers and mental hygienists; he found that "teachers stress the importance of problems relating to sex, dishonesty, disobedience, disorderliness and failure to learn;

For them, the problems that indicate withdrawing, recessive characteristics in children are of comparatively little significance. Mental hygienists, on the other hand, consider these unsocial forms of behaviour most serious and discount the stress which teachers lay on anti-social conduct" (p. 129). Much support has come for this view from the work of Boynton and McGaw (1934), Epstein (1941), Dickson (1932), Harkness (1951), Hildreth (1928), Laycock (1934), McClure (1929), McFie (1934), Mitchell (1943), Peck (1935), Sparks (1952), Stogdill (1931), Thompson (1940), Yourman (1932) and many others; Hollins (1955) concludes his excellent review of the field by saying "This review of research shows that a change of approach may make a difference as to whether teachers regard violations of morality or school offences as the most serious forms of problem behaviour, but there is overwhelming evidence that they do not regard the introverted, unsocial child as a problem" (p. 22). And his own research suggested that "teachers consider children who violate standards of morality and defy school authority as more seriously maladjusted than those who are quiet and unsociable." Psychiatric social workers "consider the problems of 'withdrawing,' introverted behaviour as the most serious signs of maladjustment" (pp. 2, 3).

In terms of Eysenck's analysis of personality it is clear that teachers regard neurotic extraverted patterns of conduct as specifically abnormal, psychiatrists neurotic introverted patterns (Eysenck, 1960, 1967); both are right in what they assert, wrong in what they deny. Both would be expected to show less than perfect agreement with an inventory of 'neuroticism' which was independent of extraversion/introversion, and a relatively pure measure of maladjustment. Nevertheless, some agreement would be expected, and was indeed found, as we shall see below.

II.—RESULTS.

Emotional Stability. Analysis of variance of the ratings on emotional stability gives highly significant results for all three main effects (sex, E, N) at the $p < .001$ level. Girls are more stable; extraverts are more stable; and children with low scores on N are more stable, in terms of the teachers' ratings. On a 5-point scale the low-N, high E girls have the most stable score (2.63), the high-N, low-E boys have the second-highest score (3.30). Table I gives the details; it will be seen that all the regressions are reasonably linear. None of the interactions are significant.

TABLE I
RATINGS OF EMOTIONAL STABILITY.

	Boys				Girls			
	N—	A	N+	All	N—	A	N+	All
I	3.20	3.34	3.30	3.28	3.00	3.27	3.16	3.15
A	2.94	3.03	3.15	3.04	2.70	2.95	2.97	2.87
E	2.92	3.07	3.05	3.01	2.63	2.66	2.82	2.71
All	3.02	3.14	3.17	3.11	2.78	2.96	2.99	2.91

Perseverance. For ratings of perseverance, too; all three main effects are significant at the $p < .001$ level. Details are given in Table 2; it will be seen that girls are rated as more persevering than boys, extraverts than introverts, and low-N children than high-N children. None of the interactions are significant, and the regressions are reasonably linear in all cases.

TABLE 2
RATINGS OF PERSEVERANCE.

	Boys				Girls			
	N -	A	N +	All	N	A	N +	All
I	3.34	3.42	3.39	3.38	3.09	3.23	3.18	3.16
A	3.07	3.30	3.25	3.21	2.80	2.90	3.12	2.94
E	3.00	3.07	3.09	3.05	2.55	2.72	2.87	2.71
All	3.13	3.27	3.24	3.21	2.82	2.95	3.05	2.94

Sociability. The results of this rating are given in Table 3; of the main effects only E is significant ($p < .001$), but there are two significant interactions: $S \times E$ ($p < .05$) and $N \times E$ ($p < .05$). Extraverted boys and girls are rated as being more sociable, as might have been expected. The $S \times E$ interaction appears to result from the fact that extraverted girls are rated as considerably more sociable than extraverted boys, to an extent not predictable from the scores of the other groups. The $N \times E$ interaction appears due to the fact that the N+ and N- groups are rated more sociable than the A group when children are introverted, but as less sociable than the A group when children are ambiverted. It is doubtful if these interactions should be taken too seriously; with such large number of subjects even quite small and psychologically unimportant deviations can easily become statistically significant.

TABLE 3
SOCIALITY RATINGS.

	Boys				Girls			
	N -	A	N +	All	N -	A	N +	All
I	3.15	3.24	3.14	3.18	3.13	3.31	3.04	3.16
A	2.90	2.81	2.93	2.88	3.01	2.87	2.86	2.91
E	2.73	2.70	2.70	2.71	2.62	2.51	2.57	2.56
All	2.93	2.91	2.92	2.92	2.92	2.90	2.82	2.88

Impulsiveness. For this variable, sex and N are significant at the $p < .001$ level, while E is significant only at the $p < .01$ level; the interactions are uniformly insignificant. Detailed results are presented in Table 4. Males, as one might have expected, are the more impulsive sex; high N scores, too, are more impulsive. Extraversion goes with impulsiveness; thus the extraverted high-N boys have a score of 2.75 while the introverted low-N girls have one of 3.32. All these differences are in line with expectation.

TABLE 4
IMPULSIVENESS RATINGS.

	Boys				Girls			
	N -	A	N +	All	N -	A	N +	All
I	2.97	3.09	2.93	3.00	3.32	3.25	3.19	3.25
A	3.10	2.81	2.92	2.94	3.41	3.23	3.09	3.24
E	2.91	2.78	2.75	2.81	3.30	3.15	3.15	3.20
All	2.99	2.89	2.87	2.92	3.24	3.21	3.14	3.23

Correlational analysis. Table 5 gives the product-moment correlations between the inventory variables and the ratings; also included are age, intelligence (VR 70) and grammar school acceptance. The values for boys and girls are given separately; there are 1,869 boys and 2,162 girls included in the computations. Correlations above .04 are statistically significant; this does not of course imply that they are psychologically important or meaningful. The pattern of correlations is very similar for both sexes, thus lending support to any conclusions that may be drawn.

TABLE 5
PRODUCT-MOMENT CORRELATIONS BETWEEN AGE, PERSONALITY VARIABLES AND INTELLIGENCE.

	1	2	3	4	5	6	7	8	9	10
1. Age.....		.06	-.03	-.04	.07	.11	.13	-.01	-.05	-.01
2. E.....	-.07		-.21	-.03	.13	.12	.21	.07	.19	.07
3. N.....	-.03	-.19		-.29	-.08	-.08	-.03	.04	-.11	-.09
4. L.....	-.06	-.03	-.28		-.05	-.07	-.14	-.04	-.15	-.08
5. Emotional Stability....	-.08	.12	-.09	-.04		.48	.33	-.43	.27	.22
6. Perseverance.....	-.09	.13	-.06	-.09	.48		.29	-.41	.49	.42
7. Sociability.....	.11	.22	-.02	-.15	.33	.29		.10	.14	.13
8. Impulsiveness.....	-.01	.06	.05	-.04	-.42	-.41	.10		-.22	-.21
9. VR.....	-.15	.19	-.11	-.15	.27	.49	.13	-.23		.68
10. Grammar School.....	-.00	.08	-.09	-.07	.21	.41	.12	-.21	.67	

(Boys lower part, girls upper part of matrix.)

The older children are slightly more stable, persevering, and sociable; it should be remembered, of course, that the age differences are minute in this sample. Consequently the observed correlations, while small, may suggest true relationships when extrapolated over longer periods. Extraversion is correlated with stability, perseverance, sociability and impulsiveness; none of these correlations is very high, but they are clearly replicated for the two sexes. N is correlated with instability, lack of perseverance, and impulsiveness; here again the correlations are replicated for both sexes, but small. High L scores are rated as unsociable and as lacking in perseverance; interpretation of this finding is difficult.

The teachers' ratings themselves are intercorrelated in such a fashion that they suggest a halo factor, particularly when the intelligence test results are also taken into account. Thus intelligence, stability, perseverance and sociability are positively intercorrelated, while impulsiveness is negatively correlated with all these desirable qualities (except sociability, where the correlation is slightly positive).

Grammar school entrance gives quite high correlations with teachers' ratings, although what is cause and what is effect here would be hard to disentangle. It might be argued that to teachers the intelligent, hard-working child acquires a halo which governs their ratings, and that this type of child is also likely to gain entry to a grammar school. Perseverance is the trait most relevant to success in this, while impulsiveness is the major drawback.

Psychological significance. In the first paper in this series, it was suggested that statistical significance is not identical with psychological significance, and that a more useful measure of the latter might be arrived at by indexing the

observed differences between introverts and extraverts, or between high and low N scorers, in terms of the SD of the whole distribution of scores. This has been done, and the results are given in Table 6. It will be seen that on the whole results show higher values for E than for N, and for girls than for boys; this latter phenomenon was also found with respect to ability and achievement tests. The absolute size of the values suggests that several of the observed differences are of a size to justify confidence in their psychological significance; two are above one-half, another just below this value, and one is over two-thirds of a SD. These results are a little more positive than the simple correlations given in Table 5; the reason of course is simply that here we are dealing with the more extreme groups, where relations should be more readily apparent.

TABLE 6
RATIO OF OBSERVED DIFFERENCES TO S.D.

	Boys		Girls	
	E	N	E	N
Emotional Stability .....	.28	.15	.45	.22
Perseverance .....	.33	.11	.44	.22
Sociability .....	.56	.01	.71	.11
Impulsiveness .....	.20	.13	.05	.21

Factor analysis. While the data are not ideally suited to factor analytic treatment, it was thought that this technique of evaluation might throw some interesting light on the findings. Consequently the product-moment correlations for the 17 variables listed in Table 7 were factor analysed by means of the principal components technique, 17 factors being extracted. The number of children involved was the same as listed above under 'correlational analysis.' Latent roots exceeded unity in the case of the first six factors for the boys, in the case of the first five factors for the girls; it was decided to accept the six factor solution in both cases, and to rotate factors, according to the Promax oblique programme (Hendrickson and White, 1964). The results for the boys are shown in Table 7.

TABLE 7
ROTATED FACTORS: BOYS.

	1	2	3	4	5	6
1. Age	-.19	.05	-.08	-.48	.05	-.05
2. E .....	.16	-.06	-.30	-.58	-.29	-.03
3. N	-.06	-.03	-.01	.10	.81	-.03
4. L	-.20	.01	-.14	.25	-.76	.04
5. Emotional Instability .....	.11	-.00	.74	.36	.02	-.03
6. Lack of Perseverance	-.28	-.06	.58	.21	.01	.03
7. Lack of Sociability .....	.09	-.02	.09	.81	-.13	-.04
8. Lack of Impulsiveness	-.02	-.00	-.85	.27	.06	-.02
9. No. of Children .....	.01	.92	-.03	-.01	.00	.01
10. Position in Family .....	.07	.94	.01	-.04	-.04	-.03
11. Reading .....	.87	.03	.07	-.01	.06	-.09
12. Low Occupational Status	-.26	-.00	.03	-.06	.00	.94
13. Lack of Interest	-.29	.21	.28	.08	.04	.26
14. VR 70 .....	.98	.03	-.00	.08	.01	-.07
15. Mathematics .....	.92	.03	-.01	.05	-.01	-.07
16. English .....	.98	.02	.02	.10	.02	-.07
17. Grammar School .....	.76	-.06	-.08	.02	-.02	-.65

The first factor loads highly on ability, school achievement, and grammar school entry ; there are also some low loadings on E, L (negative), Perseverance, Occupational Status and Parental Interest. The nature of this factor as one of scholastic achievement is hardly in doubt. The second factor is equally clear ; it loads on number in family and on position in family, and is thus a family size factor, with a slight loading on Lack of Interest. Factor three is one of (rated) emotional instability ; it has high loadings on Lack of Stability and Lack of Perseverance, and a high loading on Impulsiveness. In addition there is lack of parental interest, high E scores and low L scores. We will return to this factor again in the discussion. Factor four is one of introversion, with E having a high negative loading, and Lack of Sociability an even higher (positive) one. Lack of Impulsiveness also loads positively on this factor, as does (perhaps surprisingly) age (in a negative direction). Factor five is an inventory neuroticism factor, loading high on N and (negatively) L ; E has a slight negative loading. Factor six, finally, is an Occupational Status factor, with Parental Interest and Grammar School Entrance also having positive loadings. It is interesting to note that Grammar School Entrance loads almost as heavily on this Status factor as it does on the Achievement factor ; one wonders whether educationalists would have predicted this pattern of loadings ?

TABLE 8

CORRELATIONS AMONG PRIMARY FACTORS : BOYS.

1.00	-.29	-0.38	-0.31	-0.07	0.10
-0.29	1.00	0.10	0.10	0.10	-0.18
-0.38	0.10	1.00	0.16	0.02	-0.02
-0.31	0.08	0.16	1.00	0.07	-0.12
-0.07	0.10	0.02	0.07	1.00	-0.03
0.10	-0.18	-0.02	-0.12	-0.03	1.00

Table 8 shows the correlations between the primary factors discussed above. School achievement as a factor is negatively correlated with the family size factor, negatively with the emotional instability factor, negatively with the introversion (lack of sociability) factor, and hardly at all with the other two factors. The remaining correlations in this Table are probably too slight to deserve mention.

Table 9 shows the factor pattern for the girls. It will be seen that the first five factors are very similar to those of the boys, with identical tests loading identical factors. (Factor II is reversed in sign, as is Factor V.) The only exception is factor six, whose latent root fell short of unity in any case ; instead of being a status factor, as with the boys, this is clearly an age factor. Instead of constituting a separate factor, the status variable (No. 12) now has considerable loading on the first factor (ability/achievement) ; the loading is .44, as compared with .26 for the boys. It is difficult to explain this shift, which may have no clear psychological significance, but may be a statistical artefact. It must be left to future work to decide whether any interpretation is called for. Table 10 gives the correlations between the factors ; these are very similar to those shown in Table 8, and require no comment.

TABLE 9
ROTATED FACTORS: GIRLS.

	1	2	3	4	5	6
1	-0.03	0.05	-0.07	-0.05	-0.01	-0.95
2	0.10	0.06	-0.19	-0.64	0.26	-0.10
3	-0.09	0.03	-0.01	0.20	-0.81	0.05
4	-0.17	-0.12	-0.10	0.16	0.77	0.07
5	0.12	0.03	0.81	0.25	-0.00	0.00
6	-0.28	0.04	0.63	0.12	0.00	0.08
7	0.16	0.09	0.23	0.82	0.16	-0.03
8	0.02	0.04	-0.81	0.41	0.09	-0.05
9	0.02	-0.91	-0.02	0.01	0.01	-0.01
10	0.05	-0.93	0.02	-0.06	0.04	0.07
11	0.86	0.02	0.06	0.01	-0.07	-0.16
12	-0.44	-0.20	-0.02	0.09	-0.02	-0.18
13	-0.26	-0.26	0.31	0.17	-0.03	-0.15
14	0.96	-0.03	-0.01	0.03	-0.02	0.02
15	0.91	-0.03	-0.02	0.00	-0.00	0.02
16	0.94	0.01	0.05	0.04	-0.02	0.00
17	0.77	-0.10	-0.09	0.08	0.03	0.04

TABLE 10
CORRELATIONS AMONG PRIMARY FACTORS—Girls.

1.00	0.30	-0.39	-0.29	0.01	0.05
0.30	1.00	-0.11	-0.11	0.09	0.12
-0.39	-0.11	1.00	0.16	0.01	0.00
-0.29	-0.11	0.16	1.00	0.02	0.07
0.01	0.09	0.01	0.02	1.00	0.01
0.05	0.12	0.00	0.07	0.01	1.00

III.—DISCUSSION.

The results of this study do not require extensive discussion because they are essentially clear-cut and obvious, as can be seen by considering the factors which emerge from the factor-analysis—ability/achievement, family size, emotional instability, introversion, neuroticism, and occupational status. The only problem raised by this analysis is the apparent separation between neuroticism and emotional instability as two separate factors; we have already commented in the introduction on the likelihood of ratings by teachers and inventory responses by children on what seem semantically identical variables being poorly related; this finding bears out our expectation. Introversion on the inventory shows clear relations with teachers' ratings of lack of sociability, lack of impulsiveness, lack of perseverance and also emotional instability. This seems to contradict the expectation, based on the findings of Wickman, Hollins and others that teachers would regard extraverted, outgoing behaviour with its accompanying disturbances as more 'emotionally unstable' than the less troublesome types of introverted behaviour. Apparently this was not so in our sample, and further research is need to throw more light on the correlates of rated instability and inventory neuroticism respectively.

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