Multivariate Experimental Clinical Research, Volume 2, Number 4, 1976, 155-165

ALIGNMENT AND IDENTIFICATION OF FACTORS IN THE EARLY SCHOOL AND PRESCHOOL PERSONALITY QUESTIONNAIRES[1]

R. B. Cattell, University of Hawaii
R. M. Dreger, Louisiana State University

ABSTRACT

Both the Early School Personality Questionnaire and the Preschool Personality Questionnaire were administered to 950 first-grade children, with full protocols for 584 of them, in a "boundary study" designed to compare factors of personality at ages 4-6 and 6-8. Factors derived from Varimax and Promax rotations were subjected to Rotoplot. Nine factors are substantially matched in both age groups. One (B, the intelligence factor) is missing from the PSPQ since no intelligence items *per se* are included in the PSPQ, another (C, the ego strength factor) does not appear, and two others are only partially matched. Two factors show up on the PSPQ with no counterparts in the ESPQ. And two appear to be error factors.

INTRODUCTION

Few foundations for research in clinical and developmental psychology are as important as a set of personality measures shown to retain consistent meaning across age ranges. And yet, there has been only one attempt, as far as the writers are aware, to generate such a set of measures to span the ages from four to adulthood. Although there are other systems which assess temperament or general personality at specific age levels, there is no other system which has attempted to match traits or factors from age to age so a convenient and dependable cross-age reference system exists, save only that to which the Early School Personality Questionnaire (ESPQ) and the Preschool Personality Questionnaire (PSPQ) belong (Cattell & Dreger, 1974). These questionnaires are the lowest levels of a series which has been widely used both in the clinic and in research at the adult, high school, and childhood levels (Cattell, 1973; Cattell & Cattell, 1969; Cattell, Eber, & Tatsuoka, 1970; Dielman, Cattell, & Lepper, 1971; Karson & O'Dell, 1976), and has shown an integration at first and second orders across ages and cultures (Cattell, 1969).

Even where terminology differences exist from one set of measures to another, as from age to age or from one medium to another (L– , Q– , or T– data), identification of factor patterns has been possible. The indexing of factors in the various media and age levels by letter symbols proceeding in the order of diminishing contributions of variance, has facilitated such identification; but actual substantive identification has depended on "boundary studies" (Cattell, 1973; Porter, Cattell, & Schaie, 1972) and cross-media comparisons (Cattell & Gruen, 1953, 1954, 1955; Cattell, Pierson, & Finkbeiner, in press; Cattell & Vogelmann, in press). The assumption, that similarity of content means identity of trait, appears to be correct by correlational matching.

General principles — and problems — of matching of factors across *cultures*

and *ages* have been considered by Baltes (1968), Buss (1974), Cattell (1969), Nesselroade (1964), Royce (1963), and others. In identification of factors across age, with which the present study is concerned, it may be agreed that a personality factor can gradually change its pattern with the age of subjects, as has long been shown in regard to the *g* factor of intelligence; but it must also be the case that sufficient continuity of pattern remains to permit identification. In this connection, Buss, Royce, and others have expressed the view that only a few factors would exist in young children, factors which would multiply by some sort of fission in older children into more specialized structures. This hypothesis, elaborated most strongly for abilities, has not been substantiated for either abilities or temperament, though some hold one position or the other without definitive research supporting their ideas (Dreger, 1977). The evidence appears to favor about the same number of factors at the earlier as at later levels for general personality or temperament factors. It thus becomes feasible to investigate the posibility that in most cases the same factor dimensions develop continuously, with some gradual change in patterns of expression from childhood to adulthood. It is this possibility that is explored, in the research described below, in respect to two age levels, 4 to 6 and 6 to 8, by means of a boundary study at age 6 using the Preschool Personality Questionnaire and the Early School Personality Questionnaire.

THE BOUNDARY STUDY DESIGN TO IDENTIFY FACTOR TRAITS

Broadly, two methods for establishing age continuity of factor dimensions are possible. (a) The *cursive longitudinal method* (Baltes, 1968; Cattell, 1969) requires factoring measures on the same sample, say, at age 10 and again, say, at age 14, assigning factor scores for each occasion, and correlating these scores across occasions. Drawbacks to this method are the long wait and the fact that *trait levels* may change in individuals even though *traits* may remain substantially the same. (b) The *boundary method*, which is the one pursued here, calls for factoring measures at a boundary age, say 12 as the boundary between two age ranges, 10 to 12 and 12 to 14. Marker variables for factors found at the two age levels must be included that have relevance for both age groups — at least that they can reach down to the one and up to the other without absurdities. It should be pointed out that attempts to identify traits at younger levels to compare with much older levels merely by visual inspection of content or factor patterns is not satisfactory, since for two widely separated ages none of the variables may be identical (even though some content should be similar), the different interests and behaviors at each age requiring a different set. This is one reason for the necessity of a boundary study between each two successive age levels from early childhood to maturity. Both the longitudinal and boundary methods should be tried, though it is the writers' judgment that the latter is to be preferred.

In the case of the series of personality measures to which the PSPQ and ESPQ belong, source traits were identified and replicated with adults first (Cattell, 1946). Altogether 30 or more traits have been found in the questionnaire medium (Cattell, 1973), only the largest 16 of which have been included in the Sixteen Personality Factor Questionnaire (16PF). It is these 16 that have been followed down through the High School Personality Questionnaire (HSPQ, 12-18

years), the Children's Personality Questionnaire (CPQ, 8-13 years), the Early School Personality Questionnaire (ESPQ, 6-8 years), and in a rough, quite preliminary way the Preschool Personality Questionnaire (PSPQ, 4-6 years), with results summarized to 1973 in Table 1.

Table 1.

Existing Evidence of Source Traits in Some Degree Matched Across Five Age Levels.

Standard Label	*Symbol*	PSPQ *(4–6 yr.)*	ESPQ *(6–8 yr.)*	CPQ *(8–12 yr.)*	HSPQ *(12–18 yr.)*	*16 PF (18–adult)*
Affectothymia	*A*	*A*	*A*	*A*	*A*	*A*
Intelligence	*B*	*B*[a]	*B*	*B*	*B*	*B*
Ego Strength	*C*	*C*	*C*	*C*	*C*	*C*
Excitability	*D*	*D*	*D*	*D*	*D*	
Dominance	*E*	(*E*?)	*E*	*E*	*E*	*E*
Surgency	*F*	*F*	*F*	*F*	*F*	*F*
Superego	*G*	(*G*?)	*G*	*G*	*G*	*G*
Parmia	*H*	(*H*?)	*H*	*H*	*H*	*H*
Premsia	*I*	*I*	*I*	*I*	*I*	*I*
Asthenia	*J*	*J*	*J*	*J*	*J*	
Acculturation	*K*		(*K*?)	(*K*?)		
Protension	*L*					*L*
Autia	*M*					*M*
Shrewdness	*N*	*N*	*N*	*N*		*N*
Guilt Proneness	*O*	*O*	*O*	*O*	*O*	*O*
Radicalism	Q_1					Q_1
Self-Sufficiency	Q_2				Q_2	Q_2
Self-Sentiment	Q_3			Q_3	Q_3	Q_3
Ergic Tension	Q_4	Q_4	Q_4	Q_4	Q_4	Q_4
Total Number of Factors		13	13	14	14	16 or 9

Note: Recent extensions (*D*, *J*, *K*, *P*, Q_5, Q_6, Q_7) bring the total number of factors in the 16 PF (with 16 PF Supplement) to 23. Factors in parentheses have questionable identification at this stage.

Xerox p. 84 from Personality and Mood by Questionnaire.

[a] Strictly speaking, there is no B factor in the PSPQ, since no intelligence items have been included.

The present study is the last step in the series of boundary researches for questionnaires, for it aims to carry the identification (at least tentatively) achieved for the ESPQ down to the PSPQ, the minimum level that seems possible for questionnaire-type instruments. The ESPQ is considered to be the lowest test in the series that can safely be given to all ages in class-size groups. For the PSPQ,

picture-style answer sheets can be used with six-year olds in classes under appropriate supervision, with questions read by the examiner. Small groups of five-year-olds can usually also respond with picture-style answer sheets. It has been found necessary, however, to test all four-year-olds and some fives individually, with the examiner recording responses.

The experimental findings giving factor patterns in terms of items for the 4-6 year level are actually as sound and clear in themselves as for any other age level. The results up to 1973 were surveyed by Cattell and Dreger (1974). More recently, a large sample (920 *Ss* distributed about evenly over ages 4 to 6) responded to the 200 items of the PSPQ; the responses factored, the results tend to add to the validities of the factor scales with which the present boundary study deals. However, it must be recognized that identifying factors from the 16PF downward through the intervening instruments to the PSPQ entails transmission errors, in some respects of a cumulative kind.

Even when a simple structure has been pursued as carefully as in each of the original cross-sectional studies, what is essentially the same dimension will be at a somewhat different angle in one study from another. One way of checking factor identities is to require that two sets of apparently identical primaries produce the same second-order factors (as Cattell & Vogelmann, in press). Although this condition reduces the danger of misidentification, confirmation has not always been forthcoming (see Cattell, 1973, pp. 122, 124, and 140), though in a number of cases there have been confirmatory results. At some boundary study the accumulation of error may have caused some one factor to switch identity, particularly with some other factors with which it is commonly substantially correlated; some examples are C (ego strength) and O (untroubled adequacy vs. guilt proneness, with Q4 (ergic tension) and F (desurgency vs. surgency) with H (threctia or threat-sensitive vs. parmia or adventurous social boldness). Such errors scarcely exist for HSPQ identifications, coming directly from 16PF matchings, but cannot be ruled out for the ESPQ, three stages removed from the 16PF, or the PSPQ, four stages removed.

METHOD

The design of the present experiment called for taking two subscales (the minimum for identifying a common factor) for each of the 13 factors in the ESPQ and for each of the 13 factors in the PSPQ replicated up to the Cattell and Dreger article (1974), a total of 52 subscales or "parcels." For reasons of total time the length of the subscales was at the minimum judged safe, namely six items per subscale in the PSPQ and six (in two cases, eight) items per subscale in the ESPQ.

A total of 560 items was administered to the "boundary" group of 950 boys and girls, age 6 (almost entirely), in first grades in Arizona and Louisiana. These items consisted of 200 PSPQ, 160 ESPQ, and 200 "extension" items. One hundred and fifty-six PSPQ items constituted "marker" variables from previous studies.

The conditions of administration were as follows. Children were tested in their regular classrooms with teachers and aides monitoring the testing which was done by graduate students under the supervision of the junior author in Louisiana and by Rodney Baker in Arizona. All pupils responded on the picture answer sheets devised for the ESPQ. Seven sessions of 80 items apiece were required to complete all 560 items, so each session's items were numbered from

1-80 for matching items to the answer sheets which contain 80 answer spaces. Six hundred and sixteen children finished both PSPQ and ESPQ items and 584 protocols were complete for all 360 items. The items were given in irregular order as far as factor affiliations were concerned.

RESULTS

Since each item was scored 0 or 1, the range of possible scores for each parcel or subscale was 0-6 (in two ESPQ cases, 0-8). The resulting 26 + 26 = 52 variables were intercorrelated over the sample of 616 *Ss* by Pearson product-moment coefficients. With unities in the diagonals, a principal factor extraction was taken to 52 latent roots. The Scree test (Cattell, 1966) indicated 7, 17, or 23 factors; but the smaller number does not coincide with previous research on either the PSPQ or ESPQ and the higher number seems to be more than expected from 52 variables. Therefore, 17 factors were iterated until communalities stabilized.

The rotations used two different automatic programs, Varimax and Promax, taking the latter as the starting point for a prolonged search by Rotoplot (Cattell & Foster, 1963) for a maximum hyperplane count consistent with no bizarre angles among factors. Figure 1 shows the history of the hyperplane pursuit, which was terminated at 12 over-all rotations, at a sustained plateau, as shown in Figure 1. The plots, which the reader may generate from Table 2, could in the name of perfection take some more rotations; but there is that clarity of form characteristic of unique simple structure as well as a significant ($P < .01$) hyperplane count, according to Vaughan's table of significance.

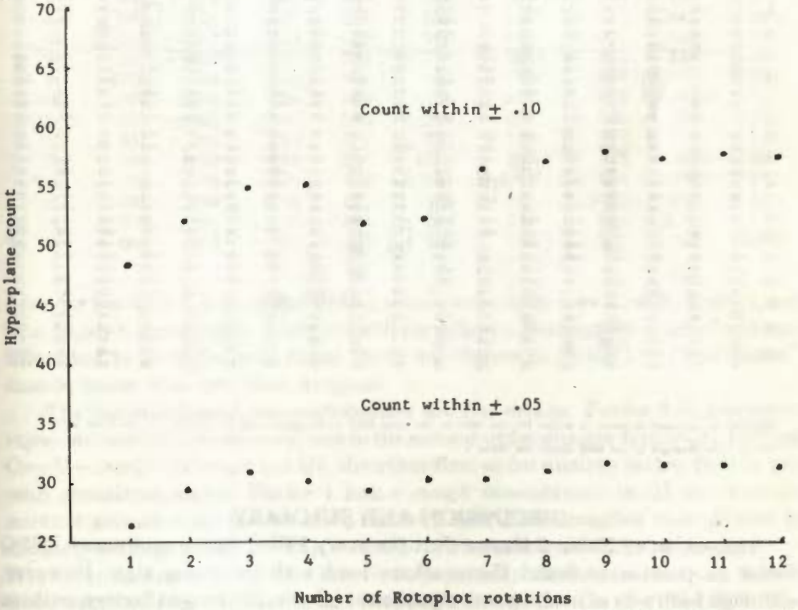

Figure 1. History of search for maximized hyperplane count. Position 1 is a rough Procrustes rotation. The drop in the regions of positions 4, 5, and 6 is associated with a break away from a complex of high factor correlations.

At this unique resolution the factor pattern is as shown in Table 2 and the correlations among factors in Table 3. For these factors which show both markers in place for a factor in the ESPQ, the order has been arranged to fit the usual order in the ESPQ, i.e., A, B, C, etc. Both these markers and the markers which fall in pairs as they should for PSPQ factors are placed in boxes, when the loadings are significant (taken as greater than .10 here) and consistent in sign. These patterns are discussed in the next section. As Table 3 shows, the correlations among factors are not out of line with those usually existing among primary personality factors, 51.6% of them being below .115.

Table 2

Factor Pattern Matrix at Simple Structure Resolution

Parcels[a]		Factors[b]																
		A	B	C	D	E	F	G	H	I	J	K	O	Q_4				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	1	-21	-14	-27	11	-00	-04	-03	-06	48	10	-15	-10	-28	-02	06	-01	-33
	2	-14	19	16	03	65	-00	00	-16	-03	10	14	-15	24	-37	16	16	10
2	3	-25	-04	-04	12	-31	35	04	-12	03	06	25	09	33	-26	07	45	-19
	4	-21	-05	03	06	-01	-03	10	03	02	05	76	14	-47	17	-04	-10	01
3	5	18	-02	-06	33	13	15	22	-05	-13	-02	06	-04	-03	-12	-35	19	-57
	6	14	-11	-21	16	-16	-23	05	-27	04	05	05	-46	-18	-08	-08	-19	05
4	7	05	-17	-00	-37	13	-49	-04	33	25	-07	00	02	-04	65	-03	-22	06
	8	39	30	36	06	04	-31	25	-24	19	-27	01	06	39	-11	07	-11	07
5	9	24	-09	10	-13	02	-00	03	-06	-07	-46	-16	-06	-28	-01	-18	-12	-09
	10	05	-13	14	-04	07	09	-10	-03	-09	-15	-13	-09	-03	14	-31	38	03
6	11	-10	-31	-09	-00	-12	-22	33	04	23	10	-12	22	-00	30	-06	31	-16
	12	-04	-12	-32	10	-01	-08	36	05	-08	26	09	18	-66	-17	19	10	40
7	13	21	-04	15	23	-19	01	-11	-00	00	-66	03	-19	-35	-05	04	02	07
	14	-23	00	11	75	-12	01	-07	-00	12	07	-16	-08	01	13	-02	-11	04
8	15	04	35	01	02	01	-00	07	00	13	05	-01	27	-51	01	14	-14	12
	16	-01	05	-05	09	-01	-35	-05	-01	13	-13	-06	13	-41	-02	-28	03	14
9	17	-12	11	-03	-02	13	01	-06	04	44	-11	32	-56	-01	-10	01	10	-10
	18	05	17	08	-04	02	03	-10	-36	60	13	-08	33	03	05	-15	01	-09
10	19	-05	14	04	07	00	-02	-10	72	-06	02	-08	-08	07	-00	-14	-01	-01
	20	05	14	-05	14	10	02	04	18	11	07	-14	05	25	-01	-09	80	-05
11	21	18	04	-05	41	19	04	-08	10	-16	-15	-39	-25	17	22	00	-07	-13
	22	-12	03	-30	05	-45	41	03	-03	10	-00	-36	03	-00	-03	32	-05	-09
12	23	-04	-03	-19	17	-18	00	-20	-39	-07	00	07	14	-03	71	-14	04	-12
	24	02	-05	05	02	04	-13	-08	33	11	-29	-08	22	07	32	38	03	07
13	25	-01	18	-09	-11	-23	01	-02	-21	02	-24	47	18	33	08	76	15	42
	26	23	-08	03	14	02	00	40	11	-00	06	-13	-13	-37	20	66	-07	-18
1	27	40	15	19	-00	-50	-28	-01	-08	05	01	01	-15	16	03	-29	-02	-09
	28	37	02	-04	-01	-32	-03	28	05	17	03	-11	-21	-23	-03	-01	-14	29
2	29	04	61	03	05	-11	-23	-27	11	-07	06	01	-23	-07	-10	-04	17	-11
	30	-08	73	-25	22	-06	05	23	03	04	-07	-05	-00	-07	-06	02	02	-05
3	31	02	21	37	-13	11	09	43	11	-07	04	-07	-04	02	-17	-04	-05	-00
	32	16	02	71	-13	03	09	-27	-02	08	-03	07	-21	-14	-02	12	-01	-10
4	33	-18	13	-36	29	-00	-04	23	12	19	02	-07	18	11	-03	01	06	-10
	34	02	08	-53	28	11	-22	-00	-02	-16	18	02	-02	01	-21	05	19	-00
5	35	-34	-14	18	-05	35	10	-25	-10	-22	-05	08	-10	08	15	23	01	-03
	36	-36	-11	05	01	39	23	-10	-04	-20	-11	-05	04	09	21	32	-00	02
6	37	-12	-09	58	-20	11	14	-53	-06	-12	08	-05	-03	03	-19	-14	16	-26
	38	01	-01	18	06	05	58	36	04	06	-18	-01	28	18	14	-16	-14	02
7	39	-22	-06	-02	-13	-16	07	49	05	-10	06	06	02	-03	08	-24	-14	04
	40	16	26	07	-21	-11	-03	08	-07	-04	10	-15	-27	-20	15	-01	-13	-39
8	41	07	23	33	-10	-15	-06	-09	11	-05	06	-08	06	05	14	-25	00	-27
	42	07	-27	78	-03	-09	13	-20	14	16	-10	-12	12	-04	01	-08	-11	04
9	43	06	-02	-14	-02	-46	05	40	06	24	-10	-06	09	-12	-09	-07	-11	33
	44	09	00	24	-07	-39	-25	-21	03	23	-01	-07	-04	-09	-22	-39	13	-21
10	45	42	04	-08	-08	-17	01	-20	05	-22	50	21	01	-31	-16	-09	08	01
	46	39	-03	-36	09	-03	30	17	00	09	22	-01	11	-05	-15	03	-07	51
11	47	05	-12	-08	-07	45	02	23	05	-06	-21	12	25	16	11	-14	11	04
	48	04	04	15	-02	24	13	-30	-11	-09	-04	29	17	09	15	-08	-18	-21
12	49	-25	-13	-32	13	-21	-29	-28	-12	-06	01	08	18	-02	-04	-09	18	-02
	50	-06	-29	-38	25	-09	-14	24	13	06	00	01	25	-03	-10	-05	18	19
13	51	01	-16	27	09	17	-10	-57	07	-06	12	13	04	11	-19	-08	24	-26
	52	02	05	-37	20	12	01	23	10	10	-26	-04	14	37	16	01	02	08

[a]Parcels are arranged as pairs of scales for the PSPQ in the upper half of the matrix and for the ESPQ in the lower half.

[b]Factors are arranged in the ESPQ order; see Table 4.

DISCUSSION AND SUMMARY

Inspection of Table 2 shows that for every PSPQ factor and every ESPQ factor as previously found the markers load with the same sign. However, although both sets of loadings are significant (above .10) in eight factors, in three factors *one* marker fails (E in the PSPQ, G in the ESPQ, and 0 in the PSPQ). B (intelligence) is missing from the PSPQ since no relevant items are included; C (ego strength) is not found in the PSPQ; and two PSPQ factors have no match.

Table 3

Correlations Among Primary Source Traits

		1 A	2 B	3 C	4 D	5 E	6 F	7 G	8 H
A	1	1000	- 245	- 371	018	071	104	- 180	053
B	2	- 245	1000	299	- 054	- 030	053	094	056
C	3	- 371	299	1000	089	- 210	- 096	356	- 101
D	4	018	- 054	089	1000	203	- 063	- 058	111
E	5	071	- 030	- 210	203	1000	220	- 226	054
F	6	104	053	- 096	- 063	220	1000	- 146	196
G	7	- 180	094	356	- 058	- 226	- 146	1000	- 031
H	8	053	056	- 101	111	054	196	- 031	1000
I	9	202	- 165	- 181	- 021	059	089	- 109	- 007
J	10	080	- 074	096	027	- 161	- 125	007	- 090
N	11	235	- 297	- 291	194	162	112	- 035	271
O	12	232	- 080	- 234	143	038	- 128	- 148	093
Q_4	13	201	- 393	- 423	180	083	- 089	- 086	177
	14	- 139	187	235	- 005	030	188	262	- 004
	15	224	- 226	- 224	069	- 149	- 197	- 062	052
ER	16	- 016	111	211	- 120	- 109	041	124	- 142
ER	17	- 264	162	368	- 014	- 077	063	132	- 080

		9 I	10 J	11 N	12 O	13 Q_4	14	15	Error	Error
A	1	202	080	235	232	201	- 139	224	- 016	- 264
B	2	- 165	- 074	- 297	- 080	- 393	187	- 226	111	162
C	3	- 181	096	- 291	- 234	- 423	235	- 224	211	368
D	4	- 021	027	194	143	180	- 005	069	- 120	- 014
E	5	059	- 161	162	038	083	030	- 149	- 109	- 077
F	6	089	- 126	112	- 128	- 089	188	- 197	041	063
G	7	- 109	007	- 035	- 148	- 086	262	- 062	124	132
H	8	- 007	- 090	271	093	177	- 004	052	- 142	- 080
I	9	1000	174	114	- 001	133	- 175	090	- 025	- 063
J	10	174	1000	- 061	- 090	106	056	008	049	053
N	11	114	- 061	1000	083	366	- 037	164	- 198	- 292
O	12	- 001	- 090	083	1000	205	- 249	295	- 244	- 236
Q_4	13	133	106	366	205	1000	- 151	325	- 261	- 202
	14	- 175	056	- 037	- 249	- 151	1000	- 244	290	275
	15	090	008	164	295	325	- 244	1000	- 054	- 327
ER	16	- 025	049	- 198	- 244	- 261	290	- 054	1000	218
ER	17	- 063	053	- 292	- 236	- 202	275	- 327	218	1000

Also, for the ESPQ, but not the PSPQ, there are three factors, 1 (or A), 3 (or C), and 5 (or E), with superfluous lower, but still significant, loadings on pairs of markers belonging to *other* factors. These latter are shown in Table 2 by "half-boxes," that is, boxes with two sides dropped.

The last-mentioned nonconformities are not erratic. Factor 3 in particular shows an indubitable resemblance to the second-order anxiety factor QII, loading C—, H—, and O (though not Q4, the other first-order anxiety factor, that is, not with consistent signs). Factor 1 has a rough resemblance to QI, exvia-invia, another second-order factor. Also, Factor 5 has a still rougher resemblance to QIII, cortertia-pathemia, and QIV, independence-subduedness, thrown together. It is by no means unknown for rotations, especially automatic rotations, to give some second-order factors at the first-order level. And as Cattell (1973) has pointed out, a legitimate Schmid-Leiman (1957) resolution (hierarchical ordering of oblique factors recast into orthogonal patterns) is possible in which the "stubs" of the first orders appear along with the second orders. (See Cattell, pp. 106-110,

for discussion of both the Schmid-Leiman and Cattell-White formulations of t effects of second-order factors on primaries.) Our attempts in the Rotoplot "han rotations to reduce obliquities could account for some approach to a Schmi Leiman type of solution. But in that case the absence of both a C factor (eg strength) and a second-order anxiety factor or an A factor (affectia) and a second order extra-version factor would mean that too few factors were taken out.

Since the purpose of this research is identification of PSPQ factors in terms of factors found on higher (chronological) level scales and since the PSPQ sets of scales have shown evidence of being all pure peer primary factors, we have in the cases of factors 1, 3, and 5 taken the ESPQ primary identifications which best fit the rest of the matrix in making the identifications as primaries. That is to say, we have considered them to be primaries A, C, and E, but having contamination with factors which normally correlate substantially with them. This procedure may well coincide with the doubt raised in other studies about the correctness of the angles among some of the primary scales in the ESPQ. If, by being teamed up with another simple structure to more precise angular rotations, this eventuality could be at the "cost" of some scales' acquiring loadings on other primaries than those intended, namely on the primaries with which they would normally correlate, but correlate too much.

These possibilities leave the uncomfortable realization that the scale structure of the ESPQ is not sound enough to provide a strong bridge from the higher level scales to the PSPQ, much as if (to change the figure) one were measuring a quantity of water with a toy balloon. The soundness of the PSPQ structure is attested by the large sample research mentioned above (Lichtenstein, Dreger, & Cattell, 1976) in which the items, rather than parcels, have been factored. Further efforts for strengthening the ESPQ structure are called for. Nevertheless, the fact that there is as much correspondence between ESPQ and PSPQ structures as there is, as demonstrated in Table 2, suggests, first, that weak as its structure may be, if it has any correspondence at all with higher levels, the ESPQ does provide *some* passage between the higher and lower levels, and second, that there must be a sturdy enough real-life personality structure in children that it breaks through and reveals itself even through an imperfect instrument.

For the three factors just mentioned, A, C, and E, the PSPQ identification must be decidedly more tentative, but the completeness of the total matching and its internal consistency, which leave essentially two factors unmatched only, justify proceeding to work further with the hypothesis that factor identities are as shown in Table 4. The B (intelligence) factor, which comes out very clearly in the ESPQ, is unmatched in the PSPQ because no intelligence scale was used in the PSPQ. Factors 12 and 13 in the PSPQ will have to go unnamed pending another matching research, since though well replicated by the simple structure they find no mates in the ESPQ. This result is not surprising, for if our general theory is correct, that roughly as many factors appear at young ages as at older ages or stages of development, then such factors as L, M, Q2, and Q3 that are missing from the ESPQ could well find matches in factors 12 and 13 of the PSPQ. Contingently, they will have to be labelled by their item contents.

Table 4

Best Over-all Matches for

First 13 Factors in the PSPQ

Factor as Named by Earlier Identification in the ESPQ	PSPQ Factor as Identified in Successive Research Studies[a]
A. Affectia (reserved vs. outgoing)	2 (-)
B. Intelligence	No scale presented
C. Ego Strength	No match in first 13 factors
D. Excitability	7
E. Dominance	1
F. Surgency (sober vs. happy-go-lucky)	4 (-)
G. Superego	6
H. Parmia (shy vs. venturesome)	10
I. Premsia (tough- vs. tender-minded)	9
J. Coasthenia (vigorous vs. doubting)	5 (-)
N. Shrewdness	11 (-)
O. Guilt Proneness	3 (-)
Q_4. Egic tension (relaxed vs. tense)	8 (-)
No match in E3PQ	12 (column 14 in Table 2)
No match in ESPQ	13 (column 15 in Table 2)

[a] Numbers in this column refer to "parcels" as listed in Table 2; columns 16 and 17 in Table 2 are presumably formless error factors despite some high loadings.

NOTE

[1]The writers wish to express their indebtedness to the Computer Research Center of Louisiana State University for the basic factoring, to Mr. J. Brennan of the University of Hawaii for the facilities of the Rotoplot program in the 12 over-all rotations and simple structure, to the many graduate students who administered the questionnaires, to the principals, teachers, and aides, and school board personnel in the school systems of Tucson, Arizona, and East Baton Rouge, Louisiana, for their hearty cooperation in this extensive research project.

Author's mailing address: Psychology Department, Louisiana State University, Baton Rouge, LA 70803.

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