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ABSTRACT
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Independence scores were particularly high. The preadolescents'
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average scores on the Well Being scale and high scores on the
Flexibility scale. Five factors were extracted from the scores of
each group. Factor scores reflected several differences between
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subjects such as on the Poise factor. (Author/DB)

Exceptionally Gifted Children's Personality

Dispositions, and Their Relationship to Parental

Personality and the Family Environment

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Abstract

The California Psychological Inventory (CPI) was administered to 54 exceptionally gifted preadolescents and their parents, and the profiles and factor structure of the the 18 CPI scales were examined. The profiles of the parents were relatively even, suggesting that they are intellectually and socially effective. The Achievement via Independence scores were particularly high. The preadolescents' profiles were generally lower than the parents', with very low average scores on the Well Being scale. Five factors were extracted from the scores of each group; and factor scores reflected several differences between exceptionally high IQ preadolescents and exceptionally high math-science preadolescents.

Introduction

In the research on cognitive development in general and
creative potential in particular, one issue involves to what
extent and how early family experiences contribute to
development. This issue was first raised by Galton, and was
originally centered on the family as a broad and relatively
undifferentiated group of blood-related persons. With the advent
of psychoanalysis, this view shifted to specific interactions,
usually between one parent and a child. Partly in reaction to
this limited definition, in the last decade the family has been
defined as a system of interactive participants, no member more
influential than the others. Parallel with this shift has been
the growing body of empirical work demonstrating that in the
development and creative utilization of cognitive abilities,
selective personality dispositions--in addition to cognitive
abilites per se--are critically associated with observable
performances in a variety of fields. Although the evidence
supporting the importance of personality dispositions is
convincing, the question of the personal and family origins of
these dispositions remains. Moreover, because of growing
evidence that eminent individuals in different careers often
differ in their family experiences and adult personality traits,
it is necessary to compare different domains of performance. To
address these issues, we must consider more specific questions,

namely: whether or not a gifted child's personality traits are related to parental personality dispositions, and if so, to which parent; whether or not this relationship is apparent regardless of the child's salient cognitive abilities; and lastly, whether or not the parental personality dispositions are related to family presses which guide the rearing and socialization of children and adolescents.

Method

Our longitudinal research involves two groups of preadolescent boys and their parents ($\underline{N}$ = 54). The boys were psychometrically identified as gifted in terms of their IQs ($\underline{n}$ = 28) or their math science abilities (e.g., SAT scores, $\underline{n}$ = 26), both in the 99th percentile. Subjects' and parents' personality dispositions were measured with the California Psychological Inventory (CPI), and family environment was measured with the Marjoribanks Family Environment Inventory. Creativity scores were obtained from the Wallach and Kogan (1965) divergent thinking tests (three verbal tests and two figural tests); these were scored for ideational fluency and originality. The art/writing and math/science scores from the Biographical Inventory for Creativity (Schaefer, 1969) were also obtained.

Results and Discussion

Figures 1 and 2 present the CPI profiles for the subjects, mothers, and fathers of each group. In these figures, the point represents the mean, the box defines the standard deviation, and

the bar delimits the range. Standard scores are given in these figures, with 50 as the mean and 10 as the standard deviation. These figures allow important comparisons between our samples and normative groups (e.g., Shure & Rogers, 1963; Weiss, Haier, & Keating, 1974).

The means of the individual scales suggest that both groups of preadolescents have low Wb scores. This may be indicative of the subjects' being cautious or apologetic (Gough, 1975), or it may reflect their approach to the CPI itself. The Wb scale is one of the "validity scales" of the CPI. The Math-Science preadolescents have relatively high Fx scores. Their scores place them close to the 85th percentile. These are especially noteworthy because the average score across scales for this group is below the 50th percentile. The mothers of both groups have high Ai scores, but otherwise, their profiles are quite even. This is indicative of a individuals "functioning effectively socially and intellectually" (Gough, 1975, p. 12). The fathers of both groups also have high Ai scores and even profiles.

Interactions among scales are important to consider. For example, the subjects of both groups have relatively low Sc scores and relatively high So scores. Gough (1975) suggests that this reflects critical tendencies and persistence. Another important interaction is that of Ai and Ac. The high mean Ai scores and low mean Ac scores of the mothers and fathers can be interpreted as indicative of independence, dominance, wit, or tendency to be demanding.

Another important interpretive technique is to consider clusters of scores. Gough (1975) discusses four clusters. These can be seen in Figures 1 and 2, with the gray bands dividing the clusters (e.g., Re through Cm, or Py through Fe). The first cluster ("Class I") is said to reflect interpersonal adequacy and self-assurance; the second ("Class II") reflects Socialization and Values; the third ("Class III") reflects achievement potential and intellectual efficiency; and the fourth ("Class IV") reflects interest modes.

Factor Analyses

The CPI scales can also be grouped with factor analyses (for a review, see Megargee, 1972). Principal components (with Varimax) analyses were conducted for the subjects, mothers, and fathers. Five factors were extracted for each subsample. Table 1 presents the eigenvalues and percentage of total variance for each factor; Table 2 presents the rotated factor matrices (using a loading of .40 as the cutoff); and Table 3 presents the communalities for each scale and each group.

The factors extracted from these three groups are quite consistent with those described by Megargee (1972). There is a "Positive Adjustment" factor (Factor I for the subjects, and III for the mothers and fathers) with loadings on Well Being, Good Impression, and Self-Control; a "Social Poise" factor (Factor II for the subjects, I for the mothers, and III for the fathers) with loadings on Sociability, Dominance, Social Presence, and

Self-Acceptance; a "Capacity for Independent Thought" Factor
(Factor IV for the subjects, III for the mothers, and I for the
fathers), with loadings on Achievement via Independence,
Intellectual Efficiency, and Tolerance; a "Conventionality/
Conformity" factor (Factor V for the subjects, and IV for mothers
and fathers) with loadings on Communality and Achievement via
Conformity; and finally a "Masculinity/Femininity" factor (Factor
III for the subjects and V for mothers and fathers) with loadings
on Femininity. Table 4 presents the intercorrelations of factor
scores among family members.

Group Differences

A multivariate analysis of variance (MANOVA) was conducted to
test differences between the factor scores of the two groups.
Results indicated that the two groups of subjects only differed
on the Poise factor ($\underline{F}$ (1, 52) = 4.84, $\underline{p}$ < .05). The mothers
also differed on the Poise factor ($\underline{F}$ (1, 50) = 4.51, $\underline{p}$ < .05).
The High IQ subjects had higher factor scores than the
math-science subjects, and the mothers of the High IQ subjects
had higher factor scores than the mothers of the math-science
subjects. The fathers of the two groups differed on
Masculinity/Femininity factor scores ($\underline{F}$ (1, 46) = 3.58, $\underline{p}$ < .05),
with the fathers of the IQ subjects having the higher scores.

Correlations with Cognitive Scores

Product-moment correlations were calculated within the two groups. Results for the High IQ group indicated that the subjects' IQs were negatively related to fathers' Poise factor scores (r = -.41, p < .05), and subjects' BIC scores were negatively related to mothers' Capacity for Independent Thought factor scores (r = -.36, p < .05). Subjects' Poise factor scores were related to their verbal fluency scores (r = .38, p < .05), verbal originality scores (r = .55, p < .01), and figural originality scores (r = .39, p < .05). Subjects' Capacity for Independent Thought factor scores were related to their figural fluency scores and their figural originality scores (rs = .34 and .40, respectively, both p < .05).

For the Math-Science group, a composite mathematics score was related to subjects' Masculinity/Femininity and Conventionality factor scores (rs = .35 and .44, respectively, both p < .05). Subjects' Poise factor scores were related to their figural originality scores (r = .39, p < .05). The subjects' verbal originality scores were also related to the fathers' Independence and Masculinity/Femininity factor scores (r = .62, p < .001 and r = -.47, p < .01); and subjects' figural originality scores were related to fathers' Independence, Positive Adjustment, and Masculinity/Femininity factor scores (r = .48, p < .01, r = -.41, p < .05, and r = -.67, p < .001).

In this group, each of the five factors scores of the mothers was related to their sons' cognitive ability scores. More specifically, Positive Adjustment was related to sons' Math-Science BIC score (r = .49, p < .01), as was mothers' Independence score (r = .35, p < .05); mothers' Masculinity/ Femininity scores were related to sons' Art/Writing BIC scores (r = .53, p < .01); Capacity for Independence was related to subjects' figural fluency scores (r = .43, p < .05), figural originality scores (r = .47, p .01), and verbal originality scores (r = .36, p < .05); and mothers' Conventionality factor scores were related to sons' verbal originality scores (r = -.35, p < .05).

Family Environment

A final set of analyses was conducted to examine the relationship of the CPI factor scores and Environmental Presses. Albert and Runco (1986) defined Presses for Achievement, Intellectuality, Mother-Involvement, Father-Involvement, Independence, and General Activity. Canonical correlational analyses indicated that the mothers' five CPI factor scores were significantly related to the six Presses (Rc = .59, F (30, 225) = 1.71, p < .05). The Presses were also related to the factor scores of the preadolescents (Rc = .64, F (30, 235) = 1.62, p < .05).

Concluding Remarks and Future Research

The differences between the IQ and Math-Science groups are consistent with our earlier findings (e.g., Albert & Runco, 1986, 1987). One very important result from the CPI is that both groups of parents had balanced profiles. This suggests that the parents of exceptionally gifted preadolescents are socially and intellectually effective. The preadolescents' profiles had some variation, with low Wb scores and high Fx scores. The Wb scale is one of the validity scale of the CPI; but it is important that the average across scales was relatively low for the preadolescents. Of additional importance was that several of the parental variables were associated with the Environmental Presses and preadolescents' cognitive abilities.

These results also suggest that the factor scores are useful for investigations of gifted individuals and their families. Indeed, the CPI offers an enormous amount of informations, and future research is being conducted to futher compare two gifted groups and their parents. Regression composites are being used to predict the creativity, leadership, Type-A behavior, and social maturity of our subjects. We will soon be in a position to investigate the interaction and combined explanatory power of the CPI, environmental presses, and cognitive scores.

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Table 1

Eigenvalues (EV) and Percentage of Total Variance (TV%)

	Subjects		Mothers		Fathers	
	EV	TV%	EV	TV%	EV	TV%
Factor I	5.87	32.6	5.40	30.0	5.96	33.1
Factor II	3.67	20.4	3.64	20.2	3.74	20.8
Factor III	2.07	11.5	2.78	15.5	2.10	11.6
Factor IV	1.19	6.6	1.12	6.2	1.28	7.1
Factor V	1.14	6.3	0.98	5.4	1.07	5.9

Table 2

Rotated Factor Matrices

	Subjects					Mothers					Fathers				
	I	II	III	IV	V	I	II	III	IV	V	I	II	III	IV	V
CPI Scale															
Do	.	82	.	.	.	76	.	.	.	.	.	88	.	.	.
Cs	.	70	.	.	.	81	.	.	.	.	.	73	.	.	.
Sy	.	91	.	.	.	87	.	.	.	.	.	89	.	.	.
Sp	.	69	-42	.	.	75	.	.	.	.	54	66	.	.	.
Sa	.	88	.	.	.	85	.	.	.	.	.	83	.	.	.
Wb	87	.	.	.	.	.	74	.	.	.	51	.	57	.	.
Re	53	.	67	.	.	.	41	.	62	.	.	.	80	.	.
So	71	.	.	.	.	.	56	.	40	.	.	.	67	.	-40
Sc	86	.	.	.	.	.	80	.	.	.	.	-45	78	.	.
To	74	.	.	46	.	.	51	68	.	.	73	.	50	.	.
Gi	84	.	.	.	.	.	85	.	.	.	.	.	78	.	41
Cm	.	.	48	.	68	.	.	.	84	.	.	.	.	85	.
Ac	.	.	.	.	75	.	72	.	.	.	.	.	46	45	.
Ai	54	.	.	66	.	.	.	89	.	.	85	.	.	.	.
Ie	69	47	.	.	.	.	46	51	.	.	65	40	.	.	.
Py	40	.	.	.	-57	.	.	81	.	.	82	.	.	.	.
Fx	.	.	.	90	.	.	.	77	.	.	80	.	.	.	.
Fe	.	.	83	.	.	.	.	.	94	.	.	.	.	.	-87

14

Table 3

Communalities for the Five Factor Solution of 18 CPI Scales

	Subjects	Mothers	Fathers
Dominance (Do)	.826	.703	.795
Capacity for Status (Cs)	.720	.810	.805
Sociability (Sy)	.843	.818	.853
Social Presence (Sp)	.745	.784	.891
Self-Acceptance (Sa)	.833	.778	.798
Well-Being (Wb)	.829	.699	.749
Responsibility (Re)	.765	.672	.728
Socialization (So)	.690	.614	.725
Self-Control (Sc)	.925	.899	.915
Tolerance (To)	.810	.876	.841
Good Impression (Gi)	.793	.794	.794
Communality (Cm)	.749	.796	.765
Achieve. Conformity (Ac)	.648	.734	.671
Achieve. Independence (Ai)	.801	.815	.769
Intell. Efficiency (Ie)	.789	.804	.760
Psych. Mindedness (Py)	.586	.727	.725
Flexibility (Fx)	.823	.667	.740
Femininity	.766	.928	.815

Table 4

Correlations of the CPI Factors Among Family Members

Factor	Son-Mom		Son-Dad		Mom-Dad	
	IQ	MS	IQ	MS	IQ	MS
Positive Adjustment	29	21	-17	15	06	40*
Social Poise	30	-08	-25	15	73*	18
Independent Thought	-05	11	27	-01	-10	45*
Conventionality/Conformity	22	19	10	-14	-05	40*
Masculinity/Femininity	01	-16	-53*	-11	-14	04