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## ABSTRACT

To determine the relationship between parental childrearing practices, sex-role preference, and intellectual functioning in young boys, 21 lower class and 21 middle class white fathers were observed at home interacting with their 4-year-old sons. The Binet, the Peabody Picture Vocabulary Test, and Brown's "It" Scale were subsequently administered to the children. In the total sample, the boys' IQ was positively correlated with paternal nurturance, and negatively correlated with paternal restrictiveness. Both correlations were significant. Together, nurturance and restrictiveness accounted for over one-third of the variance in IQ. Sharp class differences were found including a significant negative association in the lower class subsample between IQ and a male sex preference. (Author)

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Father-Child Interaction and the  
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Great interest has developed in childrearing practices and their relationship to cognitive development in young children. Relatively little attention has been paid to the paternal role, however. According to Bigner (1970) who reviewed the literature in the area, there is a dearth of data about fathering. This is understandable since preschoolers spend much of the day with their mothers. Several articles have suggested that the behavior of fathers might influence the intellectual functioning of young boys (Grunebaum, Hurwitz, Prentice, & Sperry, 1962; Blanchard & Biller, 1971; Dyk & Witkin, 1965). These studies did not involve observations of father-son interactions however. One study which used observational data found no significant correlations between purely paternal behavior and the academic achievement of fifth-grade boys (Solomon, Houlihan, Busse, & Parelius, 1971). The lack of such significant relationships may have been due to the age of the youngsters. An investigation by the author (Radin, 1969; 1972) suggested that significant relationships might be found between observed paternal practices and the intellectual functioning of preschool-aged males. Significant correlations were obtained between observed nurturant behaviors of lower-class mothers and the IQ of their four-year-old children for all youngsters except white boys. It was suggested that perhaps these males, almost all of whom came from intact families, were being influenced primarily by their fathers who were not participants in the study. There is no information available to suggest that the same influence is not being exerted in middle-class families as well.

In keeping with the theories of Sears (1953), Payne & Mussen, (1965), Mussen & Rutherford, (1963), and Kagan, (1958), one might hypothesize that paternal nurturance, or warmth, fosters identification with the father, or attempts to be like the father. These efforts may involve incorporating the father's values and ideas into the child's thinking, and imitation of the parent's behaviors, including those related to problem solving and mastery of the environment. The identification process may therefore act as a stimulant to intellectual functioning in young boys. Further, identification with the father, which is difficult to assess, may be manifested as male sex preference, a tendency fairly easy to measure, although father identification and masculine identification are not synonymous as Lynn (1966) has pointed out.

Combining all of the above speculations, the following hypotheses were tested in a sample of children with fathers and mothers in the home:

1. There is a positive, significant correlation between the IQ of four-year-old white boys and observed paternal nurturance.
2. There is a positive, significant correlation between masculinity of sex-role preference in four-year-old white boys and observed paternal nurturance.
3. There is a positive, significant correlation between masculinity of sex-role preference and IQ in four-year-old white boys who have a father figure available.
4. The above three correlations apply both in lower-class and middle-class white families when a father figure is available, as well as in a sample comprised of a combination of the two classes.

METHOD

A sample of 21 lower-class, and 21 middle-class, white boys, who would enter kindergarten the following September, was selected in the spring of 1970. All lived in small cities in the metropolitan Detroit area and came from intact families. Criteria for inclusion in the lower-class were 1) a mother or father with a tenth grade education or less, or 2) the father's current or recent employment as an unskilled worker. (Seventeen of the 21 lower-class families qualified on both criteria.) For inclusion in the middle-class subsample, a minimum of a high school education by the father, plus a minimum of an 11th grade education by the mother, was required, as well as employment by the father as a professional, managerial, skilled, or white collar worker. Highly significant demographic differences were found between the two groups. The mean number of years of schooling completed by the middle-class fathers was 13.5. The figure was 9.3 years for the lower-class men. For the mothers, the mean number of years of education was 12.7; for the lower-class mothers it was 9.5. On a four point scale used to rate the father's job with a rating of one equal to an unskilled or service job, a rating of two indicating a semi-skilled job or, self-employed, a rating of three equal to a skilled or white collar job, and a rating of four representing a professional or managerial position, the mean rating of the middle-class fathers was 2.8. For the lower-class fathers, the figure was 1.2. The mean age of the two groups of children was almost identical, 53.9 months for the middle-class subsample, and 53.4 months for the lower-class.

Contact was made with the families through the public school system. The names of the youngsters were obtained from lists of older siblings

attending school and the annual school census reports. Fifty-five potentially eligible families were sent letters. These letters were signed by the building principals, and it was explained that the school was interested in learning more about fathers, their views, and their impact upon their sons. A male project staff member visited each home, and interviewed the father. Only one refused to participate in the study. In keeping with the request made in the letter neither the wife, nor any children, other than the boy who was to enter kindergarten in the fall, was in the room during the conversation. The father was told that his son needed to be present because of some tasks that were to be administered to the youngster at the conclusion of the interview. It was assumed that the young child would become restless during the long discussion and would make demands upon his father, who would have to handle them in some way. The techniques used to influence, and respond to, the boy's behavior served as the raw data of this study. The methodology is a replication of that used previously by the author to study maternal influence techniques (Radin, 1972).

The entire interview was tape recorded. Although the father's permission was obtained for the taping, he was not informed that his interactions with his son would be coded and scored. This was done to prevent his behavior from becoming more atypical than it already was, given the presence of a stranger. The session consisted primarily of asking the father questions about his views of education and childrearing. Some of the information was gathered in a conversational manner; other information was obtained via responses to standardized questionnaires.

Brown's It Scale for Children (Brown, 1956) was administered by the interviewer to the child after concluding the discussion with his

father. Although it was possible that there might be some contamination in having the same experimenter interview the father and administer the It Scale, it was felt that the danger was small, and less than the contamination possible if the tester administering the Binet also administered the sex preference test. (The child was seen on two occasions only.) In the latter case, the scores obtained were readily perceived by the experimenter; this was not true of the data which emerged from the lengthy interview.

In the administration of the It Scale, the child is shown sets of sex-linked pictures and asked to indicate which ones a sexually-neutral figure, called "It", would prefer. Female choices are given a score of zero, and male choices are given weighted scores, the weight depending on the section of the test. The modification developed by Kohlberg & Zigler (1967) was used in which the eight least sex-differentiating pictures were eliminated and the weights of the remaining eight pictures were doubled. Biller's (1968) procedure of employing the "It" figure's face, rather than the entire drawing, was also used to give the sketch a less masculine appearance. A score of zero on the It Scale represents completely feminine choices; a score of 84 represents completely masculine choices. As the It Scale has a projective element, it does tap sex-role orientation, in Biller's (1968) terminology, in addition to sex-role preference. The author will take the more conservative position, however, requiring the least amount of interpretation and refer to the scores as indications of the preferred sex-role only. An alternate interpretation would not affect the results of the study.

To assess the child's cognitive functioning, the Stanford-Binet Intelligence Scale and the Peabody Picture Vocabulary Test were ad-

ministered to the youngsters by experienced psychologists within one to four weeks following the interviews. In some cases where the child was clearly not eligible, i.e., the child was too young, or the male figure in the home was a grandfather, no intelligence test was administered. In one instance, a mother refused to have her child tested after the interview with her husband was completed, and nine participants were not included in the final sample because there was some ambiguity about the family's social class. To facilitate the statistical analysis of the data, an equal number of lower-class and middle-class families were finally selected for inclusion in the study.

The 30 minutes of the interview containing the largest number of father-son interactions were scored by two research assistants. Each interaction was placed into one of the 20 predetermined categories (Radin, 1972), and a tally was made of the number of verbal phrases or behaviors falling into each of the categories. (The interviewer, who also served as one of the scorers, had made notations during the interview of the non-verbal interactions taking place.) The 20 categories were then placed into one of two larger clusters labeled Nurturant Behaviors and Restrictive Behaviors.<sup>3</sup> The number of Nurturant and Restrictive Behaviors was added to yield a figure representing the Total Number of Interactions. The items included in Nurturant cluster represented behaviors which involved use of reinforcement, consulting with the child, and sensitivity to his needs. All three dimensions were included inasmuch as nurturance, or warmth, is seen as responding to the child as an active, thinking, feeling, human being. The restrictive cluster was included for exploratory purposes although it

was not included in any of the hypotheses. It encompassed items which reflected use of aversive stimuli, and a demand for obedience.

In scoring the tape recording, two research assistants worked individually, listening to the 30 minute segment, and marking the category to which each phrase belonged. The interviewer's notations about observed physical interactions were similarly coded. The total number of Nurturant and Restrictive behaviors obtained by each coder was examined, and 90% inter-coder agreement was found.

Pearson product moment coefficients of correlation were computed between the observed paternal behaviors and the intellectual measures, Binet IQ, and Peabody Picture Vocabulary Test IQ. In addition, both sets of variables were correlated with the It Scale score, and with demographic variables. Correlation matrices were computed for the sample as a whole and for the middle-class and lower-class subsamples. A regression equation was also computed using the Binet IQ as the dependent variable and all of the other dimensions investigated, except Peabody Picture Vocabulary Test, as the predictor variables. Similarly, a regression equation was computed using the Peabody Picture Vocabulary Test IQ as the dependent variable and all of the other dimensions except Binet IQ as predictor variables. Finally, to determine the significant differences between the lower-class and middle-class subsamples, a t test was employed.

## RESULTS

The significant differences found between the two classes for non-demographic factors, including the components of Nurturant and Restrictive Behaviors, are given in Table 1. It can be seen that along

with differences in intelligence test scores, significant differences

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Insert Table 1 about here  
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were also found in the overall and specific measures of nurturance. There were no class differences relating to the measures of restrictiveness or the It Scale.

Table 2 contains the correlations with the IQ scores and with

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Insert Table 2 about here  
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Nurturant and Restrictive Behaviors which were obtained for the total sample. As indicated in the table, the variable correlated most highly with Binet IQ, aside from Peabody Picture Vocabulary Test IQ, was Nurturance ( $r=.49$ ). The correlation exceeded that between IQ and demographic variables. The same phenomenon was found for the Peabody Picture Vocabulary Test IQ. Although the Total Number of Interactions was also highly correlated with the Binet and Peabody Picture Vocabulary Test scores, for both IQ's the correlation with Nurturance surpassed that with Total Number of Interactions. Thus, more than the sheer number of father-son interactions appears to be involved. The It Scale score was not correlated significantly with any of the intellectual or behavioral variables studied. Restrictiveness of father was negatively and significantly correlated with Binet IQ ( $r=-.36$ ). As had been found in the previous study of maternal influence techniques (Radin, 1972), Nurturance and Restrictiveness were not significantly correlated.

The correlations found when the lower-class and middle-class subsamples were analyzed separately appear in Table 3. The differences

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Insert Table 3 about here  
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in correlates of IQ score are notable. It can be seen that for the middle-class subsample, the relationship between Nurturant Behaviors and IQ was positive and significant. The correlations were almost as high as they had been for the total sample. For the lower-class subsample, there was only one non-intellective variable that was correlated significantly with IQ, the score on the It Scale ( $r=-.44$ ); feminine sex-role preferences were associated with high intelligence test scores. This correlation cannot be attributed to an unusual distribution of It Scale scores for the lower-class subsample. The distribution for the two classes was very similar. For the lower class, the maximum score was 84, the minimum was 4, the mean was 54.5 and the standard deviation was 21.0. For the middle class the figures were, respectively, 84, 2, 48.9, and 24.4.

Correlations were computed between IQ and the three components of Nurturance which had shown significant class differences (Asking Information of the Child, Fully Meeting the Explicit Needs of the Child, and Meeting the Implicit Needs of the Child). For comparison purposes, a similar procedure was followed using the middle-class subsample, and the total sample. The results which were obtained appear in Table 4. Asking Information of the child was significantly and positively related

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Insert Table 4 about here  
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to both Binet IQ and Peabody Picture Vocabulary Test IQ in the total sample, the middle-class subsample, and the lower-class subsample: the relationship in one case was as high as .61. Fully Meeting the Needs of the Child was significantly correlated with Binet IQ in the total sample and with Peabody Picture Vocabulary Test in the lower-class subsample and the total sample.

Regression equations illuminated the relative effect of the variables investigated on the intellectual functioning of the child. From Table 5 it can be seen that paternal Nurturance and Restrictiveness together

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Insert Table 5 about here  
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accounted for 36% of the variance in Binet IQ ( $R=.60$ ) when no other variables were entered into the regression equation. The pattern was similar when the Peabody Picture Vocabulary Test score was used as the measure of intelligence. The addition of demographic variables and It Scale score to the equations explained relatively little more of the variance in IQ, for either the Binet Intelligence Scale, or Peabody Picture Vocabulary Test.

DISCUSSION

For the sample as a whole, the first hypothesis was supported. One possible interpretation of the close relationship found between warmth and IQ is that fathers are responsive to the intelligence of their sons. Perhaps paternal nurturance and restrictiveness are reactions to the level of cognitive functioning of the child; Bell (1968) has amply demonstrated that children influence parents as much as parents influence children.



Other interpretations of the data are possible however. Perhaps identification with the father is fostered by the parent's nurturant behaviors and the child is motivated to incorporate his fathers ideas into his own cognitive structure as well as imitate his problem solving behaviors. Restrictive paternal behaviors may interfere with the identification process, and hence, with the intellectual functioning of the young boy. An alternate, or additional explanation of the findings is possible. Perhaps paternal nurturance suggests to the child that interaction with the environment is likely to be rewarding. Exploratory behavior may thereby be encouraged, and cognitive functioning facilitated. Conversely, paternal restrictiveness may be associated with fear of the environment and a disinclination by the child to interact with his surroundings. Intellectual growth may therefore be hindered. It is also possible that a third unexplored variable is causing the behavior of both fathers and sons. In any case, with one-third of the variance in the child's IQ accounted for by paternal nurturant and restrictive behaviors, it appears that some new clues are provided about non-demographic variables associated with, and perhaps antecedent to intellectual functioning in young white boys.

The hypothesis that a male sex-role preference is correlated with paternal nurturance was not supported. Neither was the hypothesis that a male sex-role preference is correlated with IQ. It is still possible that father identification mediates between paternal warmth and intellectual functioning of the child, but if so, the data from this study suggest that male sex-role preference is not involved in the process.

The association found in the lower-class subsample between a feminine sex-role preference and intellectual functioning may be related to some unique conditions in that setting. The masculine sex-role definition in a lower-class culture may preclude sedentary, intellectual activities. Thus, there may be few role models of men displaying a preference for such activities. Young boys who enjoy these endeavors may find themselves associating largely with females; the boys' sex-role preference at four years of age may therefore be primarily feminine. These conditions generally do not prevail in middle-class families where men are as likely to prefer intellectual activities as women. The lower-class capable boy may have to make a choice when he enters school. Given the female ethos prevailing in most elementary grades, the youngster may have to choose between masculinity and academic activities. Reports emanating from schools in low-income areas strongly suggest that the former alternative is selected more often. The situation might be very different if strongly masculine men who displayed an interest in intellectual activities served as teachers in the lower grades.

Most apparent in this investigation were the different correlational patterns found in the middle-class and lower-class subsamples, disconfirming the fourth hypothesis. The dangers of generalizing from one class to another are clear. One component of the nurturance variable, Asking Information of the Child, an indication that the child is consulted with and treated as a thinking human being, appears to be important in both classes. Possibly the nature of the interview unduly elicited this type of parental behavior. In responding to the Cognitive

Home Environment Scale (Radin and Sonquist, 1968), a questionnaire pertaining to home conditions, such as ownership of magazines, family activities, etc., some fathers freely consulted with their sons. Although the situation was atypical, it appears that fathers who make demands upon their son's thinking processes tend to have sons with the greatest intellectual ability. It is possible that the fathers sought more information from the more capable four-year-old children. However, there are undoubtedly other factors involved as well, and the interaction may be circular. The boy who can provide his father with information he seeks may be asked questions more often, and is thereby encouraged to acquire and retrieve knowledge. It is likely that a set of responding to questions is thus fostered. These behaviors will probably have a positive effect on the youngster's ability to answer the questions posed by a tester, or a teacher, in later years. It may also foster the posing of questions to oneself, and seeking answers when they are not readily available.

The class differences found in observed paternal behaviors were concordant with those found for maternal behaviors (Kamii & Radin, 1967; Brody, 1968; Brophy, 1970; Bee, VanEgeren, Streisagreth, Nyman & Leckie, 1969). Middle-class fathers interacted more with their children, and were more nurturant than lower-class fathers. Unlike the findings pertaining to mothers, however, middle-class fathers were not found to use more praise, or express more affection with their sons. It appears that responding to the needs of the boy, empathizing with his feelings, and consulting with him are the more critical variables in differentiating lower-class, and middle-class paternal behavior.

The lack of class differences in sex-role preference of the boys is contrary to the findings of Hall & Keith (1964) who studied children aged 8 to 10, and to those of Rabban (1950), who used toys rather than pictures to determine sex preference. The findings are congruent with those of Nadelman (1970), however, who investigated sex-role preferences among five-year-old white children in England, using an instrument like the It Scale, and failed to find significant class differences.

Correlational studies do not permit a directional interpretation. Paternal behaviors may be reactive to the child's intellectual functioning. But the significant relationships found between a youngster's IQ and his father's behaviors suggest that longitudinal studies of observed paternal childrearing practices might be very fruitful in determining the antecedents of cognitive growth in young boys. At a very minimum, the findings of this investigation suggest that "fathering" is relevant to the child's cognitive functioning, and should not be ignored by those studying the process, or attempting to modify the academic achievement of preschool-aged boys.

## FOOTNOTES

- 1 This study was supported by a grant from the University of Michigan Horace A. Rackham School of Graduate Studies. A revised version of this paper was presented at the Biennial Meeting of the Society for Research in Child Development, Minneapolis, Minnesota, April 1971.
- 2 Requests for reprints should be sent to Norma Radin, School of Social Work, University of Michigan, Ann Arbor, Michigan, 48104.
- 3 In the Nurturant cluster were verbal reinforcement, physical reinforcement, consulting with the child, ordering with explanation, retroactive limit setting, preventive warning, promising to reinforce, other psychological manipulations to influence the child, fully responding to the explicit (stated or exhibited) needs of the child, partially responding to the explicit needs of the child, responding to the implicit (unstated) needs of the child, communicating affection, sharing, initiating and motivating behavior in the child, requesting, preventive manipulation of the environment, and asking information of the child. The categories included in the Restrictive cluster were ordering without explanation, threatening, using aversive verbal stimuli, and using aversive physical stimuli.

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TABLE 1  
Significant Class Differences  
in Non-Demographic Variables

Variable	Mean Middle-Class Subsample (N=21)	Mean Lower-Class Subsample (N=21)	<u>t</u> Value
Binet IQ	110.2	99.9	2.33*
PPVT IQ (a)	109.4	94.1	3.50**
Total number of observations	33.8	21.5	2.54*
Nurturant behaviors	27.7	15.7	3.20**
Fully meeting explicit needs of the child (b)	10.7	2.3	3.98***
Meeting implicit needs of the child (b)	5.6	1.8	3.44**
Asking information of the child (b)	4.2	1.6	3.08**

(a) PPVT refers to Peabody Picture Vocabulary Test.

(b) Components of nurturant behavior.

\*  $p < .05$ ; two-tailed test; 40 d.f.

\*\*  $p < .01$ ; two-tailed test; 40 d.f.

\*\*\*  $p < .001$ ; two-tailed test; 40 d.f.

TABLE 2

Intercorrelations of It Scale Scores, and Intellective,  
Interaction, and Demographic Variables for the Total Sample (N=42)

Variables	1	2	3	4	5	6	7	8	9
1. Binet IQ	-	.68***	.49***	-.36*	-.23	.33*	.30*	.37*	.37*
2. PPVT IQ (a)		---	.51***	-.28	-.14	.37*	.33*	.34*	.36*
3. Nurturant behaviors			---	-.02	.04	.40**	.39**	.31*	.95***
4. Restrictive behaviors				---	.04	-.16	-.22	-.09	.16
5. <u>It</u> Scale score					---	-.21	-.13	-.13	.07
6. Education of mother						---	.50***	.55***	.29
7. Education of father							---	.75***	.34*
8. Rating of father's job								---	.30*
9. Total number of interactions									---

(a) Peabody Picture Vocabulary Test IQ.

\*  $p < .05$ ; two tailed test; 40 d.f.

\*\*  $p < .01$ ; two tailed test; 40 d.f.

\*\*\*  $p < .001$ ; two tailed test; 40 d.f.

TABLE 3

Intercorrelations of It Scale Scores, and Intellective, Interaction, and Demographic Variables for the Lower-Class and Middle-Class Subsamples (N=21 for each)

Variables	1	2	3	4	5	6	7	8	9	
Binet IQ	x	.60**	.48*	-.35	.01	.38	.33	.15	.34	
PPVT IQ (a)	.68***	x	.42*	-.30	.07	.13	.03	-.20	.27	M
Nurturant behaviors	.29	.29	x	-.37	.35	.31	.12	-.24	.84***	i
Restrictive behaviors	-.37	-.33	.28	x	-.11	-.27	-.20	.20	-.17	d
<u>It</u> Scale score	-.44*	-.40	-.25	.11	x	-.07	-.30	-.09	.35	e
Education of mother	.02	.10	.08	-.09	-.09	x	.47*	.26	.25	C
Education of father	-.08	-.12	.09	-.22	.12	-.09	x	.58**	.13	l
Rating of father's job	.23	.23	.27	-.21	.03	-.05	.35	x	-.12	a
Total number of interactions	.21	.15	.95***	.42	-.13	-.02	.08	.27	x	s
Lower Class										

Table 3 continued

(a) Peabody Picture Vocabulary Test IQ; for the correlation with Nurturant Behaviors a one-tailed test was used.

\*  $p < .05$ ; two-tailed test; 19 d.f.

\*\*  $p < .01$ ; two-tailed test; 19 d.f.

\*\*\*  $p < .001$ ; two-tailed test; 19 d.f.

TABLE 4

Intercorrelations of Intellective Variables and Components  
of Nurturance Which Showed Significant Class Differences

Variable	1	2	3	4	5
<b>Total Sample (N=42)</b>					
1. Binet IQ	x	.68***	.40**	.23	.51***
2. Peabody Picture Vocabulary Test IQ		x	.37*	.20	.61***
3. Fully meeting explicit needs of the child			x	.23	.23
4. Meeting implicit needs of the child				x	.24
5. Asking information of the child					x
<b>Middle-Class Subsample (N=21)</b>					
1. Binet IQ	x	.60**	.36	.19	.42*
2. Peabody Picture Vocabulary Test IQ		x	.13	.03	.54**
3. Fully meeting explicit needs of the child			x	.10	.10
4. Meeting implicit needs of the child				x	.12
5. Asking information of the child					x
<b>Lower-Class Subsample (N=21)</b>					
1. Binet IQ	x	.68***	.24	.01	.59**
2. Peabody Picture Vocabulary Test IQ		x	.47*	.09	.52*
3. Fully meeting explicit needs of the child			x	.16	.15
4. Meeting implicit needs of the child				x	.19
5. Asking information of the child					x

Table 4 continued

- \*  $p < .05$ ; two-tailed test; 40 d.f. for total sample; 19 d.f. for subsamples; for the correlation between Binet IQ and Asking Information of the Child for the middle-class subsample, a one-tailed test was used.
- \*\*  $p < .01$ ; two-tailed test; 40 d.f. for the total sample; 19 d.f. for the subsample.
- \*\*\*  $p < .001$ ; two-tailed test; 40 d.f. for the total sample; 19 d.f. for the subsample.

TABLE 5  
Stepwise Regression for Total Sample (N=42)

Criterion Variable	Predictor Variable Entered	Step Number	Multiple R	Multiple R Squared (Percent of Variance Expl.)
Binet IQ	Nurturance	1	.49*	.24
	Restrictiveness	2	.60**	.36
	<u>It</u> Scale	3	.64**	.41
	Rating of father's job	4	.66**	.44
	Ed. of father	5	.68**	.47
	Ed. of mother	6	.68**	.47
Peabody Picture Vocabulary Test	Nurturance	1	.51**	.26
	Restrictiveness	2	.58**	.34
	Rating of father's job	3	.60**	.36
	<u>It</u> Scale	4	.62*	.38
	Ed. of father	5	.62*	.38
	Ed. of mother	6	.62*	.39

## Table 5 continued

- \*  $p < .01$ ; 40 and 1 d.f. for Binet IQ and Nurturance; 30 and 4 d.f. for Peabody Picture Vocabulary Test and It scale; 30 and 5 d.f. for Peabody Picture Vocabulary Test and education of father; 30 and 6 d.f. for Peabody Picture Vocabulary Test and education of mother.
- \*\*  $p < .001$ ; 30 and 2 d.f. for Binet and Restrictiveness; 30 and 3 d.f. for Binet and It scale; 30 and 4 d.f. Binet and rating of father's job; 30 and 5 d.f. for Binet and education of father; 30 and 6 d.f. for Binet and education of mother; 40 and 1 d.f. for Peabody Picture Vocabulary Test and Nurturance; 30 and 2 d.f. for Peabody Picture Vocabulary Test and Restrictiveness; 30 and 3 d.f. for Peabody Picture Vocabulary Test and rating of father's job.