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THE RELATION OF FATHER AVAILABILITY TO PROBLEM
SOLVING AND SEX-ROLE ORIENTATION
IN THE YOUNG BOY

MYRNA REIS

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of
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ABSTRACT

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THE RELATION OF FATHER AVAILABILITY TO PROBLEM SOLVING AND SEX-ROLE
ORIENTATION IN THE YOUNG BOY

This study investigated the relation of the father's availability to his 4-5 year old son's problem-solving ability, mathematics: language aptitude ratio, and sex-role orientation. The subjects were 16 high father-available and 14 low father-available middle-class boys attending nursery school, and their biological parents. Three problem-solving tests, the Mathematics TOSE, the Language TOSE, and a visual-figural Guilford test, and a sex-role orientation test, the It Scale for Children were administered to the sons. The high group boys performed better than the low group boys on the Guilford problem-solving test, and correlations in the high group between father availability and problem solving were positive and significant for all three problem-solving tests. There were no significant differences between the groups for mathematics:language aptitude ratio or for sex-role orientation. Sex-role orientation did not relate to paternal availability, but it did relate negatively to mother availability. Other significant associations were found between the child's problem-solving scores and the parental scores of neuroticism, extraversion, age and education. The child's problem-solving ability also related significantly to the mother's knowledge of the child. The findings were interpreted as indicating that high father availability is associated with the son's problem-solving ability, but that other factors, particularly maternal ones, influence the child's development.

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Table of Contents

	Page
Introduction	1
Method	15
Results	23
Discussion	37
Appendix A	46
Appendix B	59
Appendix C	63

The Relation of Father Availability to Problem Solving and Sex-Role Orientation in the Young Boy

The emphasis in western culture has been on mothering rather than fathering, and systematic investigation of the father's role in child development has been relatively neglected (Becker and Krug, 1964; Howells, 1970). This indifference has prevailed despite increasing indications that the father and mother have a very different impact on their sons and daughters, and that their impact varies in kind and intensity in differing circumstances throughout childhood and adolescence. For instance, the effect the mother has upon a son differs if there is no father or father-surrogate in the home (Walters and Stinnett, 1971).

The present study examined the relation between the father's availability and the son's sex-role orientation and intellectual development. It was hypothesized that the son of the more available father would have better problem-solving ability and a higher mathematics:language aptitude ratio than the son of the less available father, and that the boy's masculine orientation would also be affected by the father's availability.

Father Availability and the Intellectual Development of the Son

To begin with, a distinction is made between father absence and father availability. Father absence refers to the condition where the father does not live at home, either permanently or for long periods of time. Common causes of father absence include military service, death, divorce, and job requirements. Father availability

refers to the amount of interaction with, and interest in the son a father has who does live at home most of the time.

Biller (1970) reviewed many father-absence studies which investigated intellectual and psychosocial development of the male child. He concluded that these studies point to intellectual and masculine development deficits in the child whose father is absent from the home, a point of view supported by David Lynn's (1969) theories, which will be developed later.

While there is a larger body of literature on the effects on the son of father absence, few studies have been concerned with father availability. It is reasonable to suspect that absent and distant fathers have similar debilitating effects on intellectual functioning and sex-role development of the son, and some current research tends to support this hypothesis.

Kimball (1952) studied very intelligent adolescent boys who were enrolled in a residential preparatory school, comparing underachieving boys with a group of boys randomly selected from the total school population. Sentence-completion test responses revealed that significantly more boys in the underachieving group appeared to have poor relationships with their fathers. Cruttsbaum, Hurwitz, Prentice, and Sperry (1962) found a connection between lack of positive father-son interaction and general academic achievement. In a study by Cross (1966), sentence-completion test responses indicated that warm and accepting fathers who listen to their children seem to enhance flexibility and imaginativeness of thought in boys in middle childhood.

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Blencherd and Biller (1971) studied boys not only in the father-absent condition, but also in a variety of father-present (father-availability) conditions. They studied four groups of 11 subjects each, of grade three boys individually matched for age, SES, and intelligence; early father-absent boys (absence beginning before age 5), late father-absent boys (absence beginning after age 5), low father-present boys (father present less than 6 hours per week), and high father-present boys (father present more than 2 hours per day).

Examination of class grades and academic achievement test results showed that the academic performance of the high father-present group was very superior to the performance of the other three groups. Blencherd and Biller concluded: "The early father-absent boys were generally underachievers, the late father-absent and low father-present boys functioned somewhat below grade level, and the high father-present group performed consistently above grade level. compared to boys from families where the father is absent or relatively unavailable, boys from high father-present families are most likely to actualize their intellectual potential" (1971, p.304).

It is interesting that significant findings were found for amount of father availability per se, without regard to the quality of time spent in father-child interaction. In an earlier study, Biller (1968) studied the quality of the father-son relationship. He found that quality of the relationship has more impact on the boy's personality development than quantity of time spent

4.

together, but that even quantity alone has significant impact. Quantity of father availability is, of course, a convenient variable for research purposes.

A series of studies on effects of father availability was done by Norma Radin. In 1969, Radin found significant correlations between observed nurturant behaviors of lower-class mothers and the IQ's of their four-year-old children, except in the case of white boys. Radin suggested that perhaps the white boys were being influenced primarily by their fathers, since almost all of these boys came from intact families. As well, she speculated that the same influence might be exerted in middle-class families.

Radin (1973) therefore observed 21 lower-class and 21 middle-class fathers at home interacting with their 4 year-old sons. The children were subsequently administered IQ tests and Brown's It Scale for Children (1956). It was found that the boys' IQ's were significantly and positively correlated with paternal nurturance, and negatively correlated with paternal restrictiveness.

A study by Dyke and Witkin (1965) has indicated that father-absence or father-distance also relates to analytic skills. They found that lack of positive father-son interaction is associated with boys' difficulties on tasks involving analytic thinking.

It can be inferred that when the father is absent or not salient, the boy will model himself after his mother in cognitive style and produce a global rather than an analytic conceptual style - an inference which conforms with David Lynn's theories.

Various studies have also indicated that father absence seems to relate to a particular pattern of aptitude test scores. This

pattern differs from the usual male pattern where mathematic scores are higher than verbal scores, but is similar to the female pattern, with verbal scores higher than mathematic scores. (Altus, 1958; Bing, 1964; Nelsen and Maccoby, 1966). Carlsmith (1964) found this unusual pattern in the College Board Aptitude Exam results of a sample of middle-class boys who had experienced father absence before the age of 5 because of their fathers' military service.

In absolute terms, however, verbal performance of father-absent males did not differ significantly from that of father-present males in Carlsmith's study. This suggests that verbal skills are freely available from middle-class mothers. Since academic achievement is highly dependent on verbal skills which may be obtained through middle-class mothers, middle-class boys may not particularly suffer academic underachievement as a result of father-absence.

This hypothesis conforms with the findings of Hilgard, Neuman, and Fisk (1960); they found that men who lost their fathers during childhood were, nevertheless, highly successful academically. Notably, these men were very dependent on their middle-class mothers. However, a study by Gregory (1965) indicated that verbal aptitude was higher than mathematical skill among college males who lost their father or mother by divorce.

Further evidence qualifying the many previous findings that boys invariably suffer in academic achievement from father absence or distance was offered by Solomon, Houlihan, Busse, and Perelius (1971). They found no significant correlations between paternal behaviour and academic achievement for fifth grade boys.

Herzog and Sudia (1971) reviewed a number of studies that indicate that although fatherless children score significantly lower on school achievement tests, group differences are more closely related to race and income than to family status, especially in the low income group. They concluded that it is "unlikely that father absence in itself would show significant relation to poorer school achievement, if relevant variables [including type of father absence and SES] were adequately controlled.... [and that] functioning is determined, not only by the individual characteristics and interactions of [family] members, but also by the circumstances and environment of the family unit" (p.61-62).

That child development is determined by many factors and complex interactions is self-evident, but it is also clear that specific circumstances such as father absence may influence the child directly or indirectly. It is certain, for instance, that family income is important to child development; but family income is of course strongly influenced by father absence. More important, almost all of the studies reviewed by Herzog and Sudia concentrate on lower-class, Negro families and predate the more recent studies by Radin and by Biller which do account for race and SES. Current research indicates that not only father absence, but also the amount and kind of the father's relationship with the son affects the child's academic achievement and cognitive development. This association has been found when the father-son involvement was measured in terms of a poor father-son relationship as revealed by a projective test (Kimball, 1952), by amount

of time spent at home by the father (Blanchard and Biller, 1971), or by amount of observed nurturant behaviour of the father toward his son (Radin, 1972; 1973).

Father Availability and Sex-Role Development of the Son

Kohlberg (1966) has suggested that the learning of socially defined sex-role concepts is the primary ingredient of sex-role development. He speculated that young father-absent boys may lack certain types of cognitive experiences which retard both their intellectual and sex-role development.

There seems no reason not to extend Kohlberg's speculations concerning father-absent boys to low father-available boys, though probably smaller deficits would be expected in the case of the son of the distant father. There is research evidence supporting the contention that a warm, affectionate father-son relationship facilitates the boy's masculine development. For instance, Mussen and Distler (1959) studied the structured doll play of kindergarden boys. Their results revealed that boys who scored high in masculinity of projective sex-role responses perceived their fathers as more warm and nurturant than did boys with low masculinity scores. In 1960, Mussen and Distler found that fathers of the highly masculine boys described in their earlier article took care of their sons more often, and had more responsibility for family child-rearing practices, than did fathers of lower masculine boys.

West (1967) reviewed much evidence which indicated that ineffective fathering coupled with an intense mother-child relationship is particularly likely to result in a homosexual behaviour

pattern in males. Biller (1970) also pointed out that various studies have concluded that father-absent males were more likely than father-present males to become homosexual or to have difficulty in forming lasting heterosexual relationships.

After reviewing the relevant literature, (Lynn, 1974; p.166) summarized: "A pattern emerges for males; an association exists between father's nurturance and masculinity in the boy...the father's dominance, his participation in child care, and his loving interaction with his son...seems to enhance the son's masculinity."

On the other hand, Lefkowitz (1962) obtained contrary evidence; the third grade boy high in masculine preference had a more nurturant mother, not father. However, Lefkowitz determined nurturance by asking parents if they worried about the child's fears and his need for attention, and whether they knew the names of the child's friends or the contents of his dreams; questions which might produce a restricted range of response by the father. Also, Sears, Rau, and Alpert (1965), using interview measures, did not find that the father's nurturance and warmth related to preschool boys' masculinity. Nor did Radin (1972) find support for the hypothesis that sex-role preference in the boy related to paternal nurturance. In general, the contradictory findings on the relation of sex-role development to father-involvement have made directional hypotheses untenable at present.

It is also possible that the relationship between the father and mother might be involved in male sex-role development, and this variable has not been taken into account in past research.

ynn (1974) contends that this relationship does influence the son's development: "The mother-father relationship greatly influences the child's development,...when a mother is congenial with her husband she may subtly enhance her son's masculinity" (p. 137).

Critical Age

It also appears likely that father absence when the boy is relatively young affects sex-role development more than father absence when the boy is older. Hetherington (1967), studying 9-12 year-old father-absent boys, found that they manifested less masculine behaviour than father-present boys. But no consistent differences were found on the sex-role measures when the father-present boys were compared only with boys who had become father-absent after the age of 4. This finding agrees with other studies indicating the importance of early father-absence. For instance, Biller (1969) found that father-absent 5 year-old boys had less masculine sex-role orientations and preferences than did father-present boys, but that boys who had become father-absent before the age of 4 had significantly less masculine sex-role orientation than those who became father-absent in their 5th year.

Similarly, Santrock (1970) found that boys who became father-absent before the age of 2 were more handicapped in terms of several dimensions of personality development than boys who became father-absent at a later age: preschool father-absent boys were significantly more feminine, less aggressive, and more dependent.

Biller (1970) summarized evidence suggesting that father absence before the age of 4 or 5 has a particularly profound effect on masculine development. He stressed the work of Money (1965) as indicating the first 2-3 years as being crucial to formation of basic sex-role orientation. In cases involving hermaphrodites, it was found virtually impossible to change the child's gender self-concept after the age of 3.

Such data indicate the possibility of a "critical period" in sex-role development, which may be affected by low father availability as well as by father absence. Cognitive functioning too may be more influenced by paternal deprivation during the first few years of life than later on. In Carlsmith's (1964) study, the younger the child when the father left, the greater was the increase in relative superiority of verbal to mathematics aptitude, and Biller's (1970) review indicated a similar effect on academic achievement. Herzog and Sulea (1971) found that, on the whole, most studies report that the younger the child at separation, the greater the impact of the father's absence.

Theoretical Relation Between Father Availability, Sexual Identity and Cognitive Development

Lynn's (1969) theory of sex-role identification provides an explanation of how father availability relates to both cognitive and sex-role development. Lynn hypothesizes that both boys and girls usually establish their initial identification with the mother. Whereas girls maintain their identification with the mother, boys shift their identification to a culturally defined masculine role. Lynn discusses the possible difficulties of the

masculine role identification process caused by this necessary shift. "The early learned mother-identification has primacy over later learning. Moreover, the desired sex-role behaviour is often defined for the boy through divergent feedback, by informing him when he is not giving a desired response. Frequently this feedback is reinforced with punishment" (p. 64).

Lynn further assumes that in learning the appropriate identification, each sex acquires different cognitive styles that are subsequently applied generally. The girl's cognitive style primarily involves imitation of the mother, i.e., learning a lesson. In contrast, the boy's masculine-role identification involves solving the difficult problem of what is the male sex-role, generally through his relationship with the usually absent father. This problem-solving practice involves restructuring of the field and abstracting of principles.

If the sex-typing problem is not too overwhelming, that is, the father is not too distant or abusive, the son receives successful practice in problem solving, which results in acquisition of problem-solving skills and abilities. Such skills presumably generalize to a wide variety of situations. However, for the boy with the very distant father, problem-solving practice is relatively difficult and unsuccessful, and problem-solving ability relatively poorer.

Aims and Contributions of this Study

The hypotheses of this study were that the boy with a highly available father would solve problems better and have a higher mathematics:language aptitude than the boy with a low available

father, and that the boy's masculine orientation would depend on the degree of father availability.

To test these hypotheses, it was necessary to measure the availability of the father. Blenched and Biller (1971) measured father availability using a questionnaire asking the mother to indicate the amount of time the father spent at home interacting with his child. (Where the mother was unavailable, the questionnaire was filled out by the school nurse) Obviously, information about the father may have been confounded by a wide variety of maternal cognitive, emotional, and personality factors.

Radin (1972) sampled the father-child interaction by controlled experimenter observations rather than by maternal report, a first-hand source of information probably preferable to Blenched and Biller's questionnaire. But Radin's experimenter observations also had certain limitations. Her data were based on the 'busiest' thirty-minute sample of a single 2 hour home visit, which meant that for each subject an idiosyncratic piece of behaviour was collected rather than a random sample. Too, artificial conditions that might well influence the behaviour of the subjects were by no means eliminated (e.g., the presence of the experimenter, the tape recorder).

The development of a suitable questionnaire to supplement or replace a home visit appears worthwhile because of smaller cost and superior practicality, situations where a home visit would not be possible or advisable, possible questionnaire adaptation for use in other areas (e.g., for clinical use), and the limitations and faults of the home interview itself.

The Parent-Questionnaire was therefore developed and used in this study (Appendix A). Parent information concerning the quantity and quality of the parent-child interaction was solicited directly from each of the child's parents, and not from a second or third-hand source. Information was also solicited from each parent concerning the other, to check the accuracy of self-estimated parent-child relationships.

As pointed out by Herzog and Sudia (1971), current research needs also demand the careful control of SES. Radin (1972), Carlsmith (1964), and Hilgard, Newman and Fisk (1960) all agree that social class differences are important in the dynamics of intellectual and sex-role development.

These researchers also agree that the mother is of prime importance in the male child's intellectual development. However, neither Radin nor Blanchard and Biller sought direct information about the mother. It is suggested that studies of young children ought to measure both mother and father characteristics as well as the parent-child relationship as close as possible to their source.

It also appears reasonable to take into account the emotional stability of each of the parents. It would seem that a psychologically healthy mother may well be able to counteract father absence, and consequently, low father availability (Carlsmith, 1964). A father-absent study by Pedersen (1966) showed that mothers of disturbed boys had significantly more psychopathology (as measured by the MMPI) than mothers of non-disturbed boys. The degree of father absence was related to the boys' level of

adjustment only in the case of the disturbed boys. As for the father's emotional stability, common sense alone dictates that his adjustment may confound any father-availability measure.

Another research need concerns the possible influence of males and females other than the father and mother living in the home. Biller (1970) has cited studies that indicate that boys with brothers are more masculine than boys with sisters, especially in two-child families with children close in age (Biller, 1968; Brim, 1958; Brown, 1956; Koch, 1956; Sutton-Smith, Roberts and Rosenberg, 1964). There is also evidence that, in two-child father-absent families, boys with brothers have a lesser academic aptitude deficit than boys with sisters (Sutton-Smith, Rosenberg, and Landy, 1968). In addition, Santrock, (1970) found that father-absent boys who only had older brothers were significantly more masculine than father-absent boys who only had older sisters.

Radin (1972) took into account some of the possible surrogate-male models in the home, but she did not seem to have considered the possible influence of male siblings. Blanchard and Biller (1971) did not control for surrogate-father models but did match for presence or absence of male siblings. Neither researcher controlled for female siblings. These controls all seem advisable so that, in this study, the number of male and female siblings were taken into account, and adult male and female models in the home were controlled for.

Yet another research concern relates to the age of the subjects, as previously discussed. Therefore, this study sampled boys aged 4-5, an age range close to the possible 'critical' period of psychosexual development.

Method

Subjects

The subjects in this study were thirty 4-5 year old normal male children, their biological mothers, and their biological fathers. All children were white, suburban, and middle-class as determined by the Blisher Scale of Socioeconomic Status (1967). Parents were in classes 1-3 of the 7 classes in the scale. The children spoke English as their first language and all had been attending nursery school for at least seven months. Children in the following categories were not included in the study: those with full-scale IQ's below 100, cases with severe behaviour or child management problems reported both at home and at school; children with diagnosed learning problems or disabilities or with uncompensated visual or hearing problems; and children from families where a divorce or separation had occurred.

All fathers in the study were currently employed and were the only adult males living in the home. None of the mothers were employed outside the home. The mothers were the primary child carers. None of the parents reported home problems causing current situational upset in the child.

Procedure: The Parent-Questionnaires

Letters, including consent forms, were sent home with the children to introduce parents to the project and to solicit their cooperation (Appendix A). Two identical Parent-Questionnaires and an additional explanatory letter were then sent to each pair of parents who had consented to take part in the study. Parent-Questionnaires were completed at home, independently by each

parent (See Pilot Study, Appendix B). Where necessary, reminders to parents to return the completed questionnaires were later sent.

The Parent-Questionnaire was designed to obtain the following information or scores:

- (1) Each parent's self-estimated time in hours spent in positive interaction with the child on weekdays, weekends, and total week, and his/her estimation of time spent by the spouse;
- (2) Each parent's knowledge of and concern with the child's daily life, his problems, development, and emotional adjustment;
- (3) A score for each parent-pair to estimate the mother-father relationship in terms of the child. This is a measure of parental communication, communality of interest, and tendency to see things similarly concerning the child;
- (4) An estimate of the child's emotional adjustment based on the parents' responses.

In addition, each questionnaire included an Eysenck Inventory (Appendix A) which yielded a Lie Scale, indicating social desirability response set, a Neuroticism-Adjustment Scale, and an Extroversion-Introversion Scale.

Procedure with the Child

Each child was tested at school on (Appendix C):

- (1) A short form Wechsler Preschool and Primary Scale of Intelligence Subtests, to control for IQ (WPPSI);
- (2) Tests of Basic Experiences: Mathematics Test, to test mathematics-oriented, problem-solving ability (Math TOBE);

(3) Tests of Basic Experiences: Language Test, to test language-oriented problem-solving ability. (Language TOBE);

The Mathematics and Language TOBES were also used to obtain a mathematics:language ratio.

(4) The Guilford Creativity Tests for Children; Making Objects, to test visual-figural problem-solving ability (Guilford);

(5) The It Scale for Children, a gender-orientation measure (It Scale).

All tests were administered individually by an experienced female examiner with every effort made to keep the child motivated. Testing was temporarily discontinued whenever interest appeared to lag.

Four WPPSI subtests were given to each child to obtain Full-Scale, Verbal, and Performance IQ estimates. Information, Arithmetic, Picture Completion, and Block Design subtests were chosen as they have the highest correlations among the WPPSI subtests with full-scale WPPSI IQ at the age levels tested.

The Math TOBE, containing 28 items, was used as a measure of the child's ability to solve problems involving numbers and spatial concepts. Guilford (1968) cites mathematics as an example of problem-solving activity involving convergent production. Typical items in the Mathematics TOBE tests basic mathematical concepts, their use, and mathematical knowledge based on customs.

The Language TOBE is similar in size and format to the Mathematics TOBE, but it deals with problems concerning basic language concepts rather than with mathematical problem-solving. Language

TOBE tests vocabulary, sentence structure, verb tense, sound-symbol relationships and letter recognition.

Following a suggestion made by Guilford (1974), 'Making Objects' was chosen from among the 'Creativity Tests for Children' as another suitable measure of ability to solve non-numerical problems. Guilford characterizes the Creativity Tests as involving divergent production.

When tested on the Guilford, the child is shown how to use a set of cardboard two-dimensional geometric shapes to make a picture. He then is required to make eight different pictures (e.g. an ice-cream cone). The Guilford test was designed for older children, so that it was adapted for use with preschool children (appendix C).

The It Scale was administered as a measure of the child's sex-role orientation; that is, his self-concept as a boy or acceptance of the 'boy' label (Billar, 1970). The child is shown sets of sex-linked pictures and also sexually neutral figures called 'It'. He was asked to indicate which pictures 'it' would prefer. A high score indicated high male sex-orientation.

The 30 families were divided on the median split into two groups: a high father-father available group (N=16) and a low father-available group (N=14). Group placement of the family members depended on the father's self-estimated number of hours spent interacting with the child during the total week, since the pilot study indicated that the father-availability measure differentiated fathers more clearly than did the measure of the father's knowledge of his son.

In the pilot study, the father's responses produced a restricted

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range of 'don't know' answers. In the main study, no significant differences were found between the mother's or father's self-estimated time and the spouse's evaluation (Table 1).

The two groups of children were matched for Full-Scale, Verbal and Performance IQ scores, age in months, WPPSI Arithmetic Subtest Scaled Score, sibling number and configuration, nursery school attendance in months, and emotional adjustment (Table 2). The groups were also matched for parental Iie, Neuroticism, and Extraversion scores, age, education, mother time, mother and father knowledge, and father-mother relationship scores.

Statistical Analysis

The hypotheses that the boy with a highly available father would have better problem-solving ability and a higher mathematics: language aptitude ratio than the boy with a low available father were specific in the predicted direction of the difference between groups. Therefore, one-tailed tests of significance appeared suitable for them. One-tailed correlation co-efficients and t-tests for independent samples were computed for Mathematics TOBE, Language TOBE, the Guilford test, and the Mathematics:Language ratio. A two-tailed Mann-Whitney U-test was computed for the It Scale as it was felt that the It Scale did not meet the t-test assumption of interval date. Two-tailed t-tests or Mann-Whitney U-tests for independent samples were computed for all other variables.

Pearson or Spearman correlations were calculated among all the major child and parent variables for the whole sample, within the low father-available group, and within the high father-available group.

Table 1

Agreement Between Parent Pairs on the Mean Number of Hours Spent
by Each Parent in Interaction with the Child.

Variable	Mean			T-Test Value	T-Test Value
	Father Self-Estimate (N=30)	Mother Estimate of Father (N=30)	Mother Self-Estimate (N=30)		
Weekdays	6.13	7.67	10.87	-1.58	-1.38
Weekends	9.57	9.27	9.57	.66	.12
Total Time	15.8	16.93	20.43	-.62	-.72

Note: All T-tests were two-tailed. No significant differences were obtained.

Table 2

T-Tests, and Mann Whitney U Tests for the Control Variables

Variable	Low Father - Available Group Mean (N=14)	Range	High Father - Available Group Mean (N=10)	Range	T-Value
<u>Child</u>					
Full Scale IQ	117.79	102-139	117.93	100-152	.04
Verbal IQ	117.60	97-137	118.00	97-147	.9
Performance IQ	116.86	91-137	119.3	100-151	-.87
WISC Arithmetic Subtest	12.35	7-17	12.17	9-17	.24
Nursery School Attendance	10.7	7-11	11.13	7-12	-.33
Age in Months	7.71	5-8	8.1	5-9	-1.97
					Mann- Whitney U Value
<u>Child</u>					
Elder Brothers	.29	0-3	.6	0-2	.75
Younger Brothers	.21	0-1	.19	0-1	.11
Total Brothers	.50	0-2	.79	0-2	.65
Total Sisters	.79	0-2	.73	0-2	.112
Total Siblings	1.29	1-2	1.52	1-3	.93
Emotional Adjustment	1.14	0-4	1.4	0-5	.98

Note: All tests were two-tailed. No significant differences were found.

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Table 2 (continued)

T-tests and Mann-Whitney U Tests for the Control Variables

Variable	Low Father- Available Group Mean (N=14)	Range	High Father- Available Group Mean (N=10)	Range	T-Value
<u>Father</u>					
Time Weekdays (hr)	4.29	3-11	7.75	2-17	-3.74***
Time Weekends (hr)	6.86	4-10	12.13	3-17	-5.78***
Total Time (hr)	11.14	5-15	19.88	15-34	-5.74***
Lie Score	2.00	0-5	2.00	0-5	.00
Neuroticism Score	7.79	2-14	7.1	1-16	-.02
Extraversion Score	10.71	5-15	13.75	7-17	-1.77
Age in years	34.64	30-40	37.00	27-44	.43
Education in years	12.71	10-20	14.50	11-20	-.08
<u>Mother</u>					
Time Weekdays (hr)	11.57	6-17	10.25	5-17	.94
Time Weekends (hr)	9.36	3-17	9.75	7-17	-.20
Total Time (hr)	20.93	11-34	20.00	1-34	.53
Lie Score	2.57	1-5	3.44	0-5	-1.57
Neuroticism Score	7.43	1-15	9.75	4-19	-1.53
Extraversion Score	9.00	3-15	11.0	4-19	-1.59
Age in years	32.29	28-34	30.64	27-31	1.62
Education in years	12.71	11-18	12.50	11-16	.25
					Mann-Whitney U Value
Father Knowledge	4.07	0-11	2.67	0-8	146
Mother Knowledge	1.07	0-3	1.05	0-3	117
Father-Mother Relationship	26.57	20-37	26.19	17-43	119

Note: All tests were two-tailed. *** p .001.

Results

Main Findings

Table 7 shows the means, the t-tests, and Mann-Whitney U-test for the dependent measures of problem-solving and sex-identity. The high father-available group scored significantly better than the low father-available group on the Guilford problem-solving test, $U(28) = -1.87, p < .05$. Both TCSE, Language TCSE, and It Scale differences were in the expected direction, but the differences failed to reach significance. Mathematics: Language aptitude ratio differences were in the opposite direction to that expected, but were not significant.

The correlations between parent availability and the child's problem-solving and sex-identity measures appear in Table 8. High father-available and low father-available subsamples were analyzed separately and together. The largest and most frequent significant correlations were found in the high father-available group between the father's availability on weekdays and the child's intellectual variables. Availability related positively and significantly to each of the child's three problem-solving tests, the Math TCSE, $r(14) = .7172, p < .001$, the Language TCSE, $r(14) = .4601, p < .02$, and the Guilford, $r(14) = .3986, p < .02$; and to the child's full-scale IQ, $r(14) = .4691, p < .05$. For the whole sample, there were significant positive associations between total father availability and the Guilford, $r(28) = .3601, p < .02$, and total father availability and the Language TCSE, $r(28) = .2477, p < .05$. It Scale scores and father availability associations were all positive for the high group and the total sample, but were not significant. In the low group, no significant correlations were found between total father availability and the child measures. Only father

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Table 3
Means, T-Tests, and Mann-Whitney U Test for the Dependent Problem-Solving
and Sex-Identity Measures

Variable	Low Father-Available Group Mean (N = 14)	High Father Available Group Mean (N = 16)	T-Test Values
Mathematics TOBE	48.71	50.13	-.51
Language TOBE	53.36	57.06	-.95
Gullford Test	16.00	19.68	-1.87*
Mathematics TOBE: Language TOBE Ratio	.93	.89	1.01
If Scale ^a	59.00	63.13	Mann-Whitney U Value 84

* $p < .05$

^a 2-tailed test

Table 4

Correlation Coefficients for Associations Between Parent Availability and the Child's Problem-Solving and Sex-Identity Measures

Variable	Total Sample (N = 30)			Low Father Available Group (N = 14)			High Father Available Group (N = 16)		
	Weekdays	Weekend	Total Week	Weekdays	Weekend	Total Week	Weekdays	Weekend	Total Week
Father Availability With									
Math TOBE ^a	.2283	.1620	.2129	-.5279*	.0838	-.2004	.7172***	.1961	.5601***
Language TOBE ^a	.2038	.2400*	.2474*	-.4094*	.1271	-.1125	.4608*	.2070	.4137*
Gullford ^a	.3926**	.2686*	.3601**	.0140	-.2474	-.1645	.5056**	.3940*	.5496***
It Scale ^b	.1807	.1406	.2305	-.3631	-.1723	-.2617	.3413	.0562	.2924
Full Scale IQ	.2190	.0852	.1620	-.1625	.3121	.1365	.4691*	.0060	.3122
Mother Availability With									
Math TOBE	-.1003	-.1219	-.1239	-.4256	-.2876	-.3708	.3545	.0590	.2158
Language TOBE	-.1078	-.1117	-.1577	-.2512	-.2064	-.2405	.1289	-.1583	-.0368
Gullford	.1196	.3528*	.2727	.2468	.5340*	.4237	.1151	.1358	.1474
It Scale ^b	-.2057	.0925	-.0354	.0293	.2215	.1739	-.4476*	-.0702	-.2543
Full Scale IQ	-.1272	-.2147	-.1934	-.4861*	-.3174	-.4192	.1792	-.1342	.0039

* p < .05; ** p < .025; *** p < .01; **** p < .001; ^a one-tailed tests; ^b Spearman Rho Correlations

availability on weekdays related significantly, but negatively, to Math TOBE, $r(12) = -.5279$, $p < .025$, and Language TOBE, $r(12) = -.4094$, $p < .05$.

Mother-son significant correlations were few, but significant positive associations were found between mother availability on weekends and the Guilford Test, $r(28) = .3528$, $p < .05$, $r(12) = .5340$, $p < .05$, in the whole sample and low group respectively. A significant negative correlation appeared between the mother's availability and the It Scale in the high group, $r(14) = -.4476$, $p < .05$, and mother's availability also related negatively to IQ in the low group, $r(12) = -.4861$, $p < .01$.

Other Findings

The parent-questionnaires yielded scores other than parent availability. Each parent's knowledge of the child, the father-mother relationship, the child's emotional adjustment and the Eysenck scores were analyzed for significant associations both with the parent's availability and the child measures.

Knowledge and awareness of the child related to both availability of the parent and some of the child measures (Table 5). Better father knowledge related to greater father availability on weekdays, $r(28) = -.3798$, $p < .025$, and better mother knowledge coincided with higher language problem-solving scores, $r(28) = -.4163$, $p < .01$, and with higher IQ scores, $r(28) = -.3983$, $p < .05$ respectively. But some low group significant correlations were in the opposite direction: increased father knowledge coincided with lower Guilford scores, $r(12) = .4648$, $p < .05$, and increased mother knowledge

Table 5

Spearman Correlation Coefficients Between Parent's Knowledge of the Child,
and Child Measures and Parent's Availability

Variable	Total Sample (N = 30)		Low Father Available Group (N = 14)		High Father Available Group (N = 16)	
	Father Knowledge	Mother Knowledge	Father Knowledge	Mother Knowledge	Father Knowledge	Mother Knowledge
Child						
Meth. TOBE	.0572	-.1642	.1324	-.0625	-.0739	-.1568
Language TOBE	-.0856	-.4163***	-.1826	-.2853	-.0648	-.4781*
Guilford	.0258	.0231	.4648*	.1244	-.2517	-.0533
It Scale	-.0260	.0821	.2452	.2740	-.1163	.0444
Full Scale IQ	-.0184	-.3983**	.0678	-.5271*	-.1870	-.3020

Note: High Knowledge Scores indicated less knowledge.

* p < .05; ** p < .025; *** p < .01

Table 5 (continued)

Spearman Correlation Coefficients Between Parent's Knowledge of the Child, and Child Measures and Parent's Availability

Variable	Total Sample (N = 30)	Father Knowledge	Mother Knowledge	Father Knowledge	Mother Knowledge	Low Father Available Group (N = 14)	Father Knowledge	Mother Knowledge	Father Knowledge	Mother Knowledge	High Father Available Group (N = 16)
<u>Father Availability</u>											
Weekdays	-.3798**		-.3018			-.3423		-.2781		-.0518	-.4298*
Weekends	-.3339*		-.1822			-.2190		-.4840*		-.2479	-.1241
Total	-.3276*		-.2750			-.3250		-.5502**		-.0784	-.3893
<u>Mother Availability</u>											
Weekdays	.0422		.1191			-.1711		.5167*		.1605	-.2688
Weekends	-.1534		.2647			.1336		.5632**		-.3878	.0088
Total	-.1542		.1846			-.0614		.5612**		-.3381	-.1041

Note: High Knowledge Scores indicated less knowledge. * $p < .05$; ** $p < .025$; *** $p < .01$

coincided with lower mother availability, $r(12) = .5812$, $p < .025$.

The father-mother relationship did not associate directly with the major child measures, but it did relate to parental availability, especially mother availability (Table 6). The highest association for father-mother relationship in both the high group and the total sample was with a combination of two variables: a better father-mother relationship coincided with high father time on weekends plus high mother time on weekdays, $r(14) = -.7579$, $p < .001$; $r(30) = -.4100$, $p < .01$, for the high group and total sample, respectively.

The child's emotional adjustment was also connected to parental availability, especially in the high group (Table 7). The worse the adjustment, the more time was spent by the father on weekdays, $r(14) = .6167$, $p < .01$, but the better the adjustment, the more time was spent by the mother on weekends, $r(14) = -.4547$, $p < .05$.

Table 8 shows that parental characteristics were linked with availability of the spouse. Few connections were found between the parents' characteristics and their own availability, but in the low group the more neurotic the parent, the more time was spent by the spouse with the child on weekends, $r(12) = .4783$, $p < .05$, $r(12) = .6660$, $p < .01$ for the mother's and father's neuroticism, respectively. As well, the more available father was linked with an older and more highly educated mother, and the more available mother was linked with the more extraverted father.

Parental characteristics were also connected directly with the child's development (Table 9). Age, Education, neuroticism and extraversion were significantly associated with some of the child measures. Higher parental education coincided with improved cognitive functioning, but there was a great deal of variation in direction for associations.

Table 6

Spearman Correlation Coefficients for Associations Between Father-Mother

Relationship and Parent Availability

Variable	Total Sample Father-Mother Relationship (N = 30)	Low Father Available Group, Father-Mother Relationship (N=14)	High Father Available Group, Father-Mother Relationship (N=16)
<u>Father Availability</u>			
Weekdays	.0121	-.0343	.1976
Weekends	-.2295	.0034	-.4527*
Total	-.1017	-.0224	-.1291
<u>Mother Availability</u>			
Weekdays	-.3020	.1239	-.6388***
Weekends	-.4012**	-.1672	-.5902***
Total	-.4171**	-.0624	-.7356****

Note: A high mother-father relationship score indicated poor relationship.

* $p < .05$; ** $p < .025$; *** $p < .01$; **** $p < .001$

Table 7

Spearman Correlation Coefficients for Associations Between the
Child's Emotional Adjustment and Parent Availability

Variable	Total Sample (N = 30)	Low Father- Available (N = 14) Group	High Father- Available (N = 16) Group
<u>Father Availability</u>			
Weekdays	.3678*	.1777	.6167***
Weekends	-.0576	.1039	-.3662
Total	.1428	.1442	.1236
<u>Mother Availability</u>			
Weekdays	-.0524	-.2341	.0679
Weekends	-.2578	-.0144	-.4547*
Total	-.2360	-.1566	-.3520

Note: A high emotional adjustment score indicated relatively poor adjustment.

* $p < .05$

** $p < .025$

*** $p < .01$

Table 8

Pearson Correlation Coefficients for Associations Between Each Parent's Availability and His/Her Neuroticism, Extroversion, Age and Education

Variable	Low Father-Available Group (N = 14)			High Father-Available Group (N = 16)		
	Weekdays	Weekend	Total Week	Weekdays	Weekend	Total Week
<u>Father Availability with Mother's</u>						
Neuroticism	-.1117	.4783*	.2765	-.3095	-.2746	-.3548
Extroversion	.0711	-.1912	-.0975	-.1427	.1643	-.0036
Age	-.2564	-.3050	-.3367	.4283*	.3450	.4718*
Education	-.1531	.5307**	.2925	-.1727	.0388	-.0924
<u>Mother Availability with Father's</u>						
Neuroticism	.2671	.6660***	.5089*	-.1317	-.1557	-.1660
Extroversion	.6072***	.5165*	.5912**	-.1728	-.2669	-.2579
Age	.2084	.0991	.1586	.1679	.1830	.2020
Education	.3994	.1455	.2787	.2356	.1391	.2075

* p < .05; ** p < .025; *** p < .01

Table 9

Correlation Coefficients for Associations Between Child Measures and Each Parent's Age, Education, Neuroticism, and Extraversion

Variable	Math TOBE		Language TOBE		Guilford	
	Low Father- Available Group (N=14)	High Father- Available Group (N=16)	Low Father- Available Group (N=14)	High Father- Available Group (N=16)	Low Father- Available Group (N=14)	High Father- Available Group (N=16)
<u>Father</u>						
Neuroticism	-.0447	-.1763	-.2010	.0967	.5957**	-.4088
Extraversion	-.1489	-.2074	-.0499	.2294	.1686	.3387
Age	-.3797	-.1806	-.4117	-.4255*	-.1922	-.3052
Education	.3289	.3478	.4563*	-.0028	.0668	.2095
<u>Mother</u>						
Neuroticism	.1193	-.2110	.1388	-.0680	-.4681*	-.0501
Extraversion	.1137	-.2927	.1614	-.3014	.6386***	-.3390
Age	-.1269	.1255	-.3066	-.1985	-.0708	.0510
Education	.6056***	-.1088	.6896***	-.4028	.1605	-.2755

Note: A high score indicated tendency toward neuroticism, extraversion.

* $p < .05$; ** $p < .025$; *** $p < .01$

Table 9. (continued)

Correlation Coefficients for Associations Between Child Measures and Each Parent's Age, Education

Neuroticism, and Extroversion

Variable	It Scale ^a		Full Scale IQ	
	Low Father- Available Group (N=14)	High Father- Available Group (N=16)	Low Father- Available Group (N=14)	High Father- Available Group (N=16)
<u>Father</u>				
Neuroticism	.3056	-.2755	-.0460	-.2137
Extroversion	.1518	-.2591	-.1998	-.2596
Age	.2879	-.2221	-.3638	-.2044
Education	-.1656	.2220	.3344	.6291***
<u>Mother</u>				
Neuroticism	.3244	-.2435	.1888	-.5298**
Extroversion	-.5872**	.2519	.1050	-.4288*
Age	.7542***	-.0381	-.2326	-.1382
Education	-.3280	-.1378	.6029***	.1093

Note: A high score indicated tendency toward neuroticism, extroversion.

^a Spearman Rho correlations; * $p < .05$; ** $p < .025$; *** $p < .01$; **** $p < .001$

involving parental neuroticism and extraversion.

Finally an examination of the correlation coefficients among the child measures revealed no significant relationships between the It Scale and the intellectual variables, though the intellectual variables generally correlated significantly among each other (Table 10).

Table 10

Correlation Coefficients for Associations Among Child Variables (N = 30)

Variable	Math TOBE	Language TOBE	Gullford	It Scale	Full Scale IQ	WPPSI Arithmetic Subtest
Math TOBE		.8295****	.3408*	.1849	.7067****	.7118****
Language TOBE			.4221**	.0880	.6888****	.5875****
Gullford				.0933	.3194*	.1611
It Scale ^a					.0069	.1518
Full Scale IQ						.7265****
WPPSI Arithmetic Subtest						

* $p < .05$

** $p < .025$

*** $p < .01$

**** $p < .001$

^a Spearman Rho Correlations

Discussion

The data provided some support for the main hypothesis of this study and also for Lynn's hypothesis, that the son of the more available father has better problem-solving ability. High group sons performed better on the Guilford problem-solving test, and better mathematical, language, and Guilford problem-solving scores were all positively linked with more time spent by the father in interaction with the child. Support was also offered for previous research indicating that a greater father-son involvement is associated with higher children's IQ scores.

The lack of group differences for the other problem-solving measures may have been due to the following interrelated factors: stringent matching procedures, the small numbers of subjects in each group, and a rather high average degree of father availability for the low group. The low-available group mean time for the father was 11.14 hours per week, which was closer to Blanchard and Biller's (1971) high father-present time of more than 14 hours per week than to his low father-present time of less than six hours per week. More important, groups were very closely matched on mean WPPSI Arithmetic Subtest performance, which may account for the failure of the Math TOBE and the Mathematics:Language aptitude ratio to reach significance. A similar explanation is offered for the failure of the Language TOBE difference to reach significance: the Language TOBE format is very similar to that of the Math TOBE, and the two tests were strongly related, $r(28) = .8295$, $p < .001$ (Table 10).

As for sex-identity, Lynn's and Kohlberg's theory that sex-role development of the son is connected with father availability

was not supported. Nor was there support for Lynn's suggestion that masculine-role development of the son relates to his problem-solving ability.

Availability of the mother also appeared to have an effect, though more limited, on the son's problem-solving ability. The positive links between the mother's time on weekends and the Guilford test indicate that time spent by a well-adjusted, middle-class mother can enhance the child's problem-solving ability, possibly by compensating for the lack of time spent by the father. The significant negative correlations between the mother's time on weekdays and the son's male orientation may account for the failure of IT test group differences to reach significance, and could also explain some of the contradictory results found in previous research on the effect of the father on the son's sex-role orientation. Perhaps the mother's involvement with the boy enhances his feminine development, and acts as a counterweight to the masculine development associated with the father's involvement, though the latter relation was not statistically significant. One may speculate that the impact of the father may have been masked or modified by that of the mother. In that case, the active involvement of the father with his son would gain importance, since his involvement would not only enhance the boy's masculine development directly, but also balance the feminine pull of the mother. In any case, it is suggested that the mother's as well as the father's impact ought always to be considered when studying the son's sex-role development.

Apparently paradoxical effects were found for both mother and father in the low group. There, the relatively lower father in-

involvement appeared to set a scene in which more time spent by the father was connected with the son's poorer performance in mathematical and language problem solving; higher father knowledge was linked with poorer Guilford performance, and more time spent by the mother was connected with poorer IQ scores. Another paradoxical finding in the low group was that the more available mother knew less about her son. In addition, greater father availability corresponded with a more neurotic mother. Similarly, the mother spent more time with the child if the father was more neurotic.

One may speculate that the increased involvement of the parent in the low group served to compensate for the spouse's problems or failings, or was in response to, rather than a cause of, the child's poorer intellectual performance. Perhaps this increase was not adequate or of sufficient duration to modify the boy's performance. It could be conjectured that the quality of the time spent by the parent was of lower calibre in the low group, with increased parental time being a reluctant response to the spouse's demands or a grudging concession to the child's needs. Such reluctant and joyless involvement could result in the offering of inferior instruction and a poorer cognitive model. Indeed, a grudging involvement might well convey its message to the child, who could respond with heightened anxiety and decreased interest and motivation, thus hindering learning and good performance.

Parent-Questionnaire scores other than the availability scores showed some additional significant relations to the parent's availability itself, and with the child measures. For instance, findings indicate that, generally, greater maternal knowledge of the child

coincides with better ability to solve problems based on language concepts, and with better general intellectual ability. It can be speculated that language-oriented problem-solving is connected with verbal communication between the mother and child, and that more communication augments both mother knowledge and the child's cognitive functioning.

There were also indications that the amount of time spent by each of the parents is partially governed by the relationship between them. The better the father-mother relationship, the greater is maternal availability in general, and paternal availability on weekends.

What emerges is a complex of interrelated parental and child variables which directly or indirectly also relate to the son's functioning. Variables like father-mother relationship seem linked indirectly to the child's development through parental availability, while variables such as maternal knowledge of the child and parental neuroticism relate directly to development. As far as possible, both direct and indirect connections ought to be taken into account when studying the influence of the parent on the young child's development. As suggested by Herzog and Sudia (1971), functioning appears multiply determined by characteristics and interactions of family members, as well as by circumstances of the environment and the family unit. Studies of fathers and sons require consideration of a wide variety of demographic, familial and parental variables, particularly maternal ones. Various researchers recognize this need, but few provide for it.

REFERENCES

Altus, W. D. The broken home and factors of adjustment. Psychological Reports, 1958, 4, 477.

Anastasi, A. Psychological Testing, (3rd ed.) London: Macmillan, 1968.

Becker, W. G. & Krug, R. S. A circumplex model for social behavior in children. Child Development, 1966, 37, 771-78.

Biller, H. E. A multispect investigation of masculine development in kindergarten aged boys. Genetic Psychology Monographs, 1967, 76, 19-127.

Biller, H. E. Father dominance and sex-role development in kindergarten aged boys. Developmental Psychology, 1969, 1(2), 87-96.

Biller, H. E. Father absence and the personality development of the male child. Developmental Psychology, 1973, 1, 184-201.

Bin, E. Effect of child-rearing practices on development of differential cognitive abilities. Child Development, 1977, 48, 831-848.

Blanchard, A. L., & Biller, H. E. Father availability and academic performance among third-grade boys. Developmental Psychology, 1971, 4, 301-305.

Blishen, B. R. A socioeconomic index for occupations in Canada. Canadian Review of Sociology & Anthropology, 1967, 4, 4-31.

Brim, G. G. Family structure and sex-role learning by children: A further analysis of Helen Koch's data. Sociometry, 1956, 21, 1-16.

Brown, D. G. Sex-role preference in children. Psychological Monographs, 1956, 70, No. 1 (Whole No. 421).

N
Poor Copy

Carlsmith, L. Effect of early father absence on scholastic aptitude.

Harvard Educational Review, 1964, 34, 3-21.

Carden, L. S. In O. K. Byros (Ed.) The seventh mental measurements yearbook (Vol. 1). New Jersey: Gryphon Press, 1972.

Cross, H. J. The relation of parental training conditions to conceptual level in adolescent boys. Journal of Educational Psychology, 1968, 61, 252-270.

Cyk, S. B., & Witkin, H. M. Family experiences related to the development of differentiation in children. Child Development, 1963, 34, 21-31.

Cysenck, S. J., & Cysenck, S. S. G. Manual for the Cysenck personality inventory. San Diego, California: Education and Industrial testing Service, 1963.

Gregory, L. Interrospective data following childhood loss of a parent; 1. Delinquency and high school dropout. Archives of General Psychiatry, 1966, 15, 99-109.

Grunebaum, M. S., Hurwitz, I., Prentice, H. T., & Sherry, S. F. Fathers of sons with primary neurotic learning inhibition. American Journal of Orthopsychiatry, 1962, 32, 462-477.

Guilford, J. P. Intelligence, creativity, and their educational implications. San Diego, California: Robert Knapp, 1966.

Guilford, J. P. Creativity tests for children: a manual of interpretation. Beverly Hills: Sheridan Psychological Services, 1971.

Guilford, J. P. Personal communication, Dec. 2, 1977.

Heim, A. A. In O. K. Byros (Ed.), The seventh mental measurements yearbook, (Vol. 1) New Jersey: Gryphon Press, 1972, pp. 164-166.

Poor Copy

Hetherington, E. M. Effects of paternal absence on sex-typed behaviors in Negro & white, preadolescent males. Journal of Personality and Social Psychology, 1960, 4, 7-21.

Herzog, E. & Sudie, C. E. Boys in fatherless families. Washington: Office of Child Development, 1971.

Hilgard, J. R., Newman, S. F., & Fisk, F. Strength of adult ego following bereavement. American Journal of Orthopsychiatry, 1960, 30, 778-792.

Howells, P. Fallacies in child care. Acta Paedopsychiatrica, 1970, 37.

Kimball, S. The sentence completion technique in a study of scholastic underachievement. Journal of Consulting Psychology, 1952, 19, 373-378.

Koch, H. L. Sissiness and the tomboyishness relation to sibling characteristics. Journal of Genetic Psychology, 1976, 61, 231-244.

Kohlberg, L. A cognitive developmental analysis of children's sex-role concepts and attitudes. In E. E. McCabe (Ed.), The Development of sex differences. Stanford, California: Stanford University Press, 1956, pp. 82-173.

Kohlberg, L., & Zigler, E. The impact of cognitive maturity on the development of sex-role attitudes in the years 7-8. Genetic Psychology Monographs, 1967, 7, 89-167.

Lanyon, R. I. In C. K. Buros (Ed.), The seventh mental measurements yearbook (Vol. 1). New Jersey: Gryphon Press, 1972, pp. 157-164.

Lefkowitz, M. M. Some relationships between sex-role preference of children and other parent and child variables. Psychological Reports, 1962, 10, 40-53.

Poor Copy

Lynn, D. B. Parental and sex role identification. Berkeley, California: McCutchen, 1969.

Lynn, D. B. The father. California: Crooks/Sole, 1974.

Money, J. Psychosexual differentiation. In J. Money, (Ed.), Sex research: New developments. New York: Holt, Rinehart, Winston, 1968, 7-27.

Mussen, F. H., & Distler, L. Masculinity, identification and father-son relationships. Journal of Abnormal Social Psychology, 1969, 59, 310-316.

Mussen, F. H., & Distler, L. Child-rearing antecedents of masculine identification in kindergarten boys. Child Development, 1960, 31, 93-100.

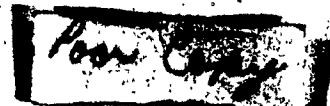
Nelson, E. A., & Saccoby, E. E. The relationship between social development and differential abilities on the scholastic aptitude test. Ferrill-Almer Quarterly, 1966, 12, 269-273.

Pedersen, F. A. Relationships between father-absence and emotional disturbance in male military dependents. Ferrill-Almer Quarterly, 1966, 12, 321-331.

Radin, N. Childrearing antecedents of cognitive development in lower-class preschool children. (Doctoral dissertation, University of Michigan, 1969). Dissertation Abstracts International, 1969, (University Microfilms No. 70-4170).

Radin, N. Maternal warmth, achievement motivation, and cognitive functioning in lower-class preschool children. Child Development, 1971, 42, 1560-1565.

Radin, N. Father-child interaction and the intellectual functioning of four-year-old boys. Developmental Psychology, 1972, 6(2),



- Radin, N. Observed paternal behaviors as antecedents of intellectual functioning in boys, Developmental Psychology, 1973, 1(7), 369-376.
- Santrock, J. W. Paternal absence, sex typing and identification, Developmental Psychology, 1970, 2(2), 264-272.
- Sears, R. R., Rau, L., & Alpert, N. Identification and child rearing. Stanford, California: Stanford University Press, 1957.
- Solomon, G., Houlihan, K. P., Busse, T. V., & Ferrelius, K. J. Parent behavior and child academic achievement, achievement strivings, and related personality characteristics. Genetic Psychology Monographs, 1971, 87, 173-272.
- Sutton-Smith, B., Robert, J. W., & Rosenberg, B. G. Sibling association and role involvement. Merrill-Palmer Quarterly, 1964, 10, 25-36.
- Sutton-Smith, B., Rosenberg, B. G., & Landy, F. Father-absence effects in families of different sibling compositions. Child Development, 1968, 39, 1217-1221.
- Walters, J., & Stinnett, N. Parent-child relationships: a decade review of research. Journal of Marriage & The Family, 1971, 33, Pp. 70-111.
- West, D. J. Homosexuality. Chicago: Aldine, 1967.

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Appendix AThe Parent-Questionnaire

In addition to parent-availability, the Parent-Questionnaire yielded parent knowledge, child adjustment, and father-mother relationship scores; and general information. The parent who knew about his child's health, behavior, emotional state, physical and social development, and schedule was assumed to be relatively close to the child. An answer on any item indicating uncertainty or lack of knowledge scored one point (page 49, items 3, 6, 8, and 10; pages 50-52; page 53, item 7).

To make an estimate of the child's emotional adjustment, any problem cited by either parent scored one point (page 50, items 1-10; page 51; page 52, items 5, 6, 12 and 21). However, these children were prescreened for manifest problems of adjustment, and were all in the normal range, so that a rather limited range of adjustment scores was obtained.

The relationship between the father and mother was determined by examining similarity of the responses of each parent-pair on the same questionnaire items. Clear and unambiguous differences on questionnaire items were taken to indicate a poorer relationship in terms of lack of communication, communality of interest, or similarity of point of view, and scored one point (page 49; page 50, items 3, 6, 8, and 10; pages 51-54).

As for the father-availability measure, each parent estimated the total amount of time usually spent with the child during the weekend and the amount of time usually spent on the five weekdays. The two estimates were totaled to yield a self-estimated

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total time spent per week. Each parent also estimated the time spent by his/her spouse (page 53, items 1, 2, 8 & 9).

The Parent-Questionnaire included the Eysenck Personality Inventory (EPI) which yields an Extraversion-Introversion Scale, a Neuroticism-Adjustment Scale, and a Lie Scale. The term extraversion applies to individuals who tend to be outgoing, impulsive and uninhibited. The high end of the neuroticism dimension indicates emotional instability and over-reactivity, with a tendency toward vague somatic upsets of minor kind. The Lie scale is used to identify subjects showing 'desirability response set', a tendency to answer questions according to the favourable light which the answer would throw on the subject.

Test-retest reliability of the EPI is as compared to validity, the EPI closely resembles the EPI which has yielded much literature confirming that the test fits in with predictions made from a more general theory (Eysenck and Eysenck, 1963).

In evaluation of the EPI, Helm (1965) and Lanyon (1972) have cited the EPI as an adequate research instrument.

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Parent Questionnaire

General Information

Date _____

Child

1. Sex _____ 2. Age _____ 3. Birthday _____
day mo year
4. Grade _____ 5. First Language _____
6. How long has the child been attending school? _____
7. How many brothers does the child have? _____
8. What are their ages? _____
9. How many sisters does the child have? _____
10. What are their ages? _____

Parent

1. Sex _____ 2. Single _____ Married _____ Widowed _____ Divorced _____ Separated _____
3. Education _____ 4. Age _____ 5. First Language _____
e.g. high school
6. Occupation _____
7. Time: Present employment (if any) from _____ to _____
Full time _____ Part time _____ Hours per week _____

Instructions:

Please answer these questions about your _____ year old son to the best of your ability. Read each item carefully and circle the number that best represents your opinion. Remember that 1 means no or none, 2 means seldom or not usually, 3 means occasionally or some, 4 means often or usually, 5 means yes or many, 6 means uncertain or not sure and 7 means don't know. Space has been provided for explanations you may wish to make after some of the items.

The accuracy and value of this study depends upon your cooperation. Please be as frank and complete as you can, and answer by yourself. It is essential that you answer all questions but without consulting with any other person. There will likely be questions where you don't know the answer or are uncertain about the answer. Tick off 'don't know' or 'uncertain' wherever necessary.

All information is kept confidential and is used only for research on child development. No information about individuals is released to any agency.

Any comments, criticisms or suggestions will be welcome. Please write them anywhere in the questionnaire. Thank you for your cooperation.

no or none	1	2	3	4	5	6	7
seldom or not usually	1	2	3	4	5	6	7
occasionally or some	1	2	3	4	5	6	7
often or usually	1	2	3	4	5	6	7
yes or many	1	2	3	4	5	6	7
uncertain or not sure	1	2	3	4	5	6	7
don't know	1	2	3	4	5	6	7

4. Does your child need help to button his coat or other garment?

5. Does your child need help when he washes his hands and face or combs his hair?

1. Have there been any major problems or changes in the family recently, such as birth, death, separation, divorce, major illness, financial difficulty, moves, or other? Yes _____ No _____

If your family has recently experienced a change or problem, what was its nature?

If your family has recently experienced changes or problems, was there an effect on your child that can still be noticed? Child severely affected _____ slightly affected _____ not affected _____ was affected but is now better _____ Don't know _____

2. Does your child have a known learning disability?

Yes _____

No _____

possibly _____

don't know _____

Explain briefly _____

3. Does your child have any persistent hardship of vision or hearing? No _____ Wears glasses but sees adequately _____ wears glasses but sees inadequately _____ Wears a hearing aid _____

Explain what the problem is _____

4. Is the child on medication now? Yes _____ No _____ Uncertain _____
If your child is on medication, what condition is it for? _____

- Name of medication, if known _____
- Dosage of medication, if known _____
5. Does your child have any physical or emotional problems not already mentioned?
 Yes ___ No ___ Possibly don't know ___
 Explain what it is _____
6. Name of child's closest friend _____
 Has no close friend ___ Unsure _____
7. What game or activity with his mother does your child currently like best?
 _____ Unsure ___ Don't know _____
8. What does he like best about school or least about school? _____
 Unsure _____ Don't know _____
9. What is the name of your child's teacher? _____
 Unsure _____
10. Is your child right-handed or left-handed? Right ___ Left ___ Both ___
 Not certain ___
11. What time does he usually get home from school? Not certain ___
12. What size shoe does he currently wear? Size ___ Not sure ___
13. Does he tie his shoe laces without help? Yes ___ No ___ Don't know ___
14. Does he print his name or some other word? Yes ___ No ___ Not certain ___
15. Except for desserts, what is your child's favorite food? _____
 Not sure ___
16. What size shirt, jersey, or t-shirt does your child wear? Size ___ Not sure ___
17. At what time is he usually put to bed? _____ Don't know _____
18. How long does it generally take him to fall asleep? _____ Not certain _____
19. What is his average amount of time spent watching T.V. each weekday? _____
 Not sure _____
20. What small household task does your child help with? _____
 None _____ Don't know _____
21. Is your child currently seeing a psychotherapist? Yes ___ No ___

1. During the average week (Monday to Friday), what place on the scale below best describes the total number of hours you spend with your child in play, discussion, outings, or other shared activity? (other children may be included).

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
hours hours

2. During the average weekend (Saturday and Sunday) what place on the scale below best describes the total number of hours you spend with your child in play or discussion, on trips, or in other shared activity?

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
hours hours

3. Which of the following best describes your relationship with your child?

Very close ___ moderately close ___ slightly close ___ slightly distant ___
moderately distant ___ very distant ___

4. Who usually looks after the child during the week?

Babysitter or housekeeper ___ grandparent(s) ___ mother ___ father ___

Other ___ Explain _____

5. Who usually looks after the child on weekends?

Babysitter or housekeeper ___ grandparent(s) ___ mother ___ father ___

Other ___ Explain _____

6. About how many times per week do you eat meals with your child?

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
times times

7. Does your child think of himself as being more like his: mother ___

father ___ in between ___ don't know ___

8. On the average, during the 5 days, what place on the scale below best describes the total number of hours your husband or wife spends with the child in play, discussion, outings, or other shared activity? (other children may be included)

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
hours hours

9. During the average weekend, what place on the scale below best describes the total number of hours your husband or wife spends with the child in play or discussion, on trips, or in other shared activity?

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
hours hours

10. About how many times per week does your husband or wife eat meals with the child?

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
times times

11. Which of the following best describes your husband or wife's relationship with the child?

Very close _____ moderately close _____ slightly close _____ slightly distant _____
moderately distant _____ very distant _____

Instructions

Here are some questions regarding the way you behave, feel and act. After each question is a space for answering "Yes" or "No". Try and decide whether "Yes" or "no" represents your usual way of acting or feeling. Then check the space under the column headed "Yes" or "No". Work quickly, and don't spend too much time over any question; we want your first reaction, not a long drawn-out thought process. The whole questionnaire shouldn't take more than a few minutes. Be sure not to omit any question. Work quickly, and remember to answer every question. There are no right or wrong answers, and this isn't a test of intelligence or ability, but simply a measure of the way you behave.

		<u>Yes</u>	<u>NO</u>
1.	Do you often long for excitement? _____		
2.	Do you often need understanding friends to cheer you up? _____		
3.	Are you usually carefree? _____		
4.	Do you find it very hard to take no for an answer? _____		
5.	Do you stop and think things over before doing anything? _____		
6.	If you say you will do something do you always keep your promise, no matter how inconvenient it might be to do so? _____		
7.	Does your mood often go up and down? _____		
8.	Do you generally do and say things quickly without stopping to think? _____		
9.	Do you ever feel "just miserable" for no good reason? _____		
10.	Would you do almost anything for a dare? _____		
11.	Do you suddenly feel shy when you want to talk to an attractive stranger? _____		
12.	Once in a while do you lose your temper and get angry? _____		
13.	Do you often do things on the spur of the moment? _____		
14.	Do you often worry about things you should not have done or said? _____		
15.	Generally do you prefer reading to meeting people? _____		
16.	Are your feelings rather easily hurt? _____		
17.	Do you like going out a lot? _____		
18.	Do you occasionally have thoughts and ideas that you would not like other people to know about? _____		

	<u>Yes</u>	<u>No</u>
19. Are you sometimes bubbling over with energy and sometimes very sluggish? _____		
20. Do you prefer to have few but special friends? _____		
21. Do you daydream a lot? _____		
22. Are you often troubled about feelings of guilt? _____		
23. When people shout at you, do you shout back? _____		
24. Are all your habits good and desirable ones? _____		
25. Can you usually let yourself go and enjoy yourself a lot at a lively party? _____		
26. Would you call yourself tense or "highly-strung"? _____		
27. Do other people think of you as being very lively? _____		
28. After you have done something important, do you often come away feeling you could have done better? _____		
29. Are you mostly quiet when you are with other people? _____		
30. Do you sometimes gossip? _____		
31. Do ideas run through your head so that you cannot sleep? _____		
32. If there is something you want to know about, would you rather look it up in a book than talk to someone about it? _____		
33. Do you get palpitations or thumping in your heart? _____		
34. Do you like the kind of work that you need to pay close attention to? _____		
35. Do you get attacks of shaking or trembling? _____		
36. Would you always declare everything at the customs, even if you knew that you could never be found out? _____		
37. Do you hate being with a crowd who play jokes on one another? _____		
38. Are you an irritable person? _____		
39. Do you like doing things in which you have to act quickly? _____		
40. Do you worry about awful things that might happen? _____		
41. Are you slow and unhurried in the way you move? _____		
42. Have you ever been late for an appointment or work? _____		
43. Do you have many nightmares? _____		

	<u>Yes</u>	<u>No</u>
44. Do you like talking to people so much that you would never miss a chance of talking to a stranger? _____		
45. Are you troubled by aches and pains? _____		
46. Would you be very unhappy if you could not see lots of people most of the time? _____		
47. Would you call yourself a nervous person? _____		
48. Of all the people you know are there some whom you definitely do not like? _____		
49. Would you say you were fairly self-confident? _____		
50. Are you easily hurt when people find fault with you or your work? _____		
51. Do you find it hard to really enjoy yourself at a lively party? _____		
52. Are you troubled with feelings of inferiority? _____		
53. Can you easily get some life into a rather dull party? _____		
54. Do you sometimes talk about things you know nothing about? _____		
55. Do you worry about your health? _____		
56. Do you like playing pranks on others? _____		
57. Do you suffer from sleeplessness? _____		

1455 de Maisonneuve Blvd. West
Montreal, Quebec H3G 1M8

7141 Sherbrooke Street West
Montreal, Quebec H4B 1R6



Tel. _____

February 19, 1975

Dear Parents:

Like most parents you are probably very much aware of the changes that are happening in our society and how these have influenced the family and children. Some of these changes have occurred in the roles of both women and men.

In relation to these issues, the Psychology Department is conducting a study to examine how children develop their ability to solve problems and how they develop their ideas of boys and girls.

We are asking your permission to include your son in this study by allowing him to complete some simple tasks at school. While we will not be asking questions which are personal, we nevertheless wish to assure you that all results will be kept in strict confidence. The results will not be made available to the school or any other agency, but will be used only for the research purpose stated. Our study is concerned with group findings only and not with any particular individual's answers.

If you do give permission to your child to participate in this study, we would also ask your co-operation in completing some short questionnaires. This will give us necessary information to allow us to understand adequately your son's answers.

The questionnaires do not require much time and will be sent to your home to be completed at a time convenient to you. Most parents who have completed the questionnaires have found them interesting. In addition, all parents who participate in this study will be sent reports of its findings.

If you would like any further information, please phone me at 488-5869 or 879-7201. I will be happy to answer any questions you may have.

Would you kindly sign the form below, indicating whether or not we may include your child in our study, and return it to school with your child. Even if you decide that you want him to be excluded from the study, please send the form back with him so that we may know that you have received it. Again, we would like to assure you that all

questionnaires will be kept strictly confidential, will not be turned over to any agency, and will be used only for the purpose indicated.

Thank you for your help.

Sincerely,

Myrna Reis
Researcher
Department of Psychology
Sir George Williams Faculty of Arts

Detach and return.

I wish my child _____ to take part in
this study. name of child

I wish my child _____ to be excluded
from this study. name of child

Signature of Parent _____

Appendix BThe Pilot Project

The pilot study was conducted to investigate the possibility that the mothers and fathers would collude in filling out the questionnaire without direct supervision; that the father's self-estimated availability would be inaccurate; and to determine the measure of father distance to be used in the main study, father availability in hours or father knowledge of the child. Suitability and utility of the questionnaire format and individual items were also considered.

Subjects consisted of 25 pairs of middle-class biological parents of 4-6 year-old father-present boys. All families were intact with no mothers working outside the home. Fathers were the only adult males living at home and were currently employed. The cooperation of parents, relevant information, and any appointments necessary were solicited in a telephone conversation with the mother.

Subjects were divided into two groups. Group 1 consisted of ten sets of parents who were simultaneously, but independently, administered the Parent-Questionnaire during a home visit. The tone of the home visit was reassuring, that of an informal, confidential gathering of valuable opinions and information. It took approximately 1 hour to complete.

Fifteen other pairs of parents were sampled by mail (Group 2). Questionnaires, introductory letters, and stamped, pre-addressed envelopes were mailed to parents and returned to the experimenter by mail upon completion.

Questionnaire responses by the mother and father on the same items were compared to determine if parent-pair answers were more

similar for the Mailed Group, indicating collusion. For the Mailed Group and both groups combined, the self-estimated availability of the father was compared to his availability as estimated by the mother to determine the accuracy of the father's self-estimation.

Tables 11 and 12 show the pilot study findings. There were no significant differences between the two groups for similarity of father and mother answers, or for each parent's self-estimated availability. Neither were significant differences found between the father's self-estimated availability and his availability as estimated by the mother. These findings were interpreted as indicating that the father was able to accurately estimate his availability, and that fathers and mothers each answered the questionnaire independently in the Mailed Group.

The father's knowledge of the child scores divided the sample into two distinct father-availability groups, scoring 0 for the high group and 1+ for the low group. A zero or 1+ division seemed too small a discrimination on which to make convincing father-distance differentiations, so the measure chosen for use in the main study was father availability in hours. This measure did elicit a wide and well-distributed range of responses, particularly in the Mailed Group.

Finally, parent responses indicated that some items in the Questionnaire did not differentiate among parents or were ambiguous in their wording. Suitable modifications of the Questionnaire were therefore made in terms of wording and format, and items showing more promise were substituted for non-discriminating ones.

Table 11

Means and T-Tests for the Pilot Study Procedures

Variable	Means for Mailed Questionnaire (N = 15)	Means for Home-Visit Questionnaire (N = 10)	T-Test Value
Mother and Father Differences in Responses on the Same Items	24.73	28.6	1.2232
Father's Self-Estimated Availability in Hours	10.6	14.75	1.808
Mother's Self-Estimated Availability in Hours	15.37	16.34	.48

Note: All tests were 2-tailed. There were no significant differences.

Table 12

Means and T-Tests for the Father's Self-Estimated Availability and Estimate of the Father by the Mother

Variable	Mean Self-Estimated Father Availability in Hours	Estimate by Mother of Father Availability in Hours	T-Test Value
Combined Mailed and Home Visit Sample (N = 25)	12.38	13.46	.03
Mailed Sample (N = 15)	10.8	11.9	.46

Note: A two-tailed test. There was no significant difference between groups.

Appendix C

Child Measurements

The WPPSI was standardized on 1,200 children, aged 4-6½. Reliabilities fall mostly in the .80's. Test-retest reliability of Full Scale IQ is .86. Anastasi (1968) summarizes the WPPSI as a considerable advance in test construction due to the size and composition of the normative sample.

The TOBE Tests of Basic Experiences are a series of standardized group tests for preschool and kindergarten aged children. The TOBE is said to indicate how well a child's experiences have prepared him for scholastic experiences in terms of richness of his conceptual background; that is, how well he is prepared to solve problems in various scholastic areas.

Internal consistency, as measured by Kuder-Richardson formula 20, was between .73 and .84. TOBE Standard Score, $\bar{X} = 50$; and S.D. = 10.0. Content validity as judged by kindergarten and first-grade teachers was described as remarkable in terms of agreement between the author's classifications and those of the rating teachers.

Standardization of the TOBE was on 1,300 children, prekindergarten through second grade from all sections of the U.S. and from all types of public and private schools. Cazden (1972) summarizes "since tests for this age range are so rare...and because...aspects of the TOBE...are very good, it will undoubtedly become widely used...the design of the test and conditions of its administration are probably as good as can be obtained."

The Guilford test originated as a creativity test and was standardized on 1,300 Grade 4-6 children. According to J.P. Guilford (1971),

divergent production plays a central role in problem solving, and all problem solving involves creative aspects." The Creativity Tests for Children: Making Objects" is a visual-figural group test of divergent-production abilities. Reliability of the test is .64, a sufficient degree of reliability to justify using the test in group comparisons. Evidence of construct and predictive validity are provided. S.D. is 7.0 and average mean for grade 4 children is 21.3. The test was adapted for use with younger children by preparing a set of 2-dimensional geometric figures to be used for making pictures. It was felt that the children were too young to draw the figures themselves. Quick sketches and labelling of the pictures made by the children was done by the examiner. Each object used to construct the figure received 1 point by scoring.

The test was scored by two raters working independently. There was 88.16% agreement between raters before discussion and 97.95% agreement after minimal discussion. Most discussion involved short explanations to clarify the picture reproduction.

As in Radin's (1972) work, this study used the Kohlberg and Zigler (1967) modification of the It Scale. In the Kohlberg and Zigler version, the eight least sex-differentiating pictures are eliminated and the weights of eight remaining pictures are doubled. Also, only the figure's face was used to give the sketch a less masculine appearance (Biller, 1968).