1975

Sex-typing, parental distance, and cognitive style

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Sex-typing, parental distance, and cognitive style

by

Nancy Elizabeth Bayne

A Dissertation Submitted to the
Graduate Faculty in Partial Fulfillment of
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DOCTOR OF PHILOSOPHY

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INTRODUCTION AND LITERATURE REVIEW

While the number of characteristics on which the sexes consistently differ may be fewer than previously believed (Maccoby & Jacklin, 1974), the explanation of those differences which are consistent is still an issue of import. As with other characteristics on which group and individual differences may be found, explanations center around the two factors of heredity and environment. One's biological gender, which includes hormonal and structural differences, is primarily specified genetically at conception. One's sex-role, which includes differences in masculine and feminine behavior, is primarily learned through one's cultural environment. Although a complete explanation of sex-differences must include both of the above factors along with their interaction, the present study is concerned only with environmental influence on characteristics which show sex differences.

The process by which the child learns sex-appropriate behavior is labeled sex-typing. The major variables which determine this acquisition process are still the subject of considerable debate and research. The three major theoretical formulations of sex-role acquisition are a) social learning theory, b) identification theory, and c) cognitive-developmental theory. Although each of these positions emphasizes different variables, they are not mutually exclu-
Social Learning Theory

Social learning theorists contend that the basic factors in sex-typing are reinforcement, generalization, mediation, and modeling. Infants and children are positively reinforced for appropriate sex-typed behavior and punished or ignored for inappropriate sex-typed behavior. In this manner the appropriate behaviors increase and the inappropriate behaviors decrease or extinguish.

The specific sex-appropriate behavior for every possible situation is not learned through differential reinforcement. What has been learned in one situation will generalize to other similar situations. Also, the reinforcement of one particular response will increase the probability of other similar responses. Thus, sex-appropriate behavior comes to characterize the individual's behavior not only in familiar situations where there is a history of specific reinforcement, but also in unfamiliar situations which call for similar responses. As the child develops cognitively, he or she learns labels for various behavior, objects, and situations. These labels aid in the finding of similarities and thus facilitate the process of generalization.

Imitation or modeling is also important in developing sex-typed behaviors. Appropriate responses may be learned through simply observing other members of the same sex making
sex-appropriate responses. Social learning theorists have determined that certain characteristics of the model such as status, power, and similarity, influence the likelihood that the model will be imitated.

Although there is much evidence for the importance of imitation in socialization which tends to support the social learning theory of sex-role development, there is one major weakness in the theory. By the age of two, the process of sex-typing has already begun. Yet researchers (Sears, Maccoby, & Levin, 1957 and Maccoby & Jacklin, 1974) have found few if any sex differences in child-rearing or mother-infant interaction during infancy.

**Identification Theory**

While social learning theorists contend that the principles of identification are really no different from those of modeling, identification theorists suggest that sex-role behavior is too complex to be learned through social learning principles alone. This theoretically more complex concept of identification originated in Freudian theory and was defined by Freud as an attempt to "mold a person's own ego after the fashion of one that has been taken as a model" (Freud, 1927, p. 62).

At least three reasons have been postulated for the process of identification. In Freudian theory males were seen as identifying with the father because of a fear that
the father would castrate them. This type of identification is called defensive identification and now refers to any case of identification motivated by fear of the model. The second type of identification, developmental or anaclitic identification, is motivated by a desire to have the rewarding aspects of the model present at all times, even when the model is not physically present. In this case the child has a positive, loving attachment to the model and by performing behaviors similar to the model's behaviors experiences some of the same positive, warm feelings that are associated with the presence of the model. Finally, learning theorists claim that identification is really no different from modeling. The child is at first rewarded for imitating the parent and imitation becomes a secondary or acquired drive.

The characteristics of the model which social learning theorists have found to affect degree of modeling are also related to the likelihood of identification. Envy of the father's status and fear of the father's power are motivating factors in defensive identification and nurturance is an important factor in anaclitic identification. Similarity is important since it leads to identification with the parent of the same sex rather than the opposite sex. It is, as social learning theorists argue, difficult to differentiate the concepts of identification and modeling, and both concepts are subject to the same criticism. Studies have indicated that
behaviors are learned from a model regardless of the model or the child's sex. It is only in the performance of the behaviors learned that sex differences are found (Maccoby, 1974).

**Cognitive-Developmental Theory**

Kohlberg's (1966) theory of sex-typing emphasizes the importance of cognitive maturation rather than biology or cultural norms. According to Kohlberg, the sex-typing process begins with the labeling of oneself as a female or male. This labeling is based on physical characteristics such as size, strength, hair length and clothing. The label becomes part of the self-concept and the child is motivated to seek out those behaviors which are consistent with the self-concept. The opportunity to behave in a manner consistent with the self-concept is rewarding.

A second cognitive factor which directs the child toward behaving in sex-appropriate ways is his egocentrism. One aspect of egocentrism is a tendency to value anything associated with the self. Thus the child values his or her maleness or femaleness and finds behaving in a masculine or feminine way rewarding.

A third cognitive characteristic which contributes to sex-typing is assimilation. The child tends to "respond to new activities and interests that are consistent with old ones" (Kohlberg, 1966, p. 112). Once the initial sex-typing occurs it is increased and elaborated by the process of
assimilation. Thus the child responds to and identifies with an adult of the same sex because this is consistent with his or her own label and with the performance of sex-typed behaviors. This is a view quite opposite to that held by the social learning or identification theorists, who claim that identification with an adult model precedes the learning of sex-typed behaviors.

**Discussion of Traditional Theories**

The three theories just described attempt to account for the acquisition of behaviors which are differentially valued for males and females in our society. There are, however, two major weaknesses in each of the theories. First, the theories make no direct attempt to account for sex differences which are apparent by-products of sex-role learning. Such differences include the stronger motive to achieve in males, the stronger motive for affiliation in females, and differences in cognitive style. While sex differences are found, there is no experimental evidence indicating differences in parental socialization of these characteristics (Maccoby & Jacklin, 1974). A second weakness is the failure to consider possible sex differences in sex-role learning. Only Freudian theory suggests that the process might be different for males and females and even here the difference was suggested more as an after-thought than as a major construct.
Lynn's Identification Theory

A recent attempt to formulate a theory of sex-role development which lacks these two weaknesses has been made by Lynn (1969). In this account Lynn theorizes that the process of sex-role learning is generally different for males and females and that the difference in process accounts for many of the residual sex-differences not specifically taught to the child.

In order to understand Lynn's theory, it is necessary to discriminate among several terms which are often used interchangeably in the discussion of sex-role development. The terms preference, perceived similarity, adoption and identification will be defined. Preference is the desire to adopt certain behavior characteristics. Parental preference refers to the desire to adopt behavior characteristics of a given parent, while sex-role preference refers to the desire to adopt behavior characteristics of a given sex. Perceived similarity refers to the perception of oneself as similar to another person. Thus perceived parental similarity refers to the perception of oneself as being similar to a given parent, while perceived sex-role similarity refers to the perception of oneself as being similar to others of a given sex. Adoption refers to actually behaving in a manner characteristic of a person or role. Thus parental behavior adoption refers to acting like a given parent, while sex-role adoption
refers to acting like others of a given sex. Identification refers to an internalization of the characteristics of others and to unconscious reactions similar to those of others. Thus parental identification refers to the internalization of parental characteristics and similarity to the parent in unconscious reactions. Sex-role identification refers to the internalization of the culturally defined sex-role and similarity to others of that sex in unconscious reactions. It is this last variable in which sex-typing theorists are most interested, which is the most difficult to measure, since the researcher must take pains to be sure the behavior is internalized rather than merely adopted.

It is evident at this point that for Lynn, there is a clear distinction between preference, perceived similarity, adoption and identification as related to the parent and as related to the sex-role. Further, a high score on a measure of any one of these variables does not necessarily imply a high score on a measure of any other. Thus, high parental identification is not a necessary concomitant of high sex-role identification. Nor is high perceived parental similarity a necessary concomitant of high parental identification.

According to Lynn, primary identification for both sexes is with the mother. As the male child becomes aware that he belongs in a sex category different from the mother, he must find a new object of identification. In most identification
theories this new object would be the father, but Lynn theorizes the new identification object is the masculine sex-role. Since the father is not frequently present, the male child is usually instructed in the appropriate sex-typed behavior by his mother and other females, and consequently does not identify strongly with the father. Rather it is an identification with the male sex-role that is superimposed upon his weakening identification with the mother. This is not to say however, that the father is unimportant in sex-role development. The father helps to define the masculine role and may motivate the male child to become masculine by simply being present in the home.

Lynn (1969) further contends the "males identify as closely with the mother as with the father, whereas the females identify more closely with the mother than with the father" (p.27). Since the primary identification is with the mother and since early learning is "more easily reinforced and weakens more slowly with time than later learning" (p.26) boys are likely to acquire many characteristics from the mother even though they are not motivated to do so. On the other hand the boy is motivated to identify with his father and will acquire characteristics of the father; however, this will not completely over-ride the identification with the mother. Since identification with the father is based on their both being members of the same sex, the boy should be
more like his father on those behaviors that are sex-typed. The boy's identification with the mother should result in similarity in behaviors that are not sex-typed.

The hypotheses which have been discussed are the basis of Lynn's theory of parental and sex-role identification. Let us look at the literature that is consistent with these hypotheses before examining a second set of hypotheses. There are few studies aimed at the question of infant identification with the mother. However, since the first person with whom the baby forms an attachment is usually the mother, studies of attachment provide evidence consistent with Lynn's hypothesis that the primary identification of both males and females is with the mother. More direct evidence for identification can be obtained by measuring the infant's imitation of the mother. Infants have been shown to develop food preferences similar to those of the mother (Escalona, 1945) and also develop fears similar to those of the mother (Hagman, 1932). The evidence from these studies is not unequivocal however, since the similarity to food preferences or fears of the father was not investigated. Although there is much indirect evidence for the primary identification occurring with the mother there is little direct evidence.

Lynn's second hypothesis is that females continue to identify with the mother and males identify secondarily with the cultural norm of the masculine sex-role. A study de-
signed to test this hypothesis measured first through fifth graders' perceived similarity to their own mother or father and to their friends' mothers and fathers (Fitzgerald & Roberts, 1966). Except for fifth graders, who showed an opposite tendency, girls perceived themselves as significantly more like their mother than like their friends' mothers. Boys tended to perceive themselves as more like their friends' fathers than like their own father but the difference was significant only for fifth graders. In addition, significantly more males identified with the cultural norm for masculine behavior than girls identified with the cultural norm for feminine behavior. Although this study is consistent with Lynn's hypothesis it would have been more convincing had actual similarity, which is more in line with Lynn's definition of identification, rather than perceived similarity been measured. Additional evidence consistent with this hypothesis comes from studies which show that males are more likely than girls to draw a figure of their own sex first when asked to draw a person (Brown & Tolor, 1957 and Goodenough, 1957). Further, Lazowick (1955) found that sons rated the concepts of "myself", "mother", and "father" no more like their own fathers than like fathers chosen at random, thus indicating at least an equally strong identification with males in general as with their own fathers. Thelen (1965) however, found that defense preferences of adolescent
males as measured by the Blacky Defense Preference Inventory were more similar to their fathers' defense preferences than to those of other adult males.

There is considerable evidence consistent with the hypothesis that males identify as closely with the mother as with the father, whereas females identify more closely with the mother than with the father. In studies conducted with male subjects only, Thelen (1965) found that the defense preferences of adolescent males were as similar to their mother's as the their father's and Hill (1967) found that boys' attitudes about mathematics were more similar to the mothers' attitudes than to the fathers'. Several other studies which include both males and females are also consistent with the third hypothesis. Both males and females have been found to be more similar to their mothers than to their fathers in anxiety (Adams & Sarason, 1963) and in semantic descriptions (Lazowick, 1955). This would tend to support the hypothesis that males are as closely identified with the mother as with the father. However other studies have found that boys resemble fathers more than mothers in authoritarianism and family ideology (Byrne, 1965) and also on resemblance judgements made from parental interviews. These differences were slight, however. That girls identify with their mothers more than their fathers is indicated by findings that fathers and sons more closely resemble each
other than fathers and daughters on semantic descriptions (Lazowick, 1955), authoritarianism and family ideology (Byrne, 1965) and behavioral resemblance judged from parental interviews. The results reported above indicating greater similarity to the mother than to the father on anxiety (Adams & Sarason, 1963) and semantic description (Lazowick, 1955) are also consistent with this part of the hypothesis.

While the evidence consistent with Lynn's first three hypotheses is fairly extensive, there is no existing evidence consistent with his hypothesis that the closer identification of the males with their fathers will be revealed most clearly in personality variables that are sex-typed as masculine, and the closer identification with their mothers will be revealed most clearly in variables that are not sex-typed. For instance, interest in mathematics is a sex-typed characteristic in our culture, and yet males more closely resemble their mothers than their fathers in their attitudes towards mathematics (Hill, 1967). Also, interest in child-rearing is a sex-typed characteristic but boys were shown to be more similar to the mother in child-rearing attitudes than were girls (Aldous & Kell, 1961).

With the exception of this last hypothesis, Lynn's thesis that there are differences in the sex-typing process for males and females tends to be consistent with current literature on sex-typing and sex differences. In evaluating
the evidence, however, it must be kept in mind that none of these studies were designed specifically to test Lynn's theory. Two of Lynn's hypotheses a) that males tend to identify with a culturally defined masculine role, whereas females tend to identify with their mothers and b) that the closer identification of males with their fathers will be revealed most clearly in personality variables that are sex-typed as masculine, and the closer identification with their mothers will be revealed most clearly in variables that are not sex-typed, were tested in the present study along with Lynn's hypotheses concerning the development of sex differences in cognitive style.

Lynn is mainly concerned with the global-articulated dimension of cognitive style. Witkin (1969) gives the following description of this dimension.

Perception may be considered articulated, in contrast to global, if the person is able to perceive items as discrete from background when the field is structured (analysis), and to impose structure on a field, and so perceive it as organized, when the field has relatively little inherent structure (structuring). Movement toward articulation during growth occurs not only in experience of an immediately present stimulus configuration but also in experience of symbolic material. Articulated experience is indicative of developed differentiation. (p. 688-689)

Articulation is manifested behaviorally by the ability to determine the upright by the use of internal cues rather than external cues as in the Rod and Frame Test or the Body Adjustment Test and by the ability to recognize a simple figure
embedded in a more complex figure. This aspect of articulation is referred to as field independence. Another aspect of articulation, restructuring, is measured by the ability to break set in problem-solving situations and to restructure the problem in order to obtain a solution. Consistent sex differences have been found in this cognitive style with boys being more articulate and more field independent than girls.

Lynn hypothesizes that this difference is due to the different ways in which males and females learn appropriate sex-typed behavior. He suggests that in acquiring sex-roles, girls are given a lesson to be learned while boys are given a problem to be solved. Woodworth and Schlosberg (1954, p. 529) differentiate these two learning tasks as follows.

With a problem to master the learner must explore the situation and find the goal before his task is fully presented. In the case of a lesson the problem-solving phase is omitted or at least minimized, as we see when the human subject is instructed to memorize this poem or that list of nonsense syllables...

There are two factors which make sex-role learning a lesson for the girl. First, because of her primary identification with the mother, her goal is obvious: become like the mother. Second, the object of her identification is highly available to her, and her task is to simply copy the model's behavior.

For boys it is a different matter. First, a boy learns that it will not do to be strongly identified with his
mother. He must find another object of identification. Since the father is not highly visible, what this object is to be presents a problem. The boy must solve the problem of finding the goal before he can learn to be like the object of identification. Secondly, once the boy has identified with the masculine role, it is not simply a matter of copying a model's behavior in order to achieve masculinity. The obvious masculine model, the father, is unavailable most of the time and although the quality of the time spent with the father may be an important factor in determining the extent to which the boy models the father's behavior, this time is not enough. The boy must learn his role primarily from negative strictures on his behavior which he must restructure in order to abstract the principles which should guide his behavior.

Several hypotheses follow from this position, but two are particularly relevant to the present study. First, according to Lynn, "in learning the mother-identification lesson, young girls have had little practice in ignoring irrelevant cues and isolating significant ones... consequently, females tend to be more field-dependent (global) than males" (p. 38). This hypothesis is consistent with Witkin's studies in which small but consistent differences in cognitive style are found with females being more field dependent than males from as early an age as six (Witkin, 1969).
The second relevant hypothesis is that in acquiring the masculine sex-role the boy learns a style of behavior which is conducive to problem solving and therefore "males tend to surpass females in problem-solving skills." The relative superiority of males in problem solving is well documented (McNemar, 1954 and Sweeney, 1953). Furthermore, Hilton (1967) found that problem solving skill is related to masculine sex-role typing in both males and females.

The way in which the child learns the identification task is not an automatic result of the child's sex. Rather the important variable is the degree of closeness between the child and the parent of the same sex. Since the girl is usually very close to her mother and usually has her mother present as a model a great deal of the time, hers is usually the lesson, thus leading to a global cognitive style. Since the boy is usually moderately distant from his father, and the father is present as a model a relatively smaller proportion of the time, his is usually the problem, thus leading to an articulated cognitive style. However, these are the typical relationships. What of the unusual relationships, the extremely distant mother or father or the father who is extremely close to his son?

First, let us consider the parent who is extremely distant, completely absent, brutal, or cold. Since this relationship would be more likely to exist between father and
son (Lynn, 1969), the father-son relationship will be considered in detail. It is necessary to remember, however, that the same results would hold if the mother were extremely distant from the daughter. Lynn contends that the extreme distance of the father from the son should result in poorer problem solving and greater field dependence, than would result from moderate distance. Instead of simply making the problem of sex-role identification more difficult to learn, extreme distance makes the solution almost impossible or may even result in no attempt to solve the problem. It is the challenging problem rather than the impossible or overwhelming problem that leads to improvement in problem solving, and since boys are already faced with a challenging problem by a moderately distant relationship with their father, it is likely that greater distance will lead to a situation less optimal for developing good problem solving ability. Furthermore, if the boy never attempts the problem or does not weaken his identification with the mother, he will lack the motivation to identify with the masculine role and not find it necessary to restructure and abstract principles from the verbal admonishments of his mother or other adults.

As was pointed out, the above argument also holds for girls with extremely distant mothers. However what of the daughter who is moderately distant from her mother? In this
case the learning task becomes similar to the typical male task. The mother may work outside the home or be otherwise unavailable as a model for a good part of the day, leading to a weaker identification. Thus the girl with the moderately distant mother, must, like the typical boy, first find the goal of identification and then define her role by restructuring and abstracting principles from those situations in which she is given clues as to proper feminine behavior. The girl with a moderately distant mother should then be a better problem solver and less field dependent than her more typical peer who is extremely close to her mother.

Lynn suggests that the most atypical situation is that in which the father and son are extremely close and the father participates a great deal in child rearing, even perhaps going so far as to take over some or all of the child care. In this case the learning task for the boy should be highly similar to that of the typical girl, simply to learn the lesson by modeling his father's behavior. Thus the boy with the extremely close father should be a poorer problem solver and more field dependent than his more typical peer with the moderately distant father. Although Lynn considers this situation highly unlikely, it seems to be somewhat approximated by father-son relationships in rural areas. On the farm the father should be more available as a model than in the city, thus resulting in at least a more simple problem
and perhaps merely a lesson to be learned. If Lynn's hypothesis that boys with moderately distant fathers are close to the highest point in problem solving and field independence, the greater availability of the farmer to his son should result in poorer problem solving and greater field dependence in boys raised on farms.

The hypothesized relationship between problem solving ability or field independence and degree of distance between the child and the parent of the same sex is an inverted "U" shaped function with moderate distance being associated with the greatest amount of problem solving ability or field independence. Most girls have a relatively close relationship with their mothers and thus fall to the left of the midpoint. Most boys have a moderately distant relationship with their fathers and thus fall at or to the right of the midpoint.

The hypothesis that degree of closeness to the same-sexed parent is the crucial factor in problem solving and field-independence does a fairly good job of explaining some seemingly contradictory findings. For instance, it has been found that the usual pattern of mathematical ability being greater than verbal ability in boys is reversed for those boys whose fathers were away for a long period during the boys' childhood, particularly when the separation occurred early (Carlsmith, 1964). Maccoby and Rau (1962) found that
this same reversal occurred both when boys were separated from their fathers for one to five years and also when the father was psychologically distant. Psychological distance was indicated by a) never talking about personal problems with the father, b) being frequently fearful of the father, and c) being punished exclusively by their mothers. These findings are consistent with the hypothesis that boys with distant fathers tend to be poor problem solvers. That girls with moderately distant mothers are relatively better problem solvers is consistent with the finding that first through fourth grade girls scored higher in arithmetic achievement when their mothers were relatively low in nurturance (Crandall, Dewey, Katkovsky, & Preston, 1964). Greater field dependence in boys has been shown to occur when the boy perceives himself as closer and more involved with the mother than the father (Bieri, 1960), perceives both parents as nonsupportive (Witkin, Dyk, Paterson, Goodenough, & Karp, 1962), or spends relatively little time with the father and is punished less often by the father (Seder, 1957). The girl who perceives herself as closer to and more involved with the father than the mother has been found to be more field independent than the girl showing the opposite, more typical pattern (Bieri, 1960).

The results reported up to this point may be explained by two different hypotheses. First, they can be explained by
Lynn's hypothesis that cognitive functioning is related to the child's closeness to the same sexed parent. An alternative hypothesis is that high problem solving ability and field independence are related to closeness to the father for both sexes, while low problem solving ability and field dependence are related to closeness to the mother for both sexes (Crandall, et al., 1964, Barclay & Cusumano, 1967, and Bieri, 1960). The findings of the next two studies make the situation less ambiguous, as they tend to be consistent with the first rather than the second of these hypotheses.

The situation where the son is extremely close to the father while the daughter is moderately distant from the mother is rare in our culture. However, studies of Eskimo children whose fathers are home a great proportion of the time during the long winter and who, boy and girl alike, accompany the father on long hunting trips (Lisitsky, 1956) indicate that it is degree of closeness to the parent of the same sex which is related to cognitive functioning. The Eskimo boy is very close to his father and given many opportunities to imitate his behavior. The Eskimo girl is given a great deal of freedom and often goes on long hunting trips with the father and therefore, would seem to be relatively distant from her mother as compared to girls in our culture. In this cultural milieu, there is no significant sex difference in field dependence (Berry, 1966 and
MacArthur, 1967). If it were simply closeness to the father that was important in developing field independence, the boys should still have been more field independent than the girls, as it is likely that the boys were closer to their fathers than were the girls.

Another study bearing on this question investigated orphans who were cared for either by male college students, if the child was male, or by nuns, if the child was female. It was found that the boys were more field dependent than the girls. If one assumes that the college student male was an easier figure for the boys to identify with than the nun was for the girls to identify with, this study is consistent with Lynn's same-sex parental distance hypothesis.

Although Lynn's theory is consistent with past findings and does offer an explanation for some apparently contradictory findings, there is only one instance where one of his basic hypotheses has been tested. Ward (1973) tested the hypothesis that males tend to identify with a culturally defined masculine role and females with the mother. He assessed identification with the sex-role with the IT Scale, which is actually a measure of sex-role preference, and he assessed parental identification with the Imitation Schedule. Boys' masculine preference was greater than girls' feminine preference, with girls' preference actually falling in the masculine range. Thus, Ward concluded that boys are more
identified with the culturally defined masculine role than girls are with the culturally defined feminine role. Boys' preference scores were also greater than their father imitation scores. These two findings support the first part of Lynn's hypothesis. However, girls' imitated their mothers less than boys imitated their fathers, thus failing to support the last half of the hypothesis.
OBJECTIVES

Statement of Problem

The present study tested two specific subsets of Lynn's hypotheses. The first subset dealt with the basic question of what the object of identification is for the child. The second subset dealt with the relationship of parental distance to cognitive functioning. The specific research and statistical hypotheses tested follow.

Hypotheses

Research hypothesis 1. Males tend to identify with a culturally defined masculine role, whereas females tend to identify with their mothers.

Null hypothesis 1. The correlation for non-sex-typed personality characteristics between mother and daughter will be no different than the correlation for non-sex-typed personality characteristics between father and son.

Alternative hypothesis 1. The correlation for non-sex-typed personality characteristics between mother and daughter will be higher than the correlation for non-sex-typed personality characteristics between father and son.

Research hypothesis 2. The identification of males with their fathers will be revealed most clearly in personality variables that are sex-typed as masculine, and the identification with their mothers will be revealed most clearly in variables that are not sex-typed.
Null hypothesis 2a. The correlation between males' responses and fathers' responses to sex-typed items on the Bem Sex-Role Inventory will be no different than the correlation between males' responses and their fathers' responses to the non-masculine sex-typed items.

Null hypothesis 2b. The correlation between males' responses and their mothers' responses to non-masculine sex-typed items should be no higher than the correlation between males' responses and mothers' responses on masculine sex-typed items.

Alternative hypothesis 2a. Males' BSRI scores should correlate most highly with fathers' on masculine sex-typed responses.

Alternative hypothesis 2b. Males' BSRI scores should correlate most highly with mothers' on non-sex-typed responses.

Research hypothesis 3. There is a curvilinear relation between distance from the same-sex parent and cognitive style.

Null hypothesis 3a. There is no relationship between perceived parental distance for some sex parent and scores on the Luchin's Water Jar Problems or the Alphabet Mazes for either males or females.

Null hypothesis 3b. There is no relationship between availability of the same sex parent and scores on the
Luchin's Water Jar Problems and Alphabet Mazes for either males or females.

Null hypothesis 3c. There is no relationship between fearfulness of same sex parent and cognitive style measures.

Null hypothesis 3d. There is no relationship between sex of the parent who punished the child and cognitive style measures.

Alternative hypothesis 3a. There is a curvilinear relationship between scores on the Parental Attitude Survey and scores on the Luchin's Water Jar Problems and Alphabet Mazes for males and for females.

Alternative hypothesis 3b. There is a curvilinear relationship between availability of the same sex parent as measured by number of hours spent working away from home and scores on the Luchin's Water Jar Problems and Alphabet Mazes for males and for females.

Alternative hypothesis 3c. There is a curvilinear relationship between fearfulness of the same sex parent and scores on the Luchin's Water Jar Problems and Alphabet Mazes for males and for females.

Alternative hypothesis 3d. Males punished exclusively by the mother will have lower average scores on the Luchin's Water Jar Problems and Alphabet Mazes than males punished by the father.
Research hypothesis 4. The closer the child is to the same sex parent, the stronger his identification with that parent.

Null hypothesis 4. The correlation between parental closeness and parental identification is zero.

Alternative hypothesis 4. There is a positive correlation between parental closeness and parental identification.
METHOD

Subjects

Subjects were 101 male and 100 female volunteers from the freshman and sophomore psychology classes at Iowa State University and their parents. Only students who lived with both their parents until the age of 16 were tested. Initially, 200 females and 180 males were tested. The first 100 females and 101 males with complete data were included in the study. Incomplete data was mainly constituted by parents' failure to return the questionnaires or by errors in filling out the questionnaires. The return rate of questionnaires from parents was approximately 75% for females' parents and 67% for males' parents.

Measures

Sex-typing. A variation of Bem's (1974) Sex Role Inventory (BSRI) was administered to each student and both parents. The BSRI was changed in two ways. First, a 1 to 99 point scale was used rather than the 1 to 7 point scale. This change was made in order to provide a more reliable measure. Second the order of item presentation was randomized rather than left in the pattern masculine item, feminine item, social desirability item.

The BSRI is fairly reliable, with Bem (1974) reporting test-retest reliabilities of .90 for masculinity, .90 for femininity, .93 for androgyny, and .89 for social desirabili-
ty. M. Hill and R. Strahan (Iowa State University, personal communication) report somewhat lower reliabilities based on Coefficient Alpha. For females the reliabilities are .80 for femininity, .80 for masculinity, and .83 for androgyny. For males the reliabilities are .68 for femininity, .83 for masculinity, and .71 for androgyny. Thus, scale reliabilities range from .68 to .93, with the majority in the .80's.

Cognitive style. Two tests of cognitive functioning were administered to the students. These tests measured problem solving and ability to break set (restructuring). Luchins' Water Jar Problems were used as a mathematical problem solving task and the Alphabet Mazes were used as a verbal problem solving task. Since the better problem solving ability of males may be limited to mathematical problems, the inclusion of the Alphabet Mazes should allow for a more complete analysis of the relationship between problem solving and restructuring and parental distance. For each of these tasks four scores were obtained. These scores were total number of problems solved, number of problems on which set was broken, time to solve the last problem (which could not be solved in the set way), and total time to solve all problems. Time was measured in five second units and coded into thirty second units for time to solve the last problem.

Parental distance. Several measures of parental distance were administered. A portion of Schaefer's (1965)
Child's Report of Parental Behavior Inventory (CBPBI) was used to measure psychological distance. This scale was developed for use with children under 16 years of age but has been shown to have a similar factor structure when used with college age subjects (Schludermann & Schludermann, 1970). The scales which were used measure Acceptance, Positive Involvement, Rejection, and Hostile Detachment. The Acceptance and Positive Involvement scales were combined to measure Parental Closeness (PC), while the Rejection and Hostile Detachment scales were combined to measure Parental Distance (PD). Psychological distance was also measured by two further items, one referring to fearfulness of the same sex parent and the other referring to frequency of punishment by the parent of the same sex as related to frequency of punishment by the parent of the opposite sex. The final measure of parental distance was determined by biographical information regarding the physical availability of the parent to the child. Both subjects and parents estimated the number of hours the same sex parent spent away from home during the week and on the weekend and the number of hours the subjects spent in the actual presence of the same sex parent during the week and during the weekend.

**Procedure**

The college students were tested in groups of five to forty. They were first given the tests of cognitive
functioning. In approximately half (n=56 for females and n=51 for males) the Luchins Water Jar Problems were given first. In the other half (n=44 for females and n=50 for males) the Alphabet Mazes were given first. After the tests of cognitive functioning were administered, the subject filled out the BSRI, the CRPBI, and the Biographical Questionnaire in that order. The latter two were filled out only in relation to the same sex parent. Subjects who finished the problem solving tasks early were allowed to work on the questionnaires while waiting for others to finish. At the end of the session the subjects were told that they would receive two additional points of credit if both parents answered and returned the questionnaires which would be sent to them. The subject then addressed an envelope to his or her parents and wrote a short note requesting the parents' cooperation. The testing session lasted approximately ninety minutes.

The parents were then sent the BSRI and a modified version of the CRPBI and Biographical Questionnaire. Both parents were asked to complete the BSRI but only the same sex parent was asked to complete the measures related to parental distance.
Correlational data are reported in four major sections. The organizational structure is shown in Figure 1.

**Correlations**

<table>
<thead>
<tr>
<th>Within measures</th>
<th>Between measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within family member</td>
<td>Between family members</td>
</tr>
<tr>
<td>Within</td>
<td>Between</td>
</tr>
</tbody>
</table>

Figure 1. Structure of correlational analysis.

The grouping can be viewed as analogous to a multimethod-multitrait analysis. The correlations have been categorized in two ways. First, they have been divided into within measure and between measures groups. The within measure group includes those correlations between items measuring the same construct. The between measures group includes correlations between items measuring different constructs. Each of these groups is then further divided into correlations within family member and correlations between family members.

**Correlations within measures and within family member**

**Task variables**. The correlations among the task variables are shown in Tables 1-4. For both males and females and for both tasks the number of problems solved was negatively correlated with time to solve the last problem and
Table 1. Correlations among task variables for male subjects on the Alphabet Mazes.

<table>
<thead>
<tr>
<th></th>
<th>No. solved</th>
<th>No. set broken</th>
<th>Time last maze</th>
<th>Total time</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. solved</td>
<td>-</td>
<td>-.04</td>
<td>-</td>
<td>-</td>
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<td>No. set broken</td>
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<td>-</td>
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<td>Time last maze</td>
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<td>.00</td>
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$\rho > .20, p < .05$

$\rho > .26, p < .01$

Table 2. Correlations among task variables for female subjects on the Alphabet Mazes.

<table>
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<th>Total time</th>
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</thead>
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<td>-</td>
<td>-</td>
</tr>
<tr>
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<td>.02</td>
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<td>-</td>
</tr>
<tr>
<td>Time last maze</td>
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</tbody>
</table>

$\rho > .20, p < .05$

$\rho > .26, p < .01$
Table 3. Correlations among task variables for male subjects on the Luchins' Water Jar Problems.

<table>
<thead>
<tr>
<th></th>
<th>No. solved</th>
<th>No. set broken</th>
<th>Time last maze</th>
<th>Total time</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. solved</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. set broken</td>
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<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time last maze</td>
<td>-.27</td>
<td>-.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total time</td>
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<td>-.35</td>
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<td></td>
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</tbody>
</table>

$r > .20, p < .05$
$r > .26, p < .01$

Table 4. Correlations among task variables for female subjects on the Luchins' Water Jar Problems.

<table>
<thead>
<tr>
<th></th>
<th>No. solved</th>
<th>No. set broken</th>
<th>Time last maze</th>
<th>Total time</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. solved</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. set broken</td>
<td>.05</td>
<td>-</td>
<td></td>
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<tr>
<td>Time last maze</td>
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<td></td>
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<tr>
<td>Total time</td>
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$r > .20, p < .05$
$r > .26, p < .01$
total time to solve the problems. On the Luchins' problems number of problems on which set was broken was also negatively correlated with the time measures. The time measures themselves were positively correlated.

**Psychological distance.** The correlations among the subjects' reports on the psychological distance variables of parental closeness, parental distance, fearfulness, punishment, estimated parental closeness, and perceived parental resemblance are shown in Tables 5 and 6. For the most part these variables were significantly correlated. The correlations for parents' report on the psychological distance variables of parental closeness and parental distance were significant for both fathers ($r = -.69$, $p < .01$) and mothers ($r = -.66$, $p < .01$).

**Physical availability.** The correlations among items measuring physical availability are shown in Tables 7-10. For estimates made by female subjects, all the items were positively correlated. For estimates made by male subjects, there was a tendency for estimates of presence to be negatively related to estimates of absence during the week, with four of nine correlations significant. For parents' reports mothers' estimates of presence and absence during the week were positively correlated while fathers' estimates tended to be negatively correlated, with six of nine correlations significant. Except for estimates made by female
Table 5. Correlations among items measuring parental distance as reported by male subjects.

<table>
<thead>
<tr>
<th></th>
<th>PC</th>
<th>PD</th>
<th>Fear</th>
<th>Pun.</th>
<th>EPC</th>
<th>PPR</th>
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</thead>
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</tr>
</tbody>
</table>

r > .20, p < .05
r > .26, p < .01

PC = Parental closeness
PD = Parental distance
EPC = Estimated parental closeness
PPR = Perceived parental resemblance

Table 6. Correlations among items measuring parental distance as reported by female subjects.

<table>
<thead>
<tr>
<th></th>
<th>PC</th>
<th>PD</th>
<th>Fear</th>
<th>Pun.</th>
<th>EPC</th>
<th>PPR</th>
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<td>PC</td>
<td>-</td>
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r > .20, p < .05
r > .26, p < .01

PC = Parental closeness
PD = Parental distance
EPC = Estimated parental closeness
PPR = Perceived parental resemblance
Table 7. Intercorrelation of male subject report of father availability.

<table>
<thead>
<tr>
<th></th>
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<th>AW2</th>
<th>AW3</th>
<th>PW1</th>
<th>PW2</th>
<th>PW3</th>
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<th>AWE2</th>
<th>AWE3</th>
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<th>PWE3</th>
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</table>

$\Sigma > .19$, $P < .05$
$\Sigma > .26$, $P < .01$

The following symbols are used:
- A = away
- P = present
- W = week
- WE = weekend
- 1 = subject under five years of age
- 2 = subject between five and thirteen years of age
- 3 = subject between fourteen and eighteen years of age
Table 8. Intercorrelation of female subject report of mother availability.

<table>
<thead>
<tr>
<th></th>
<th>AW1</th>
<th>AW2</th>
<th>AW3</th>
<th>PW1</th>
<th>PW2</th>
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E > .19, P < .05
E > .26, P < .01

The following symbols are used:
A = away
P = present
W = week
WE = weekend
1 = subject between five and thirteen years of age
2 = subject between fourteen and eighteen years of age
3 = subject five years of age
Table 9. Intercorrelation of father report of his availability.

<table>
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<tr>
<th></th>
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<th>AW3</th>
<th>PW1</th>
<th>PW2</th>
<th>PW3</th>
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<th>AWE3</th>
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<th>PHE3</th>
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</tr>
</tbody>
</table>

* $r > .19, \quad p < .05$
* $r > .26, \quad p < .01$

The following symbols are used:
A = away
P = present
W = week
WE = weekend
1 = subject under five years of age
2 = subject between five and thirteen years of age
3 = subject between fourteen and eighteen years of age
Table 10. Intercorrelation of mother report of her availability.

<table>
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<th>AW3</th>
<th>PW1</th>
<th>PW2</th>
<th>PW3</th>
<th>AWE1</th>
<th>AWE2</th>
<th>AWE3</th>
<th>PWE1</th>
<th>PWE2</th>
<th>PWE3</th>
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<td>.78</td>
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<td>-.07</td>
<td>-.02</td>
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<td>.72</td>
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<td>-.20</td>
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<td>-.12</td>
<td>-.19</td>
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<td>.44</td>
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</tr>
</tbody>
</table>

\[ r > .19 \text{, } p < .05 \]
\[ r > .26 \text{, } p < .01 \]

The following symbols are used:
A = away
P = present
W = week
WE = weekend
1 = subject under five years of age
2 = subject between five and thirteen years of age
3 = subject between fourteen and eighteen years of age
subjects, estimates of presence and absence during the weekend were generally not significantly related. Correla-
tions between estimates for the three age periods were gener-
ally positive and significant with one exception. Male
subjects' estimates for the age period under five years were
not correlated with estimates for other age periods.

**Correlations within measures and between family members**

**Psychological distance.** Correlations between parent and child reports on the CBPBI are given in Table 11. Females' reports were significantly correlated with their mothers' reports on both scales. Males' reports were significantly correlated with their fathers' reports only on the PD scale.

**Physical availability.** Correlations between parent and child estimates of physical availability are shown in Table 12. Estimates of availability during the week are positive and significant with only one exception. Only two of six estimates of weekend availability were significantly correlated for females and one of six estimates of weekend availability were significantly correlated for males.

**BSRI.** Correlations between parent and child scores on the BSRI are shown in Table 13. Fathers' and sons' masculinity scores were positively correlated as were mothers' and daughters' femininity scores. No other correlations between parent and child BSRI scores were significant.
Table 11. Correlations between child and parent report on the CBPBI.

<table>
<thead>
<tr>
<th>Parental closeness</th>
<th>Male subjects</th>
<th>Female subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.07</td>
<td>.38</td>
</tr>
<tr>
<td>Parental distance</td>
<td>.34</td>
<td>.25</td>
</tr>
</tbody>
</table>

$r > .20, p < .05$
$r > .26, p < .01$

Table 12. Correlations between subject report of availability and parent report of availability.

<table>
<thead>
<tr>
<th></th>
<th>Male subjects</th>
<th>Female subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Away week &lt;5 yrs.</td>
<td>.37</td>
<td>.69</td>
</tr>
<tr>
<td>Away week 5-13 yrs.</td>
<td>.37</td>
<td>.92</td>
</tr>
<tr>
<td>Away week 14-18 yrs.</td>
<td>.35</td>
<td>.87</td>
</tr>
<tr>
<td>Present week &lt;5 yrs.</td>
<td>.25</td>
<td>.72</td>
</tr>
<tr>
<td>Present week 5-15 yrs.</td>
<td>.20</td>
<td>.74</td>
</tr>
<tr>
<td>Present week 14-18 yrs.</td>
<td>.14</td>
<td>.83</td>
</tr>
<tr>
<td>Away weekend &lt;5 yrs.</td>
<td>-.03</td>
<td>-.08</td>
</tr>
<tr>
<td>Away weekend 5-13 yrs.</td>
<td>-.19</td>
<td>-.04</td>
</tr>
<tr>
<td>Away weekend 14-18 yrs.</td>
<td>.31</td>
<td>-.02</td>
</tr>
<tr>
<td>Present weekend &lt;5 yrs.</td>
<td>.09</td>
<td>.30</td>
</tr>
<tr>
<td>Present weekend 5-13 yrs.</td>
<td>.01</td>
<td>.62</td>
</tr>
<tr>
<td>Present weekend 14-18 yrs.</td>
<td>.04</td>
<td>-.10</td>
</tr>
</tbody>
</table>

$r > .20, p < .05$
$r > .26, p < .01$
Correlations between measure and within family member

Task variables. Correlations between scores on the Alphabet Mazes and the Luchins' Water Jar Problems are shown in Table 14. The number of problems on which set was broken was significantly correlated across tasks for both males and females, while time to solve the last problem on the two tasks was significantly correlated for males. None of the other cross-task measures were significantly correlated.

Psychological distance and task variables. The correlations between subjects' report on the psychological distance variables and scores on the task variables are shown in Tables 15 and 16. For male subjects, perceived resemblance to the father was positively correlated with number of Alphabet Mazes solved and negatively correlated with total time to solve the Alphabet Mazes. For females the PD score on the CRPBI was positively correlated with the number of Luchins' problems on which set was broken. No other correlations were significant.

Physical availability and task variables. The correlations between subjects' report of parent availability and the task variables are shown in Tables 17 and 18. There was a tendency for father presence to be positively related to number of Alphabet Mazes on which the son broke set. For females both mother presence and mother absence tended to be positively correlated with the time measures on the Luchins'
Table 13. Correlations between parent and child scores on the BSRI.

<table>
<thead>
<tr>
<th></th>
<th>Male subjects</th>
<th></th>
<th>Female subjects</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Father</td>
<td>Mother</td>
<td>Father</td>
<td>Mother</td>
</tr>
<tr>
<td>Masc.</td>
<td>.11</td>
<td>.18</td>
<td>.09</td>
<td></td>
</tr>
<tr>
<td>Fem.</td>
<td>.00</td>
<td>.12</td>
<td>.22</td>
<td>.04</td>
</tr>
<tr>
<td>Soc. Des.</td>
<td>.14</td>
<td>.02</td>
<td>.06</td>
<td>.07</td>
</tr>
</tbody>
</table>

$\rho = .20, p < .05$

$\rho = .26, p < .01$

Table 14. Correlations between scores on the Alphabet Mazes and Luchins' Water Jar Problems.

<table>
<thead>
<tr>
<th></th>
<th>Male subjects</th>
<th></th>
<th>Female subjects</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. solved</td>
<td>.09</td>
<td>.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. set broken</td>
<td>.22</td>
<td>.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time last prob.</td>
<td>.22</td>
<td>.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total time</td>
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<td>.08</td>
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<td></td>
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</tbody>
</table>

$\rho = .20, p < .05$

$\rho = .26, p < .01$
Table 15. Correlations between male subjects' reports of psychological distance and scores on the task variables.

<table>
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<tr>
<th></th>
<th>Alphabet mazes</th>
<th>Luchins'</th>
</tr>
</thead>
<tbody>
<tr>
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<td>No. solved set</td>
<td>Time last time</td>
</tr>
<tr>
<td></td>
<td>broken maze</td>
<td></td>
</tr>
<tr>
<td>PC</td>
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<td>-.06</td>
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<tr>
<td>PD</td>
<td>-.12</td>
<td>-.11</td>
</tr>
<tr>
<td>Fear</td>
<td>-.10</td>
<td>.11</td>
</tr>
<tr>
<td>Pun.</td>
<td>.01</td>
<td>.06</td>
</tr>
<tr>
<td>EPC</td>
<td>.14</td>
<td>.04</td>
</tr>
<tr>
<td>PPR</td>
<td>.25</td>
<td>-.02</td>
</tr>
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</table>

r = .20, p < .05  
Γ = .26, p < .01

PC = Parental closeness  
PD = Parental distance  
EPC = Estimated parental closeness  
PPR = Perceived parental resemblance
Table 16. Correlations between female subjects' reports of psychological distance and scores on the task variables.

<table>
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<th></th>
<th>Alphabet mazes</th>
<th>Luchins'</th>
</tr>
</thead>
<tbody>
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<td>No. solved</td>
<td>No. set</td>
</tr>
<tr>
<td></td>
<td></td>
<td>set</td>
</tr>
<tr>
<td>PC</td>
<td>.13</td>
<td>.02</td>
</tr>
<tr>
<td>PD</td>
<td>-.11</td>
<td>.06</td>
</tr>
<tr>
<td>Fear</td>
<td>-.13</td>
<td>-.08</td>
</tr>
<tr>
<td>Pun.</td>
<td>-.01</td>
<td>.01</td>
</tr>
<tr>
<td>EPC</td>
<td>.09</td>
<td>.06</td>
</tr>
<tr>
<td>PPR</td>
<td>-.08</td>
<td>-.03</td>
</tr>
</tbody>
</table>

\( r = .20, p < .05 \)
\( r = .26, p < .01 \)

PC = Parental closeness
PD = Parental distance
EPC = Estimated parental closeness
PPR = Perceived parental resemblance
Table 17. Correlations between male subjects' reports of parent availability and scores on the task variables.

<table>
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<tr>
<th>Alphabet mazes</th>
<th>Luchins'</th>
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</thead>
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<tr>
<td>AW2</td>
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<tr>
<td>AW3</td>
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<tr>
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</table>

r = .20, p < .05
r = .26, p < .01

A = Away
P = Present
W = Week
WE = Weekend
1 = <5 yrs. old
2 = 5-13 yrs. old
3 = 14-18 yrs. old
Table 18. Correlations between female subjects' reports of parent availability and scores on the task variables.

<table>
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<td>No. Time</td>
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<td>set</td>
<td>last time</td>
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</table>

<p>| | | | | | |</p>
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<td>-.09</td>
<td>.01</td>
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<td>-.05</td>
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<tr>
<td>AWE3</td>
<td>.03</td>
<td>-.19</td>
<td>-.09</td>
<td>-.13</td>
<td>-.06</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PWE1</td>
<td>.09</td>
<td>-.05</td>
<td>-.03</td>
<td>-.05</td>
<td>.02</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PWE2</td>
<td>.11</td>
<td>-.01</td>
<td>-.12</td>
<td>-.11</td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PWE3</td>
<td>.09</td>
<td>-.07</td>
<td>-.02</td>
<td>-.02</td>
<td>.09</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

L = .20, p < .05
L = .26, p < .01

A = Away
P = Present
W = Week
WE = Weekend
1 = <5 yrs. old
2 = 5-13 yrs. old
3 = 14-18 yrs. old
problems with the exception of presence on the weekend.

**BSRI and task variables.** Correlations between scores on the BSRI and the task variables are shown in Tables 19 and 20. Males' social desirability scores were negatively correlated with the time variables on the Luchins' task, while none of the other correlations were significant for males or females.

**BSRI and psychological distance.** The correlations between scores on the BSRI and the psychological distance variables are shown in Table 21. All three scores on the BSRI were positively related to the PC scale of the CRPBI and perceived parental resemblance for males. In addition, males' masculinity and social desirability scores were negatively correlated with the PD scale of the CRPBI. Only femininity was significantly correlated with the psychological distance measures for females. Femininity was positively correlated with the PC scale on the CRPBI and perceived parental resemblance and negatively correlated with the PD scale of the CRPBI.

**Correlations between measures and between family members**

**Psychological distance and task variables.** Correlations between parents' reports on the CRPBI and subjects' scores on the task variables are shown in Table 22. Mothers' report on the PC scale of the CRPBI was negatively correlated with number of Luchins' problems solved and positively correlated
Table 19. Correlations between male subjects' scores on the BSRI and scores on the task variables.

<table>
<thead>
<tr>
<th></th>
<th>Alphabet mazes</th>
<th></th>
<th>Luchins'</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. solved</td>
<td>No. set broken maze</td>
<td>Time</td>
</tr>
<tr>
<td>Mas.</td>
<td>.03</td>
<td>.10</td>
<td>-.05</td>
</tr>
<tr>
<td>Fem.</td>
<td>.04</td>
<td>.12</td>
<td>-.12</td>
</tr>
<tr>
<td>S.D.</td>
<td>.17</td>
<td>.13</td>
<td>-.22</td>
</tr>
</tbody>
</table>

$F = .20, P < .05$

$F = .26, P < .01$

Table 20. Correlations between female subjects' scores on the BSRI and scores on the task variables.

<table>
<thead>
<tr>
<th></th>
<th>Alphabet mazes</th>
<th></th>
<th>Luchins'</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. solved</td>
<td>No. set broken maze</td>
<td>Time</td>
</tr>
<tr>
<td>Mas.</td>
<td>.02</td>
<td>-.03</td>
<td>.15</td>
</tr>
<tr>
<td>Fem.</td>
<td>-.07</td>
<td>-.03</td>
<td>-.03</td>
</tr>
<tr>
<td>S.D.</td>
<td>-.11</td>
<td>.11</td>
<td>.04</td>
</tr>
</tbody>
</table>

$F = .20, P < .05$

$F = .26, P < .01$
Table 21. Correlations between subjects' reports of psychological distance and scores on the BSRI.

<table>
<thead>
<tr>
<th></th>
<th>Male subjects</th>
<th>Female subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mas.</td>
<td>Fem.</td>
</tr>
<tr>
<td>PC</td>
<td>.35</td>
<td>.32</td>
</tr>
<tr>
<td>PD</td>
<td>-.39</td>
<td>-.16</td>
</tr>
<tr>
<td>Fear</td>
<td>-.22</td>
<td>-.07</td>
</tr>
<tr>
<td>Pun.</td>
<td>.09</td>
<td>-.15</td>
</tr>
<tr>
<td>EPC</td>
<td>.16</td>
<td>-.02</td>
</tr>
<tr>
<td>PPR</td>
<td>.35</td>
<td>.32</td>
</tr>
</tbody>
</table>

\( \gamma = .20, \ p < .05 \)
\( \gamma = .26, \ p < .01 \)

Table 22. Correlations between parents' reports of psychological distance and children's scores on the task variables.

<table>
<thead>
<tr>
<th></th>
<th>Alphabet mazes</th>
<th>Luchins'</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. solved</td>
<td>No. solved</td>
</tr>
<tr>
<td></td>
<td>last time</td>
<td>set</td>
</tr>
<tr>
<td></td>
<td>broken maze</td>
<td>broken maze</td>
</tr>
<tr>
<td>Male</td>
<td>PC</td>
<td>.09</td>
</tr>
<tr>
<td></td>
<td>PD</td>
<td>.03</td>
</tr>
<tr>
<td>Fem.</td>
<td>PC</td>
<td>-.07</td>
</tr>
<tr>
<td></td>
<td>PD</td>
<td>.11</td>
</tr>
</tbody>
</table>

\( \gamma = .20, \ p < .05 \)
\( \gamma = .26, \ p < .01 \)
with total time on the Luchins' problems. None of the other correlations were significant for either males or females.

**Physical availability and task variables.** Correlation between parents' report of physical availability and subjects' scores on the task variables are shown in Tables 23 and 24. For males there was a tendency for father presence during the week to be positively correlated with total number of Alphabet Mazes solved and total time to solve the mazes. For females, there was a tendency for estimates of both mother presence and absence during the week to be positively correlated with the time scores on the Luchins' task.

**Regression analysis**

A multiple regression analysis of the form Task Variable = Parental Distance, Parental Distance\(^2\) was done for all task variables and all parental distance variables. No significant quadratic trends were found.

**Comparison of means**

The mean scores on the task variables and on the parental distance variables are reported in Tables 25 and 26. Females took significantly longer than males to solve the last Luchins' problem and to solve all the Luchins' problems. Females took significantly less total time to solve the Alphabet Mazes. Males were significantly more distant from the father than females from the mother for both parent and child report on the CRPBI.
Table 23. Correlations between fathers' reports of availability and sons' scores on the task variables.

<table>
<thead>
<tr>
<th>Alphabet names Lashins'</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No. solved</td>
<td>No. set</td>
<td>Time last maze</td>
<td>Total No. time solved set broken</td>
<td>No. broken prob.</td>
<td>Time last prob.</td>
<td></td>
</tr>
<tr>
<td>AW1</td>
<td>-.03</td>
<td>.00</td>
<td>.08</td>
<td>.10</td>
<td>.08</td>
<td>.14</td>
</tr>
<tr>
<td>AW2</td>
<td>-.09</td>
<td>-.03</td>
<td>.11</td>
<td>.14</td>
<td>.04</td>
<td>.10</td>
</tr>
<tr>
<td>AW3</td>
<td>-.16</td>
<td>-.12</td>
<td>.17</td>
<td>.15</td>
<td>-.03</td>
<td>.08</td>
</tr>
<tr>
<td>PW1</td>
<td>-.19</td>
<td>-.03</td>
<td>.09</td>
<td>.15</td>
<td>-.09</td>
<td>-.11</td>
</tr>
<tr>
<td>PW2</td>
<td>-.22</td>
<td>.04</td>
<td>.14</td>
<td>.22</td>
<td>-.05</td>
<td>.07</td>
</tr>
<tr>
<td>PW3</td>
<td>-.27</td>
<td>.09</td>
<td>.04</td>
<td>.24</td>
<td>-.01</td>
<td>-.12</td>
</tr>
<tr>
<td>AW1E1</td>
<td>-.07</td>
<td>-.10</td>
<td>.04</td>
<td>.11</td>
<td>-.15</td>
<td>-.05</td>
</tr>
<tr>
<td>AW2E2</td>
<td>-.10</td>
<td>-.14</td>
<td>-.01</td>
<td>.14</td>
<td>-.17</td>
<td>-.03</td>
</tr>
<tr>
<td>AW3E3</td>
<td>-.12</td>
<td>-.07</td>
<td>-.10</td>
<td>.02</td>
<td>-.04</td>
<td>.09</td>
</tr>
<tr>
<td>PW1E1</td>
<td>-.10</td>
<td>-.05</td>
<td>.08</td>
<td>.05</td>
<td>-.12</td>
<td>-.14</td>
</tr>
<tr>
<td>PW2E2</td>
<td>-.02</td>
<td>.08</td>
<td>-.06</td>
<td>-.02</td>
<td>.04</td>
<td>-.14</td>
</tr>
<tr>
<td>PW3E3</td>
<td>.02</td>
<td>.09</td>
<td>-.15</td>
<td>-.01</td>
<td>.12</td>
<td>-.16</td>
</tr>
</tbody>
</table>

F = .20, P < .05
F = .26, P < .01
Table 24. Correlations between mothers' reports of availability and daughters' scores on the task variables.

<table>
<thead>
<tr>
<th>Alphabet names</th>
<th>No. solved</th>
<th>No. set</th>
<th>Time last</th>
<th>Total No.</th>
<th>No. solved</th>
<th>No. set</th>
<th>Time last</th>
<th>Total time</th>
<th>Broken maze</th>
<th>Broken prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AW1</td>
<td>.07</td>
<td>-.11</td>
<td>-.09</td>
<td>-.11</td>
<td>-.02</td>
<td>-.08</td>
<td>.21</td>
<td>.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AW2</td>
<td>.05</td>
<td>-.08</td>
<td>-.05</td>
<td>-.06</td>
<td>-.05</td>
<td>-.02</td>
<td>.19</td>
<td>.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AW3</td>
<td>.06</td>
<td>-.03</td>
<td>-.02</td>
<td>-.06</td>
<td>-.04</td>
<td>-.01</td>
<td>.17</td>
<td>.24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW1</td>
<td>.08</td>
<td>-.04</td>
<td>-.08</td>
<td>-.11</td>
<td>-.07</td>
<td>-.18</td>
<td>.22</td>
<td>.19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW2</td>
<td>.10</td>
<td>-.15</td>
<td>-.08</td>
<td>-.14</td>
<td>-.06</td>
<td>-.19</td>
<td>.23</td>
<td>.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW3</td>
<td>.06</td>
<td>-.15</td>
<td>-.06</td>
<td>-.12</td>
<td>-.04</td>
<td>-.14</td>
<td>.22</td>
<td>.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AWE1</td>
<td>.07</td>
<td>.03</td>
<td>-.12</td>
<td>-.12</td>
<td>-.03</td>
<td>.08</td>
<td>.07</td>
<td>.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AWE2</td>
<td>-.03</td>
<td>.10</td>
<td>.03</td>
<td>.01</td>
<td>.09</td>
<td>.08</td>
<td>.05</td>
<td>.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AWE3</td>
<td>.01</td>
<td>.09</td>
<td>-.05</td>
<td>.03</td>
<td>.13</td>
<td>.07</td>
<td>.06</td>
<td>.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PWE1</td>
<td>.05</td>
<td>.02</td>
<td>-.17</td>
<td>.05</td>
<td>-.11</td>
<td>-.17</td>
<td>.29</td>
<td>.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PWE2</td>
<td>.01</td>
<td>-.07</td>
<td>-.14</td>
<td>-.09</td>
<td>-.12</td>
<td>-.15</td>
<td>.26</td>
<td>.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PWE3</td>
<td>-.12</td>
<td>.02</td>
<td>-.05</td>
<td>.10</td>
<td>-.13</td>
<td>.04</td>
<td>.10</td>
<td>.03</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$r = .20, p < .05$
$r = .25, p < .01$
Table 25. Comparison of male and female means on the task variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Means</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td><strong>Alphabet mazes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. solved</td>
<td>6.33</td>
<td>6.48</td>
</tr>
<tr>
<td>No. set broken</td>
<td>.81</td>
<td>.91</td>
</tr>
<tr>
<td>Time last maze</td>
<td>2.47</td>
<td>2.36</td>
</tr>
<tr>
<td>Total time</td>
<td>83.92</td>
<td>75.42</td>
</tr>
<tr>
<td><strong>Luchins’ SQ</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. solved</td>
<td>7.54</td>
<td>7.33</td>
</tr>
<tr>
<td>No. set broken</td>
<td>1.67</td>
<td>1.44</td>
</tr>
<tr>
<td>Time last prob.</td>
<td>2.40</td>
<td>2.85</td>
</tr>
<tr>
<td>Total time</td>
<td>113.91</td>
<td>131.62</td>
</tr>
</tbody>
</table>

** = p < .01

Table 26. Comparison of male and female means on the CBPBI.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Means</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td><strong>Subj. report</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PC</td>
<td>5.81</td>
<td>19.76</td>
</tr>
<tr>
<td>PD</td>
<td>-27.22</td>
<td>-32.34</td>
</tr>
<tr>
<td><strong>Parent report</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PC</td>
<td>22.95</td>
<td>36.99</td>
</tr>
<tr>
<td>PD</td>
<td>-42.78</td>
<td>-44.81</td>
</tr>
</tbody>
</table>

* = p < .05
** = p < .01
*** = p < .001
DISCUSSION

Parental and sex-role identification

The first hypothesis stated that males tend to identify with a culturally defined masculine role, whereas females tend to identify with their mothers. This hypothesis was not supported. For the Social Desirability Scale on the BSRI, neither males' nor females' scores correlated with the scores of the same sex parent. Thus on a non-sex-typed personality variable, neither males nor females demonstrated identification with the same sex parent. These results are not consistent with those of Thelen (1965) in which defense preferences of adolescent males were found to be significantly related to their fathers' preferences. In defense of this first hypothesis Lynn has also cited evidence from a study by Fitzgerald and Roberts (1966) in which sex differences in perceived similarity to the same sex parent were found. However, no differences were found in the present study. Thus there is no support in the present study for Lynn's hypothesis that males identify with the cultural stereotype of masculinity and females identify with the mother.

The second hypothesis stated that identification of males with their fathers would be revealed most clearly in personality variables that are sex-typed as masculine, and the identification with the mother would be revealed most clearly in variables that are not sex-typed. While the first
part of this hypothesis was supported, the second was not. Sons' masculinity was positively correlated with fathers' masculinity, whereas there was no significant relationship between fathers' and sons' femininity or social desirability scores. This is consistent with the first half of the hypothesis. However, the fact that there was no relationship between sons' and mothers' scores on any of the three subscales of the BSRI, fails to support the specific hypothesis that males' identification with the mother will be revealed in non-sex-typed characteristics and also the more basic hypothesis that males do in fact identify with the mother. This failure to find any evidence of identification with the mother is contradictory to evidence cited earlier, such as the similarity between males and their mothers on defense preferences (Thelen, 1965) and attitudes toward mathematics (Hill, 1967).

The fact that the results reported here are inconsistent with those reported in the literature may be due to methodological differences. First, the older age of the subjects in the present study may have affected the results in one of two ways. It may be that as the child spends less time with the parent, and as the perception of characteristics of the parent, such as status and power, which increase the likelihood of modeling, changes, new models or objects of identification become salient. Thus the lack of evidence of parental
identification in the present study may reflect the fact that this identification is mainly a phenomenon of childhood which directly influences only a small portion of adult behavior. The positive relationship between parent and child on sex typed items indicates that at least one aspect of the parents' behavior continues to be internalized in the college student. On the other hand, it may be that the behavioral manifestation of parental identification is different for the adult, and thus cannot be measured in the same manner as for children. Finally, the use of different personality characteristics may also account for the inconsistent findings.

Thus one is left with three possible roads of inquiry relating to the parental and sex-role identification portion of Lynn's theory. The first leads to the hypothesis that parental identification occurs only during childhood with few effects on adult behavior. The second leads to the hypothesis that adults continue to identify with the parents, but the identification is manifested differently than in children. The third leads to the hypothesis that the children internalize only specific kinds of parental characteristics. Which of these hypotheses is correct can be determined only by further research.

**Parental distance and cognitive style**

The third hypothesis stated that there is a curvilinear relationship between distance from the same sex parent and
cognitive style. This hypothesis was partially supported. In the present study the assumption has been made that a restriction of range at the extreme distance end of the continuum has occurred. For females this restriction is likely due to two factors. First, an extremely distant relationship between mother and daughter is rare in the general U.S. population. Second, it would seem that such a relationship would be even more rare in the college population. For males this restriction is likely due to the use of college student subjects in general and, in addition, to the relatively large proportion of subjects from farms and small towns. Approximately one quarter of the male subjects grew up on farms and an additional quarter were raised in towns of less than 10,000. Thus extreme distance from the father is less likely in these circumstances. This assumption is supported by the fact that the average normalized score for the PC scale of the CRPBI was greater than zero for both males and females, while the average normalized score for the PD scale was less than zero for both males and females. In light of this, linear correlations were investigated.

For females, several relevant significant linear correlations emerged. Women whose mothers reported a closer relationship with the subject on the PC scale solved fewer problems on the Luchins' task and also took more total time to solve the Luchins' problems. Women who themselves reported
greater distance on the PD scale broke set on more problems. These small correlations suggest that as the relationship between mother and daughter moves from close to distant, females become better problem solvers and more field independent on the mathematical Luchins' task.

The actual physical availability of the mother was also related to problem solving, but only for the time to solve the last problem and total time variables on the Luchins' task. However, these relationships appear to be contradictory. The more time the mother spent away from home during the week and weekend, for all three age periods, the more time was spent on the Luchins' problems. At the same time, there was also a positive relationship between time spent in the mother's presence during the week and time to solve the Luchins' problems. The difficulty of interpreting these correlations is increased by the significant positive correlations between the physical availability items. The results on physical availability cannot, therefore, be interpreted as support for hypothesis 3.

For males the support for hypothesis 3 is more ambiguous. As opposed to the data for females, most of the significant correlations which occurred were between the distance variables and the scores on the verbal Alphabet Mazes problem solving task. Male subjects who perceived themselves as more similar to their fathers solved more mazes and took less
total time to solve them. Also, there was a tendency for males whose fathers were more available to solve more mazes and break set on more mazes. These results support Lynn's hypothesis that males are slightly more distant from the father than is optimal for problem solving and restructuring. However, the fact that the males whose fathers were more available also took a longer amount of time to solve the mazes is not consistent with the hypothesis.

The results of the comparison of male and female means on the task variables and the psychological distance variables gave no consistent support to Lynn's hypothesis. While males reported more distance from the father than did females from the mother and also took less time to solve the last problem and less total time on the Luchins' task, females took less total time on the Alphabet Mazes and were not significantly different from males on any of the other task variables.

Thus Lynn's hypothesis was supported for females working on mathematical problems and supported to a lesser extent for males working on verbal problems. Support for males working on mathematical problems was minimal, while support for females working on verbal problems was not found. Although strong support for Lynn's theory was not found, the results of the present study are definitely not consistent with the alternative theory that cognitive style and problem solving
ability are positively related to masculinity for both males and females. There was no relationship between either masculinity or femininity and the task variables. It is possible that results more consistently supportive of Lynn's theory may be found when more refined measures of parental distance have been developed.

The fourth hypothesis stated that the closer the child is to the same sex parent, the greater the identification with that parent. This hypothesis was supported for psychological closeness but not for physical availability. For subjects' reports psychological distance variables were intercorrelated with each other and also with resemblance to the same sex parent. The more masculine males and the more feminine females reported more parental closeness and less parental distance. In addition, the higher the masculinity score, the greater the perceived similarity to the father for males and the higher the femininity score, the greater the perceived similarity to the mother for females. Thus parental closeness does seem to be related to sex-typing, with closeness mediating the learning of sex-typed behaviors.
CONCLUSIONS

Little support has been found for Lynn's theory of parental and sex-role identification. His hypothesis that problem solving ability is related to parental distance is worth further investigation however. Future research should be concerned with the development of more refined measures of parental distance and with studying the relationship between cognitive style and parental distance at younger age levels. Of primary interest would be the pre-school and primary school years.
REFERENCES


ACKNOWLEDGEMENTS

I gratefully acknowledge the contributions of my doctoral committee toward the preparation of this dissertation. They include Dr. Frederick Brown, Dr. Jean Dissinger, Dr. Edward Donnerstein, Dr. David Edwards, and Dr. Leroy Wolins.

I would particularly like to express my appreciation to Dr. Gary Phye, my major professor, for his assistance, guidance, and encouragement throughout my graduate career.

Finally, I owe special thanks to Kathy Rindskopf, Randi Hagen, Cliff Levin, and the other friends who have given me support and encouragement when I most needed them. Without these friends this dissertation would not have been possible.
APPENDIX A: LETTERS TO PARENTS
Dear Parents:

I am a doctoral student in Developmental Psychology at Iowa State University. At present I am working on my dissertation, a requirement for obtaining my Ph.D. The dissertation deals with the influence of various parent-child relationships on the way a person structures and perceives the world. Your daughter has participated in the first stage of this study, but in order for the information which I have received from her to be useful, I need your cooperation in filling out the enclosed questionnaires.

The questionnaires have been designed to take as little of your time as possible without sacrificing needed information. The father need only fill out the single questionnaire marked "FATHER". This should not take more than 15 or 20 minutes. to be filled out by the mother. Altogether, these should take no more than 45 minutes and probably less. In responding to the questionnaires, please answer realistically in terms of how you actually behaved or behave rather than idealistically in terms of how you think you should have behaved or should behave. You may be assured that your answers will be both confidential and anonymous. This is the reason for the numbers on the questionnaires in place of names.

Your cooperation in this project will be greatly appreciated. Please return the completed questionnaires to me in the self-addressed, stamped envelope enclosed as soon as possible and preferably before February 21, 1975.

Sincerely,

Nancy Bayne
Dear Parents:

I am a doctoral student in Developmental Psychology at Iowa State University. At present I am working on my dissertation, a requirement for obtaining my Ph.D. The dissertation deals with the influence of various parent-child relationships on the way a person structures and perceives the world. Your son has participated in the first stage of this study; but in order for the information which I have received from him to be useful, I need your cooperation in filling out the enclosed questionnaires.

The questionnaires have been designed to take as little of your time as possible without sacrificing needed information. The mother need only fill out the single questionnaire marked "MOTHER". This should not take more than 15 or 20 minutes. There are three questionnaires (marked "FATHER") to be filled out by the father. Altogether, these should take no more than 45 minutes and probably less. In responding to the questionnaires, please answer realistically in terms of how you actually behaved or behave rather than idealistically in terms of how you think you should have behaved or should behave. You may be assured that your answers will be both confidential and anonymous. This is the reason for the numbers on the questionnaires in place of names.

Your cooperation in this project will be greatly appreciated. Please return the completed questionnaires to me in the self-addressed, stamped envelope enclosed as soon as possible and preferably before February 21, 1975.

Sincerely,

Nancy Bayne
APPENDIX B: QUESTIONNAIRES
General Instructions

On the following pages you will be asked to respond to a number of statements. In responding to these statements, use a number from 1 to 99. You may use ANY number from 1 to 99 to indicate your response to a statement. This does NOT mean that you HAVE to use all the numbers from 1 to 99. Some people use only the numbers 1, 25, 50, 75, and 99. Others use 1, 10, 20, 30, 40,... up to 99. The point is, the distinction you make should be as fine as you can make. Use the numbers along the range you feel most comfortable with. If you feel you can distinguish between 50 and 51, then do so. This procedure satisfies some people's need to make fine distinctions, but others who feel they cannot respond with such precision may use fewer different numbers.

When making your judgement, answer "1" to those statements that are IN NO WAY or NEVER TRUE and answer "99" to those statements that are COMPLETELY or ALWAYS TRUE. Answer with numbers between "1" and "99" those statements which are neither completely true nor completely false. The closer your answer is to "99" the truer the statement is. The closer your answer is to "1" the more false the statement is. The following scale should help you picture the way you are to respond.

<table>
<thead>
<tr>
<th>1</th>
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<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
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<th>70</th>
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<td>TIMES</td>
<td>ALWAYS</td>
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</tbody>
</table>

Always read the "specific instructions" before each set of items to find out exactly how to respond to those items.

It is not necessary to think over any item long. Mark your answer quickly and go on to the next item.

DO NOT LEAVE ANY ITEM UNMARKED! Answer the questions on BOTH sides of each sheet.
Specific Instructions
On this page are a large number of personality characteristics. Use these characteristics to describe YOURSELF. If the characteristic is NEVER true of you write "1" in the space provided. If the characteristic is ALWAYS true of you write "99" in the space provided. If the characteristic is sometimes true of you use a number between 1 and 99 to indicate just how true the characteristic is of you.

<table>
<thead>
<tr>
<th>Never</th>
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<td>TRUE</td>
</tr>
</tbody>
</table>

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- self-reliant
- conventional
- reliable
- shy
- inefficient
- sympathetic
- yielding
- jealous
- loyal
- theatrical
- conceited
- defends own beliefs
- feminine
- happy
- willing to take risks
- understanding
- unpredictable
- friendly
- willing to take a stand
- helpful
- sensitive to the needs of others
- unsystematic
- assertive
- gentle
- independent
- likeable
- has leadership abilities
- cheerful
- individualistic
- conscientious
- loves children
- compassionate
- athletic
- eager to soothe hurt feelings
- affectionate
- childlike
- masculine
- flatterable
- dominant
- solemn
- analytical
- sincere
- truthful
- self-sufficient
- strong personality
- does not use harsh language
- moody
- makes decisions easily
- aggressive
- adaptable
- soft-spoken
- secretive
- forceful
- warm
- tactful
- gullible
- competitive
- ambitious
- tender
- acts as leader
DAUGHTER CRPBI

Specific Instructions
For the following items respond as you would have when you were in high school. If the statement is EXACTLY LIKE or ALWAYS TRUE of your mother's behavior, write "99" in the space provided. If the statement is COMPLETELY UNLIKE or NEVER TRUE of your mother's behavior, write "1" in the space provided. If the statement is SOMEWHAT LIKE or SOMETIMES TRUE of your mother's behavior, respond with a number between 1 and 99 which reflects how closely the statement describes your mother's behavior. Respond in terms of how your mother actually behaved rather than how you think she should have behaved. Be sure to respond as you would have when you were in high school.

1. ___Tries to treat me as an equal.
2. ___Enjoys going on drives, trips, or visits with me.
3. ___Tells me where to find out about things I want to know.
4. ___Isn't interested in changing me but likes me the way I am.
5. ___Makes me feel better after talking over my worries with her.
6. ___Enjoys working with me in the house and yard.
7. ___Encourages me to read.
8. ___Doesn't seem to know what I need or want.
9. ___Has a good time with me at home.
10. ___Doesn't notice when I am good.
11. ___Claims I make her happy.
12. ___Sends little time with me.
13. ___Hugged or kissed me good night when I was small.
14. ___Complains about what I do.
15. ___Acts as though I'm in the way.
16. ___Blows her top when I bother her.
17. ___Is able to make me feel better when I'm upset.
18. ___Seems to see my good points more than my faults.
19. ___Cheers me up when I'm sad.
20. ___Claims I'm a big problem.
21. ___Comforts me when I'm afraid.
22. ___Isn't patient with me.
23. ___Talks about the good things I do.
24. ___Forgets to get me things I need.
25. ___Thinks I'm just someone to put up with.
26. ___Hugs and kisses me a lot.
27. ___Doesn't work with me.
28. ___Doesn't talk with me.
29. ___Doesn't show that she loves me.
30. ___Is always getting after me.
31. Thinks my ideas are silly.
32. Has long talks with me about the causes and reasons for things.
33. Enjoys doing things with me.
34. Doesn't share many activities with me.
35. Tells me I'm good looking.
36. Believes in showing her love for me.
37. Wishes I were a different kind of person.
38. Praises me.
39. Smiles at me often.
40. Doesn't go on drives or picnics with me.
41. Is happy to see me when I come home.
42. Enjoys talking things over with me.
43. Makes me feel I'm not loved.
44. Is interested in what I learn at school.
45. Isn't interested in meeting or talking with my friends.
46. Makes fun of me.
47. Likes to talk about what she has read with me.
48. Gets cross and angry about little things I do.
49. Tells me to quit hanging around the house and go somewhere.
50. Seems proud of the things I do.
51. Doesn't get me things unless I ask over and over again.
52. Listens to my ideas and opinions.
53. Forgets to help me when I need it.
54. Doesn't bring me surprises or presents.
55. Complains that I get on her nerves.
56. Understands my problems and worries.
57. Seems glad to get away from me for a while.
58. Speaks to me with a warm and friendly voice.
59. Claims I'm good natured.
60. Doesn't seem to think of me.
61. Wishes she didn't have any children.
62. Tells me how much she loves me.
63. Is always finding fault with me.
64. Doesn't seem to enjoy doing things with me.
Specific Instructions
For the following items respond as you would have when you were in HIGH SCHOOL. If the statement is EXACTLY LIKE or ALWAYS TRUE of you FATHER'S behavior, write "99" in the space provided. If the statement is COMPLETELY UNLIKE or NEVER TRUE of you father's behavior, write "1" in the space provided. If the statement is SOMETHAT LIKE or SOMETIMES TRUE of your father's behavior, respond with a number between 1 and 99 which reflects how closely the statement describes your father's behavior. Respond in terms of how your father actually behaved rather than how you think he should have behaved. Be sure to respond AS YOU WOULD HAVE WHEN YOU WERE IN HIGH SCHOOL.

1. ___ Tries to treat me as an equal.
2. ___ Enjoys going on drives, trips, or visits with me.
3. ___ Tells me where to find out about things I want to know.
4. ___ Isn't interested in changing me but likes me the way I am.
5. ___ Makes me feel better after talking over my worries with him.
6. ___ Enjoys working with me in the house and yard.
7. ___ Encourages me to read.
8. ___ Doesn't seem to know what I need or want.
9. ___ Has a good time with me at home.
10. ___ Doesn't notice when I am good.
11. ___ Claims I make him happy.
12. ___ Spends little time with me.
13. ___ Hugged or kissed me good night when I was small.
14. ___ Complains about what I do.
15. ___ Acts as though I'm in the way.
16. ___ Blows his top when I bother him.
17. ___ Is able to make me feel better when I'm upset.
18. ___ Seems to see my good points more than my faults.
19. ___ Cheers me up when I'm sad.
20. ___ Claims I'm a big problem.
21. ___ Comforts me when I'm afraid.
22. ___ Isn't patient with me.
23. ___ Talks about the good things I do.
24. ___ Forgets to get me things I need.
25. ___ Thinks I'm just someone to put up with.
26. ___ Hugs and kisses me a lot.
27. ___ Doesn't work with me.
28. ___ Doesn't talk with me.
29. ___ Doesn't show that he loves me.
30. ___ Is always getting after me.
31. Thinks my ideas are silly.
32. Has long talks with me about the causes and reasons for things.
33. Enjoys doing things with me.
34. Doesn't share many activities with me.
35. Tells me I'm good looking.
36. Believes in showing his love for me.
37. Wishes I were a different kind of person.
38. Praises me.
39. Smiles at me often.
40. Doesn't go on drives or picnics with me.
41. Is happy to see me when I come home.
42. Enjoys talking things over with me.
43. Makes me feel I'm not loved.
44. Is interested in what I learn at school.
45. Isn't interested in meeting or talking with my friends.
46. Makes fun of me.
47. Likes to talk about what he has read with me.
48. Gets cross and angry about little things I do.
49. Tells me to quit hanging around the house and go somewhere.
50. Seems proud of the things I do.
51. Doesn't get me things unless I ask over and over again.
52. Listens to my ideas and opinions.
53. Forgets to help me when I need it.
54. Doesn't bring me surprises or presents.
55. Complains that I get on his nerves.
56. Understands my problems and worries.
57. Seems glad to get away from me for a while.
58. Speaks to me with a warm and friendly voice.
59. Claims I'm good natured.
60. Doesn't seem to think of me.
61. Wishes he didn't have any children.
62. Tells me how much he loves me.
63. Is always finding fault with me.
64. Doesn't seem to enjoy doing things with me.
Specific Instructions

The following statements describe various aspects of the mother-daughter relationship. If the statement is EXACTLY LIKE or ALWAYS TRUE of your behavior toward your daughter, write "99" in the space provided. If the statement is COMPLETELY UNLIKE or NEVER TRUE of your behavior toward your daughter, write "1" in the space provided. If the statement is SOMEWHAT LIKE or SOMETIMES TRUE of your behavior toward your daughter, respond with a number between 1 and 99 which reflects how closely the statement describes your behavior.

Respond in terms of your behavior toward your daughter when your daughter was in HIGH SCHOOL. Also, respond in terms of how you actually behaved rather than in terms of how you think you should have behaved.

1. ___ Tried to treat her as an equal.
2. ___ Enjoyed going on drives, trips, or visits with her.
3. ___ Told her where to find out about things she wanted to know.
4. ___ Wasn't interested in changing her but liked her the way she was.
5. ___ Made her feel better after talking over her worries with me.
6. ___ Enjoyed working with her in the house and yard.
7. ___ Encouraged her to read.
8. ___ Didn't seem to know what she needed or wanted.
9. ___ Had a good time with her at home.
10. ___ Didn't notice when she was good.
11. ___ Claimed she made me happy.
12. ___ Spent little time with her.
13. ___ Hugged or kissed her good night when she was small.
14. ___ Complained about what she did.
15. ___ Acted as though she was in the way.
16. ___ Blew my top when she bothered me.
17. ___ Was able to make her feel better when she was upset.
18. ___ Seemed to see her good points more than her faults.
19. ___ Cheered her up when she was sad.
20. ___ Claimed she was a big problem.
21. ___ Comforted her when she was afraid.
22. ___ Wasn't patient with her.
23. ___ Talked about the good things she did.
24. ___ Forgot to get her things she needed.
25. ___ Thought she was just someone to put up with.
26. ___ Hugged and kissed her a lot.
27. ___ Didn't work with her.
28. ___ Didn't talk with her.
29. ___ Didn't show that I loved her.
30. __Was always getting after her.
31. __Thought her ideas were silly.
32. __Had long talks with her about the causes and reasons for things.
33. __Enjoyed doing things with her.
34. __Didn't share many activities with her.
35. __Told her she was good looking.
36. __Believed in showing my love for her.
37. __Wished she was a different kind of person.
38. __Praised her.
39. __Smiled at her often.
40. __Didn't go on drives or picnics with her.
41. __Was happy to see her when she came home.
42. __Enjoyed talking things over with her.
43. __Made her feel she wasn't loved.
44. __Was interested in what she learned at school.
45. __Wasn't interested in meeting or talking with her friends.
46. __Made fun of her.
47. __Liked to talk about what I had read with her.
48. __Got cross and angry about little things she did.
49. __Told her to quit hanging around the house and go somewhere.
50. __Seemed proud of the things she did.
51. __Didn't get her things unless she asked over and over again.
52. __Listened to her ideas and opinions.
53. __Forgot to help her when she needed it.
54. __ Didn't bring her surprises or presents.
55. __Complained that she got on my nerves.
56. __Understood her problems and worries.
57. __Seemed glad to get away from her for a while.
58. __Spoke to her with a warm and friendly voice.
59. __Claimed she was good natured.
60. __Didn't seem to think of her.
61. __Wished I didn't have any children.
62. __Told her how much I loved her.
63. __Was always finding fault with her.
64. __Didn't seem to enjoy doing things with her.
FATHER CRPBI

Specific Instructions
The following statements describe various aspects of the father-son relationship. If the statement is EXACTLY LIKE or ALWAYS TRUE of your behavior toward your son, write "99" in the space provided. If the statement is COMPLETELY UNLIKE or NEVER TRUE of your behavior toward your son, write "1" in the space provided. If the statement is COMPLETELY UNLIKE or NEVER TRUE if the statement is Somewhat like or SOMETIMES TRUE of your behavior toward your son, respond with a number between 1 and 99 which reflects how closely the statement describes you behavior. Respond in terms of your behavior toward your son when your son was in HIGH SCHOOL. Also, respond in terms of how you actually behaved rather than in terms of how you think you should have behaved.

1. ___ Tried to treat him as an equal.
2. ___ Enjoyed going on drives, trips, or visits with him.
3. ___ Told him where to find out about things he wanted to know.
4. ___ Wasn't interested in changing him but liked him the way he was.
5. ___ Made him feel better after talking over his worries with me.
6. ___ Enjoyed working with him in the house and yard.
7. ___ Encouraged him to read.
8. ___ Didn't seem to know what he needed or wanted.
9. ___ Had a good time with him at home.
10. ___ Didn't notice when he was good.
11. ___ Claimed he made me happy.
12. ___ Spent little time with him.
13. ___ Hugged or kissed him good night when he was small.
14. ___ Complained about what he did.
15. ___ Acted as though he was in the way.
16. ___ Blew my top when he bothered me.
17. ___ Was able to make him feel better when he was upset.
18. ___ Seemed to see his good points more than his faults.
19. ___ Cheered him up when he was sad.
20. ___ Claimed he was a big problem.
21. ___ Comforted him when he was afraid.
22. ___ Wasn't patient with him.
23. ___ Talked about the good things he did.
24. ___ Forgot to get him things he needed.
25. ___ Thought he was just someone to put up with.
26. ___ Hugged and kissed him a lot.
27. ___ Didn't work with him.
28. ___ Didn't talk with him.
Didn't show that I loved him.

Was always getting after him.

Thought his ideas were silly.

Had long talks with him about the causes and reasons for things.

Enjoyed doing things with him.

Didn't share many activities with him.

Told him he was good looking.

Believed in showing my love for him.

Wished he was a different kind of person.

Praised him.

Smiled at him often.

Didn't go on drives or picnics with him.

Was happy to see him when he came home.

Enjoyed talking things over with him.

Made him feel he wasn't loved.

Was interested in what he learned at school.

Wasn't interested in meeting or talking with his friends.

Made fun of him.

Liked to talk about what I had read with him.

Got cross and angry about little things he did.

Told him to quit hanging around the house and go somewhere.

Seemed proud of the things he did.

Didn't get him things unless he asked over and over again.

Listened to his ideas and opinions.

Forgot to help him when he needed it.

Didn't bring him surprises or presents.

Complained that he got on my nerves.

Understood his problems and worries.

Seemed glad to get away from him for a while.

Spoke to him with a warm and friendly voice.

Claimed he was good natured.

Didn't seem to think of him.

Wished I didn't have any children.

Told him how much I loved him.

Was always finding fault with him.

Didn't seem to enjoy doing things with him.
DAUGHTER BIOGRAPHICAL QUESTIONNAIRE

NAME____________________________________
AGE____________________________________SEX______________

Mother's age at your birth _____
Father's age at your birth _____

Where did you live during most of your childhood?
   Farm _____  Small town _____  City _____

Estimate, on the average, the number of hours your mother spent away from home each day during the week when you were
   Under 5 years of age____  5-13 yrs.____  14-18 yrs.____

Now estimate the number of hours you spent in your mother's presence each day during the week when you were
   Under 5 years of age____  5-13 yrs.____  14-18 yrs.____

Estimate, on the average, the number of hours your mother spent away from home each day during the weekend when you were
   Under 5 years of age____  5-13 yrs.____  14-18 yrs.____

Now estimate the number of hours you spent in your mother's presence each day during the weekend when you were
   Under 5 years of age____  5-13 yrs.____  14-18 yrs.____

Did you live with your natural parents throughout your childhood?
   Yes _____  No _____
SON BIOGRAPHICAL QUESTIONNAIRE

NAME__________________________

AGE__________________________ SEX____________

Mother's age at your birth _____

Father's age at your birth _____

Where did you live during most of your childhood?

Farm _____ Small town _____ City _____

Estimate, on the average, the number of hours your father spent away from home each day during the week when you were

Under 5 years of age___ 5-13 yrs.____ 14-18 yrs.____

Now estimate the number of hours you spent in your father's presence each day during the week when you were

Under 5 years of age___ 5-13 yrs.____ 14-18 yrs.____

Estimate, on the average, the number of hours your father spent away from home each day during the weekend when you were

Under 5 years of age___ 5-13 yrs.____ 14-18 yrs.____

Now estimate the number of hours you spent in your father's presence each day during the weekend when you were

Under 5 years of age___ 5-13 yrs.____ 14-18 yrs.____

Did you live with your natural parents throughout your childhood?

Yes _____ No _____
MOTHER BIOGRAPHICAL QUESTIONNAIRE

Highest level of education attained by MOTHER.
___ Less than eighth grade ___ some college
___ Eighth grade ___ Graduated college
___ Some high school ___ Masters Degree
___ Graduated high school ___ Ph.D. or Professional Degree

Highest level of education attained by FATHER.
___ Less than eighth grade ___ some college
___ Eighth grade ___ Graduated college
___ Some high school ___ Masters Degree
___ Graduated high school ___ Ph.D. or Professional Degree

Present income level.
___ $4999 or less ___ $15,000 - $19,999
___ $5000 - $9999 ___ $20,000 - $24,999
___ $10,000 - $4,999 ___ $25,000 or more

Estimate, on the average, the number of hours you spent away from home each day during the week when your daughter was

Under 5 years of age ___ 5-13 yrs. ___ 14-18 yrs. ___

Now estimate, on the average, the number of hours your daughter spent in your presence (disregarding sleeping hours) each day during the week when she was

Under 5 years of age ___ 5-13 yrs. ___ 14-18 yrs. ___

Estimate, on the average, the number of hours you spent away from home each day during the weekend when your daughter was

Under 5 years of age ___ 5-13 yrs. ___ 14-18 yrs. ___

Now estimate, on the average, the number of hours your daughter spent in your presence (disregarding sleeping hours) each day during the weekend when she was

Under 5 years of age ___ 5-13 yrs. ___ 14-18 yrs. ___
FATHER BIOGRAPHICAL QUESTIONNAIRE

Highest level of education attained by MOTHER.
___Less than eighth grade ___some college
___Eighth grade ___Graduated college
___Some high school ___Masters Degree
___Graduated high school ___Ph.D. or Professional Degree

Highest level of education attained by FATHER.
___Less than eighth grade ___some college
___Eighth grade ___Graduated college
___Some high school ___Masters Degree
___Graduated high school ___Ph.D. or Professional Degree

Present income level.
___$4999 or less ___$15,000 - $19,999
___$5000 - $9999 ___$20,000 - $24,999
___$10,000 - $4,999 ___$25,000 or more

Estimate, on the average, the number of hours you spent away from home each day during the week when your son was

Under 5 years of age ___ 5-13 yrs. ___ 14-18 yrs. ___

Now estimate, on the average, the number of hours your son spent in your presence (disregarding sleeping hours) each day during the week when he was

Under 5 years of age ___ 5-13 yrs. ___ 14-18 yrs. ___

Estimate, on the average, the number of hours you spent away from home each day during the weekend when your son was

Under 5 years of age ___ 5-13 yrs. ___ 14-18 yrs. ___

Now estimate, on the average, the number of hours your son spent in your presence (disregarding sleeping hours) each day during the weekend when he was

Under 5 years of age ___ 5-13 yrs. ___ 14-18 yrs. ___
PARENTAL DISTANCE ITEMS

Specific Instructions
In responding to the following items write a number between 1 and 99 in the space provided. In determining what number with which to respond, use the scale which accompanies each item.

1. As a child, how fearful of your mother/father were you? ______

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<td></td>
<td></td>
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</tbody>
</table>

2. Which of your parents punished you when you were a child? ______

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<th>50</th>
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<tr>
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<td></td>
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</table>

3. As a child, how close did you feel to your mother? ______

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4. How closely do you resemble your mother in your present behavior? ______

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5. As a child, how close did you feel to your father? ______

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6. How closely do you resemble your father in your present behavior? ______

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APPENDIX C: PROBLEM SOLVING TASKS
LUCHINS' WATER JAR PROBLEMS

In each of the following problems imagine that you have three unmarked containers and an unlimited water supply. In each problem you will be asked to obtain a certain amount of water. The size of the containers and the amount of water to be obtained will vary from problem to problem. In each problem you are to describe how you would go about obtaining the amount of water required. Now look at the sample problem.

Sample: You have three containers. The first container has a capacity of 3 pints, the second a capacity of 29 pints, and the third a capacity of 1 pint. Describe how you would obtain exactly 25 pints.

1. You have three containers. The first container has a capacity of 21 pints, the second a capacity of 127 pints and the third a capacity of 3 pints. Describe how you would obtain exactly 100 pints.

2. You have three containers. The first container has a capacity of 14 pints, the second a capacity of 163 pints and the third a capacity of 25 pints. Describe how you would obtain exactly 99 pints.

3. You have three containers. The first container has a capacity of 18 pints, the second a capacity of 43 pints, and the third a capacity of 10 pints. Describe how you would obtain exactly 5 pints.

4. You have three containers. The first container has a capacity of 20 pints, the second a capacity of 59 pints, and the third a capacity of 6 pints. Describe how you would obtain exactly 21 pints.

5. You have three containers. The first container has a capacity of 20 pints, the second a capacity of 59 pints, and the third a capacity of 4 pints. Describe how you would obtain exactly 31 pints.

6. You have three containers. The first container has a capacity of 23 pints, the second a capacity of 49 pints, and the third a capacity of 3 pints. Describe how you would obtain exactly 20 pints.
7. You have three containers. The first container has a capacity of 15 pints, the second a capacity of 39 pints, and the third a capacity of 3 pints. Describe how you would obtain exactly 18 pints.

8. You have three containers. The first container has a capacity of 28 pints, the second a capacity of 79 pints, and the third a capacity of 3 pints. Describe how you would obtain exactly 25 pints.
ALPHABET MAZES

In each of the following items you will see a number of squares. Each square contains letters of the alphabet. Start with the letter in the upper right hand corner. You are allowed to move one square at a time in any direction, as long as the move helps to spell out a word. Work from one word to another to the finish point so that the last letter of the last word is in the lower left hand corner.

In the first sample, the path is marked for you. To get from start to finish, follow the letters down the right side, spelling "who." Then go diagonally to spell "is," and from there to the finish point is the word "it."

Sample:

Start

T W L S W
D A B K H
H G Y Z O
C F J I X
T I S G L

Finish*

Now look at the next sample.
Sample:

Start

A D L K J W
D B O G A Z
U P Z R Q T
E N H L X U
V P J I Z O
Y A N N B A

Finish*

It is a little harder, but the method is the same. Just find a path of words from the starting letter to the finish letter at the lower left. The answer to the second maze is "warm in May."

In your test booklet you will find more mazes, on which the
path has not been marked. Work each one and write your answer on the answer sheet provided. Do not write in the booklet. All the solutions will be fairly meaningful phrases. In case there is more than one path that will take you from start to finish, the correct solution is the path that uses the fewest squares. As you finish each item, write the time in the space provided on the answer sheet, turn the page and do not turn back to the item. Once you go on to the next page, consider the item done and do not return to it.
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Finish*

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