

Family Influences on Gendered Behaviors in School and on the Sports' Field  
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Despite recent efforts in the United States to increase the participation of women in advanced educational training and professional fields linked to applied mathematics and technology, women are still underrepresented in these fields of study and work. This is even true among women gifted in mathematics. Similarly, although there have been recent increases in the participation of females in organized sport activity, girls and boys still participate in different sports and girls are less involved in sport activity and spend less time on sport activity than boys. {In a recent study, sixth grade boys reported spending significantly more of their free time playing sports than did girls ( $F=63.72$ ,  $p<.001$ ; means=5.75 for boys, 5.24 for girls) (Eccles,1988). Why do these gender differences in activity, educational and occupational choices exist? Today I will present evidence on the role parents play in perpetuating these gender differences. I will focus on the role parents' beliefs and expectations may play in gender-role socialization.

Over the last 20 years, my colleagues and I have been studying the influences of children and adolescents' interests, ability self-concepts, achievement and activity choice. We began this work trying to find out why girls were less likely than boys to enroll in advanced high school math courses. Over the years we have looked at several possible influences. We have been increasingly interested in the role parents play. It is this work that I will summarize today.

We have focused our attention on the role of parents' beliefs and expectations regarding their children's talents and interests across a range of activities. Our work has been guided by the following theoretical model.

(SHOW OVERHEAD 1)

This model is based on the assumption that parents' views of their children's competencies in various activities are influenced by several social factors in addition to the children's actual performance level in each activity domain. Primary among these social factors are the status characteristics of parents and children, and parents' interpretative belief systems. For example, we believe that parents' gender role belief systems, in interaction with their child's gender, should affect the inferences parents draw from their children's performance about their children's competence in various gender-role stereotyped activity domains. More specifically, we believe that parents will distort their perception of their children's talents and interests in a direction consistent with their gender-role stereotype. These inferences, in turn, should affect parents' expectations for their children's future performance in these activities, and should affect the opportunities these parents given their children to develop skills in these various activity domains.

Today I will summarize the evidence my colleagues and I have found for these predictions in our longitudinal studies of social development. The work I am reporting has been done collaboratively with the following people: Allan Wigfield, Janis Jacobs, Rena Harold, Amy Arbretton, Carol Freedman-Doan, and Kwang Suk Yoon

Let me begin with a bit of background on our interest in parents' beliefs and expectations. Several researchers (e.g., Eccles, Jacobs, & Harold, 1990; Jacobs & Eccles, 1992; Yee & Eccles, 1988) have suggested that such beliefs are important because of their impact on the expectations and goals parents develop for their children, on parents' perceptions of their children's interests and talents, and on the ways in which parents interact with their children. Previous studies have documented the positive impact of parents' confidence in their children's academic abilities on children's own self-perceptions and actual performance (e.g. Alexander & Entwisle, 1988; Parsons, Adler, & Kaczala., 1982). These studies clearly indicate that parents' expectations for their children's performance in math and English have an impact on both children's subsequent performance in these subjects and their view of their own math and language arts abilities. By late elementary school this effect is stronger than the children's own current performance levels in these subject areas. But what factors are shaping parents' expectations for their children's performance potential in various activities? And how exactly are parents' beliefs actually affecting their children's self-perceptions, interests and performance?

Our own work has also documented consistent sex of child effects on measures of parents' perceptions of and expectations for their children. For example, we documented the fact that parents' perceptions of their children's math ability has a significant impact on the children's view of their own math ability that is independent of the impact of the child's actual performance on both the parents' and children's perceptions of the children's math ability.

(SHOW PATH ANALYSES ON MEDIATING EFFECTS OF PARENT BELIEFS)

This figure illustrate these findings with a sample of approximately 1800 sixth graders and their parents drawn from 12 public school districts in southeastern Michigan. They represent a wide range of socioeconomic backgrounds. I am only presenting the data from the mothers. The father data present a very similar picture.

As you can see, mothers' ratings of their children's abilities in math and English are related to the teacher's ratings of the children math ability (we only had the teachers rate the math ability due to limitations on the amount of time that teachers would spend filling out individual student ratings). But, more importantly, these results replicate our previous findings: Parents' view of their children's ability in both math and English have an important impact on the children's own self-perceptions. Furthermore, longitudinal LISREL analyses

confirm the directionality of this causal inference. Mothers' perceptions of their children's math abilities also predict the children's interest in doing mathematics.

Based on these findings, and on the work by Entwisle, Alexander and their colleagues, we have been studying the influences on parents' perceptions of their children's abilities. Clearly parents' perceptions in the academic domains are related to objective information provided by the school about how well their child is doing. But we are interested in identifying the other more subjective influences on parents' perceptions of their children's abilities. Child sex is a very important organizing construct for addressing this question. We know in the academic domain, for example, that gender differences in performance in mathematics are small and don't emerge with great regularity prior to secondary school. Nonetheless, many parents believe that a sex difference in math talent exists; and we find gender stereotypic differences in parents' ratings of the difficulty of math for their child by grade 5 and 6. We get similar differences in these parents' perceptions of their children's ability in English and Sports at grade 6

(SHOW OVERHEAD ON GENDER DIFFERENCES IN ENGLISH AND SPORTS).

We have now replicated this sex of child effect on parents' perceptions of their children's math ability in a new longitudinal sample of elementary school children. In addition, we have extended the work to three new domains: English, sports and instrumental music. Stereotypic sex of child effects emerge in each of these domains.

(SHOW OVERHEAD ON GENDER DIFFERENCES IN ENGLISH, MATH, INSTRUMENTAL MUSIC, AND SPORTS).

### **Why do parents hold these sex differentiated beliefs?**

I am going to focus on the following three possibilities:

1. There are real differences.
2. Parents' gender role stereotypes affect their perceptions of their children's competence.
3. Parents' make different causal attributions for the performances of boys and girls and these differences vary in a systematic way with the sex-typing of the domain being considered.

I'll talk about each of these possibilities and present relevant data from our studies.

1. There is a real sex difference. For the English and sports domains, there are gender differences on performance indicators during the elementary school years: Boys get lower marks from their teachers in English and we have found that boys

perform somewhat better than girls on tests of sport skills in the early elementary school grades. This is not true in the math domain. Thus it is possible that parents' gender differentiated beliefs regarding reading and sports do reflect "real" gender differences in the children's competence. But as you will see in some the analyses I'll present in a moment, the relationship of sex of child to parents' perceptions of their children's competence continues to be significant even when indicators of the children's competence are entered into the analysis as controls.

2. It reflects the biasing influence of gender-role stereotypic beliefs regarding sex differences in natural talent in various domains.

Social psychologists make a distinction between category based beliefs and target based beliefs. Category based beliefs are beliefs we hold about groups of people. Gender-role stereotypes are one kind of category based beliefs. Target based beliefs are beliefs we hold about specific individuals or targets. Perceptions of one own's child would be an example of a target based belief. Social psychologists have tried to study how category based beliefs and target based beliefs are related and when specific information leads to changes in both types of beliefs. We have found this a useful distinction to make in thinking about how gender-role beliefs might affect parents' perceptions of, and goals for, their own children and in thinking about how the impact of culturally based gender-role stereotypes on children's own self-perceptions might be mediated by their impact on the children's parents' view of their child's abilities. The model we are working from is illustrated in the next overhead.

(SHOW OVERHEAD ON SEX BY GENDER-ROLE BELIEF MODEL)

The findings from our sample of sixth graders and their parents are in the next series of overheads.

(SHOW OVERHEADS ON PATH MODELS TESTING MODEL FOR MOTHERS IN MATH AND ATHLETICS )

For each domain we find evidence that parents' gender-role stereotype affects their perception of their own child's ability in the direction one would expect: namely, if a parent stereotypes an area as male-typed then she/he will overestimate his/her child's ability in that area if the child is a boy and will underestimate the child's ability in that area if the child is a girl. And vice versa if a parent stereotypes an area as female-typed. It is important to note that these differences exist after controlling for the teacher's estimate of the child's competence in each of these two domains

We have now replicated and extended these findings with a much younger sample of children. These data are from our longitudinal study of development in elementary school. The children were in K, 1, & 3rd grade when their parents gave us this information. We have divided the mothers into three groups based on their response to a question asking whom they thought was better in each of three

domains (sports, math, and Reading). They could say boys, girls, or neither. We then ran 2 way ANOVAs with the parents' category-based belief as one independent factor (3 levels) and their child's sex as the other (2 levels), the dependent measure was the parents' (moms and dads separately) rating of how difficult it was for their child to do well in each domain (We also had parents rate their children's natural ability in each area, but this rating seemed to reflect a larger effect of social desirability. The results showed a similar pattern for both ratings). I have only summarized the mother data due to time limitations. The dad's findings are basically similar.

(SHOW OVERHEADS ON SEX OF CHILD X MOTHER STEREOTYPING CATEGORY INTERACTIONS FOR EACH DOMAIN)

As the graphs show, for all three domains, we obtained the predicted relationships: Mothers' category-based beliefs interact in the expected direction in predicting their ratings of their own child's talent in each area. If they sex stereotype the ability then they distort their ratings of their own child in the stereotypic direction, if they don't sex stereotype the ability or if they cross sex stereotype the ability, then either their child's sex makes no difference or they distort their child's ratings in a cross sex-stereotypic direction. Cross-lagged panel analysis using LISREL provides support for the direction of the causal inference we have made regarding these relationships.

### 3. Gender differentiated attribution patterns.

A third plausible explanation for the effect of child's gender on parents' ratings grows out of attribution theory. According to attribution theory (Weiner, 1974), perceptions of another's competence depends on the causal attributions made for the person's performance. If parents of boys make different attributions for their children's math performance than parents of girls, it would follow that these parents should develop different perceptions of their children's math competence. In a test of this hypothesis, Yee and Eccles (1988) found that parents of boys rated natural talent as a more important reason for their child's math successes than did parents of girls. In contrast, parents of girls rated effort as a more important reason for their child's math successes than did parents of boys. In addition, to the extent that the parents attributed their child's success in mathematics to effort, they also rated their child as less talented in mathematics. Conversely, to the extent that they attributed their child's success in mathematics to talent, they also rated their child as more talented in mathematics. Thus, it appears that the gender-role stereotyped attributions parents make for their children's performance may be important mediators of the parents' gender-role stereotyped perceptions of their children's math competence. The data from our study of sixth graders and their parents provide a direct test of this conclusion.

(SHOW SUCCESS ATTRIBUTION FIGURE)

These mothers were asked to imagine a time when their child did very well in mathematics, reading and sports and then to rate, on a seven point Likert scale, the importance of the following six possible causes in determining this success experience: natural talent, effort, task ease, teacher help, parent help, and current skill level. Significant gender of child effects were obtained on attributions of success to natural talent in each domain and the pattern of these differences reflect the sex -typing of the domains (see attribution figure).

To test the mediation hypothesis we did a series of regression analyses on those mothers' perceptions that yielded a significant gender of child effect in each domain . According to Baron and Kenny (1986), support for a mediational hypothesis consists of demonstrating that the relationship between variables A and C is reduced or eliminated when the hypothesized mediating variable B is entered into the regression equation. We used a path analytic procedure to test this effect. The results for math are illustrated in the next figure. Consistent with the mediational hypothesis, the significant relationship of child's gender to the relevant parent outcome variables (i.e. parents' perceptions of the child's natural math talent, the difficulty of math for their child, and their expectations regarding the child's likely future success in both math courses and a math-related career) disappear once the relationship between the child's gender and the parents' attributions for the child's math success to talent is controlled.

(SHOW PATH ANALYSIS FIGURES)

Comparable results for the talent attribution emerged in both the reading and sport domains. These results are illustrated in the next two figures. As predicted, children's gender influenced their mothers' causal attributions; which, in turn, influenced the mothers' perceptions of, and expectations for, their children. In these domains, we still find evidence of a direct effect of child's sex on parents' perceptions. The size of this effect, however, is significantly reduced by including the parents' causal attribution in the path analysis.

These data provide good preliminary support for the hypothesized biasing effect of causal attributions on parents' perceptions of their children's competencies. However, it is important to note that these beliefs are all highly interrelated, and the data are correlational in nature. The consistency of the findings across domains indicates that the relationships are reliable but the actual causal direction of the relationships is still at issue. We are just beginning the longitudinal analyses necessary to pin down the predominant causal directions of influence among these various beliefs and preliminary analyses support the causal direction illustrated in these figures: Causal attributions at time 1 do appear to impact on parents' perceptions of their children's ability at time 2 (one year later) even after controlling for the parents' time 1 perceptions of their children's abilities. {Preliminary analyses suggest that parents' perceptions of their children's competence at Time 1 influence causal attribution made at both Time 1 and Time 2. Furthermore, these analyses suggest that parents' causal attributions for their children's performances

prior to Time 2 affect the parents' perceptions of their children's competence at Time 2. Finally, the impact of children's gender on parents' perceptions of their children's competence at Time 2 in both math and English appears to be mediated, at least in part, by the impact of parents' perceptions of their competence at Time 1 and of parents' causal attributions of their successes in these two domains. These preliminary findings add support to our conclusion that gender of child differences in parents' causal attributions for their children's successes in each of these domains contribute to the gender-role stereotyped bias we find in their perceptions of their children's competencies in each of these domains.}

But do these parent perceptions have any impact on the children? and if so how? We have already shown that there is a statistical relationship between parents' perceptions of their children's abilities and the children's perceptions of their own abilities. We also have support for the conclusion that the causal direction of this relationship reflects, at least partially, the impact of the parents' beliefs on their children. Entwisle, Alexander and their colleagues have provided similar evidence for this causal inference. But what accounts for this relationship. How do parents' beliefs affect their children?

(PUT FIRST MODEL BACK UP)

One way is by direct communication. Parents may tell their children what they think or express their causal attribution openly.

Several more indirect modes of influence are also possible. Parents' perceptions of their children's abilities and interest could affect the types of experiences they provide for their children.

We are just beginning to explore this second possibility. Let me illustrate with one of our findings from Study 2. We have asked the parents to give us detailed reports of the types of activities and experiences they provide for their children in several different activity domains. We have also asked them for their perceptions of their children's abilities and interests in each of these domains. We have been gathering this information from approximately 600 families with children initially in grades k,1, and 3 annually for the last four years. We are just beginning our longitudinal data analysis.

(SHOW OVERHEADS ON ACTIVITY PROVISION AND ENCOURAGEMENT)

As a first step in this process we tested whether parents provide different types of experiences for girls and boys. They clearly do in several of the activity domains we are studying. For illustrative purposes, I'll focus on the sport domain. Not surprisingly, parents report being more likely to actively encourage boys, compared to girls, to participate in sports and to watch sports on tv ( $r = .1839$ ). Parents' also rate their boys' ability and interest in sports higher than their girls' ( $r = .26$ ). Once again we have used path analyses to test whether parents' sex differentiated

perceptions of their children's sport ability and interest mediate the relationship between the child sex and the parents' encouragement of their child's participation in sports. The results are illustrated in the next figure. Consistent with the mediational hypothesis, the sex of child effect on parental encouragement of participation becomes non-significant when the sex of child effect on parents' perceptions of their children's sport ability and interest is entered into the path analysis.

(SHOW OVERHEAD ON MEDIATING PATH ANALYSIS)

In conclusion, we have presented evidence of the influence of social factors on parents' perceptions of their children's abilities in various activity domains. We have focused on child sex as one potentially critical social factor and have presented data showing how a child's sex might influence parents' perceptions of their child's ability independent of the child's actual performance in the domain. We have also presented evidence that parents' beliefs do have an impact on children's developing self-concepts, and on the experiences parents encourage their children to have in various activity domains.

#### References

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**PARENT & FAMILY CHARACTERISTICS**  
Education  
Family Income  
Occupation  
Marital Status  
Number of Children  
Employment Status  
Ethnicity  
Cultural Traditions

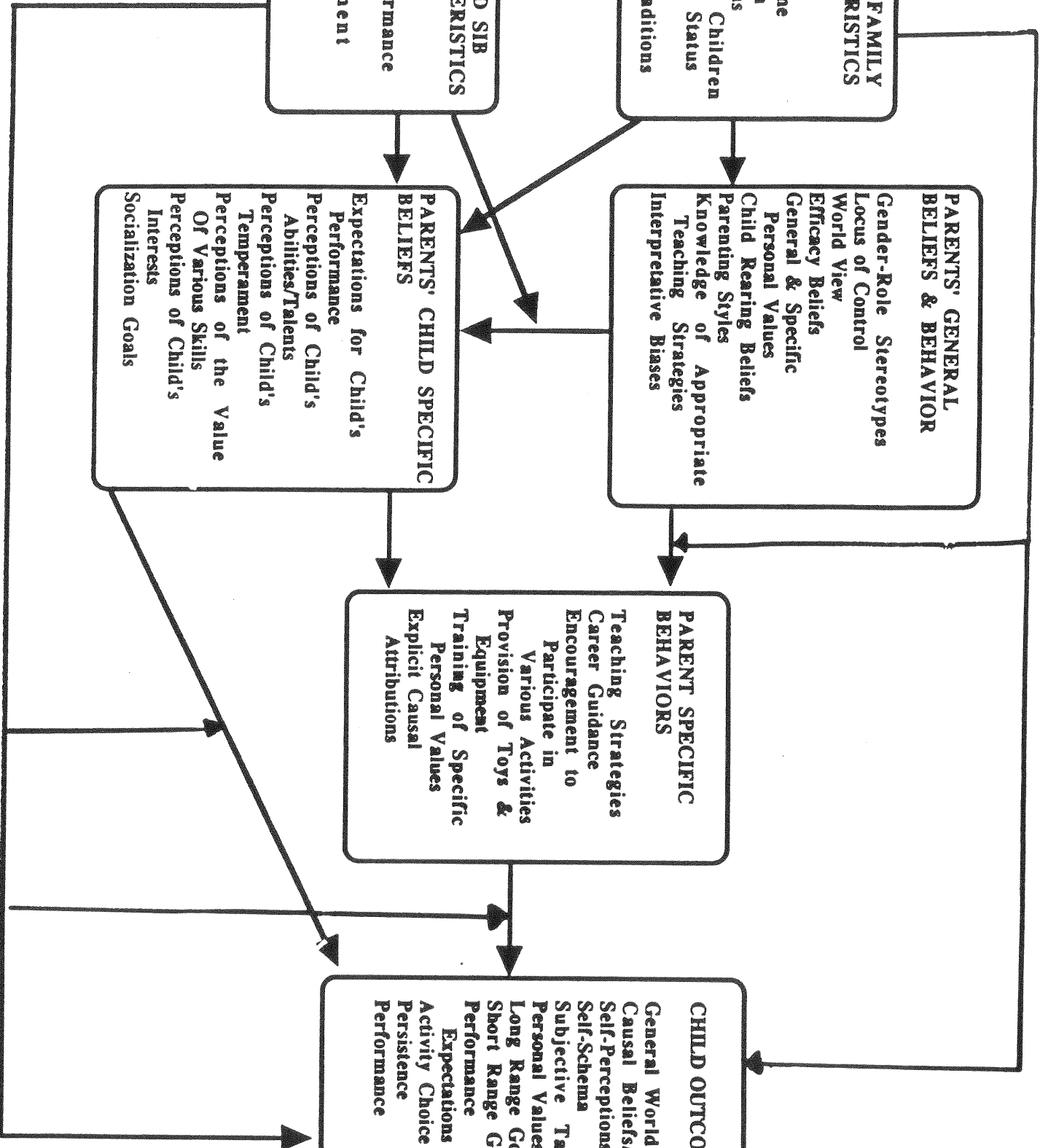
**CHILD AND SIB CHARACTERISTICS**  
Sex  
Past Performance  
Aptitudes  
Temperament  
Attitudes  
Birth Order

**PARENTS' GENERAL BELIEFS & BEHAVIOR**  
Gender-Role Stereotypes  
Locus of Control  
World View  
Efficacy Beliefs  
General & Specific Personal Values  
Child Rearing Beliefs  
Parenting Styles  
Knowledge of Appropriate Teaching Strategies  
Interpretative Biases

**PARENTS' CHILD SPECIFIC BELIEFS**  
Expectations for Child's Performance  
Perceptions of Child's Abilities/Talents  
Perceptions of Child's Temperament  
Perceptions of the Value Of Various Skills  
Interests  
Socialization Goals

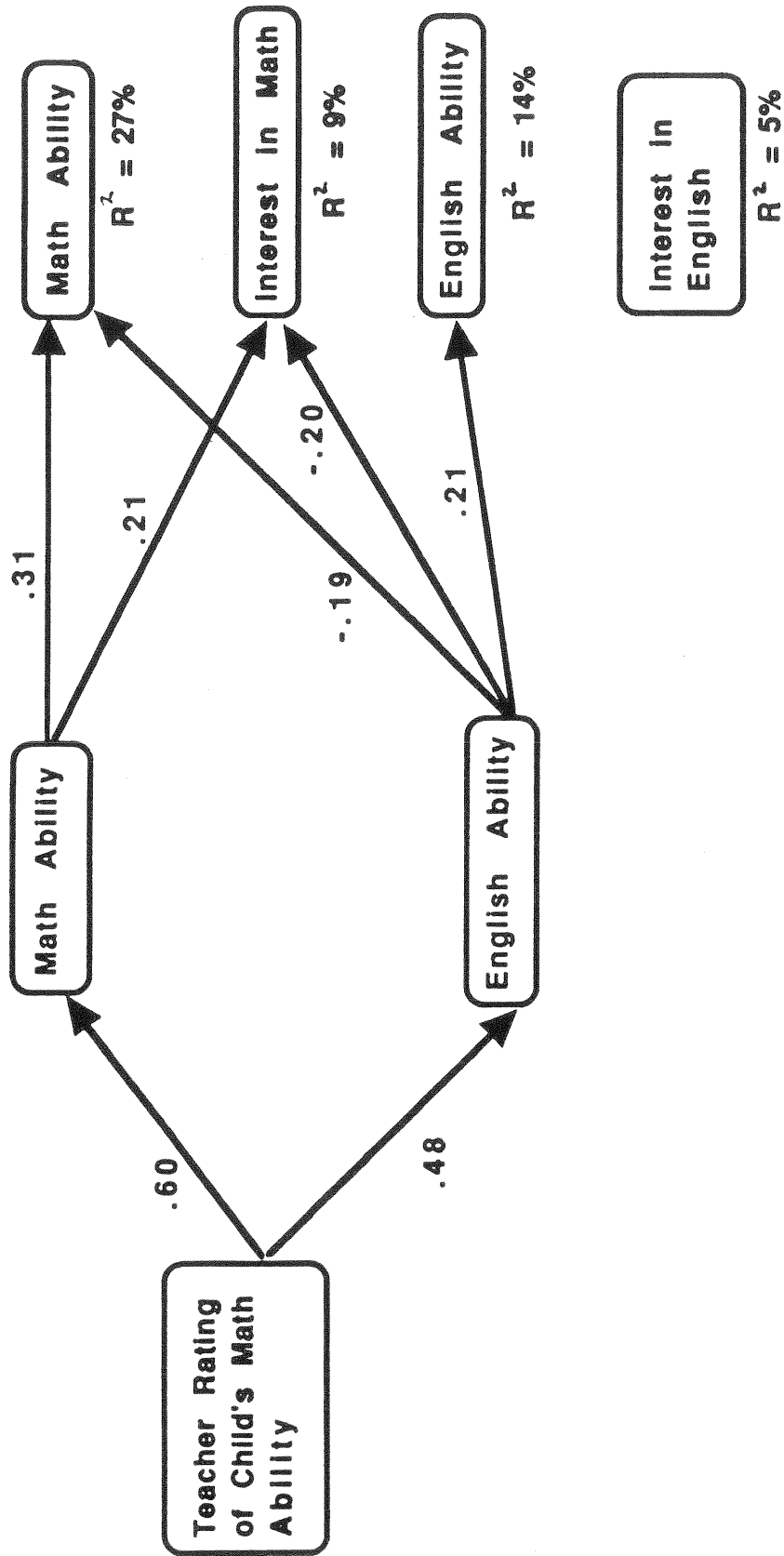
**PARENT SPECIFIC BEHAVIORS**  
Teaching Strategies  
Career Guidance  
Encouragement to Participate in Various Activities  
Provision of Toys & Equipment  
Training of Specific Personal Values  
Explicit Causal Attributions

**CHILD OUTCOMES**  
General World View  
Causal Beliefs/Biases  
Self-Perceptions  
Self-Schema  
Subjective Task Values  
Personal Values  
Long Range Goals  
Short Range Goals  
Performance Expectations  
Activity Choice  
Persistence  
Performance

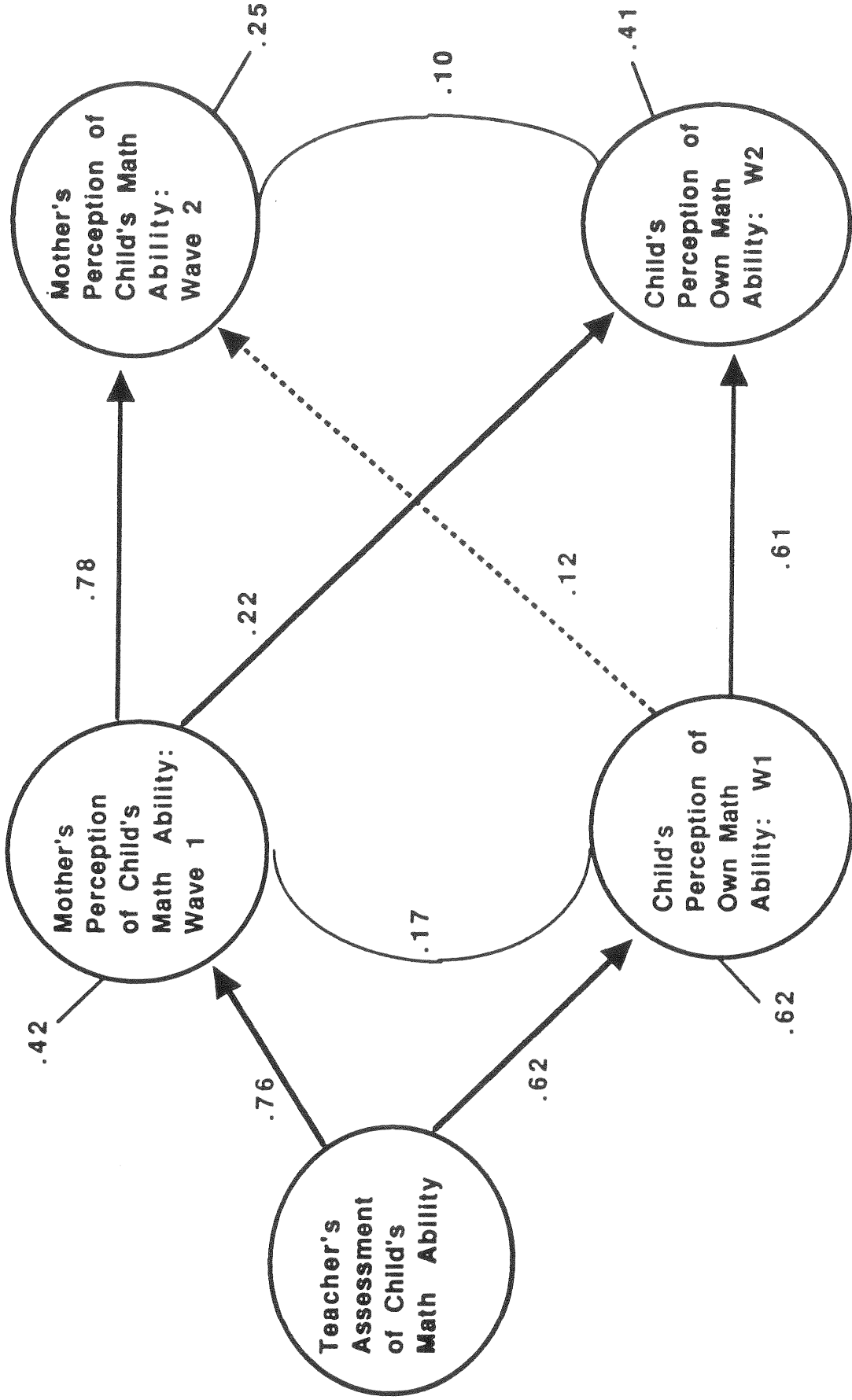


# Mother's Influence on Daughter's Self-Perceptions

Mother's Rating of Daughter's:      Daughter's Self Rating of:



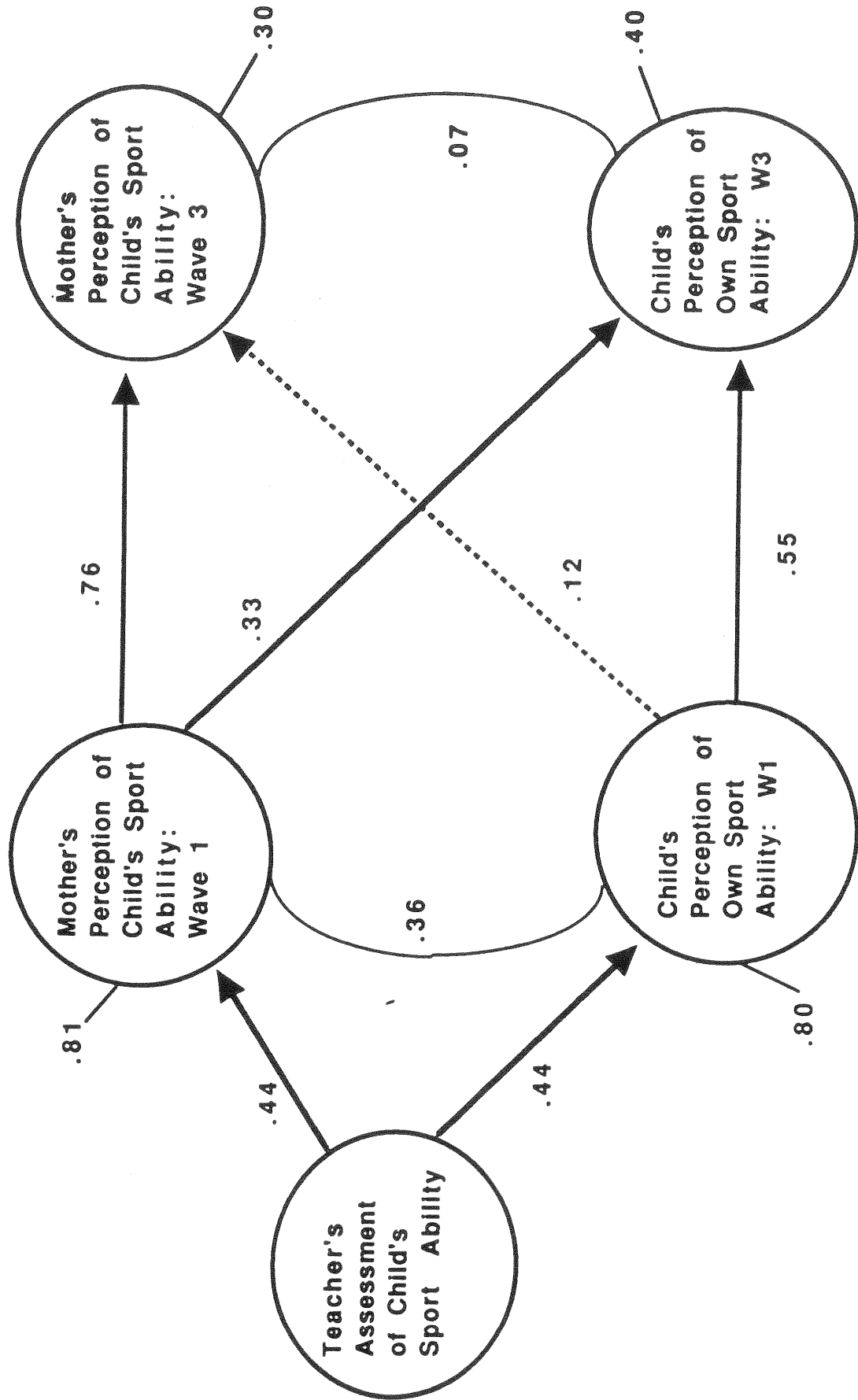
**Cross Lagged Structural Equation Modelling of Causal Directions And Mediating Influence of  
Mother's Perceptions: Data for Sons**



$\chi^2 (df=82) = 150.19$   
Goodness of Fit =  $.98$

**Note: Measurement Model Statistics Omitted**

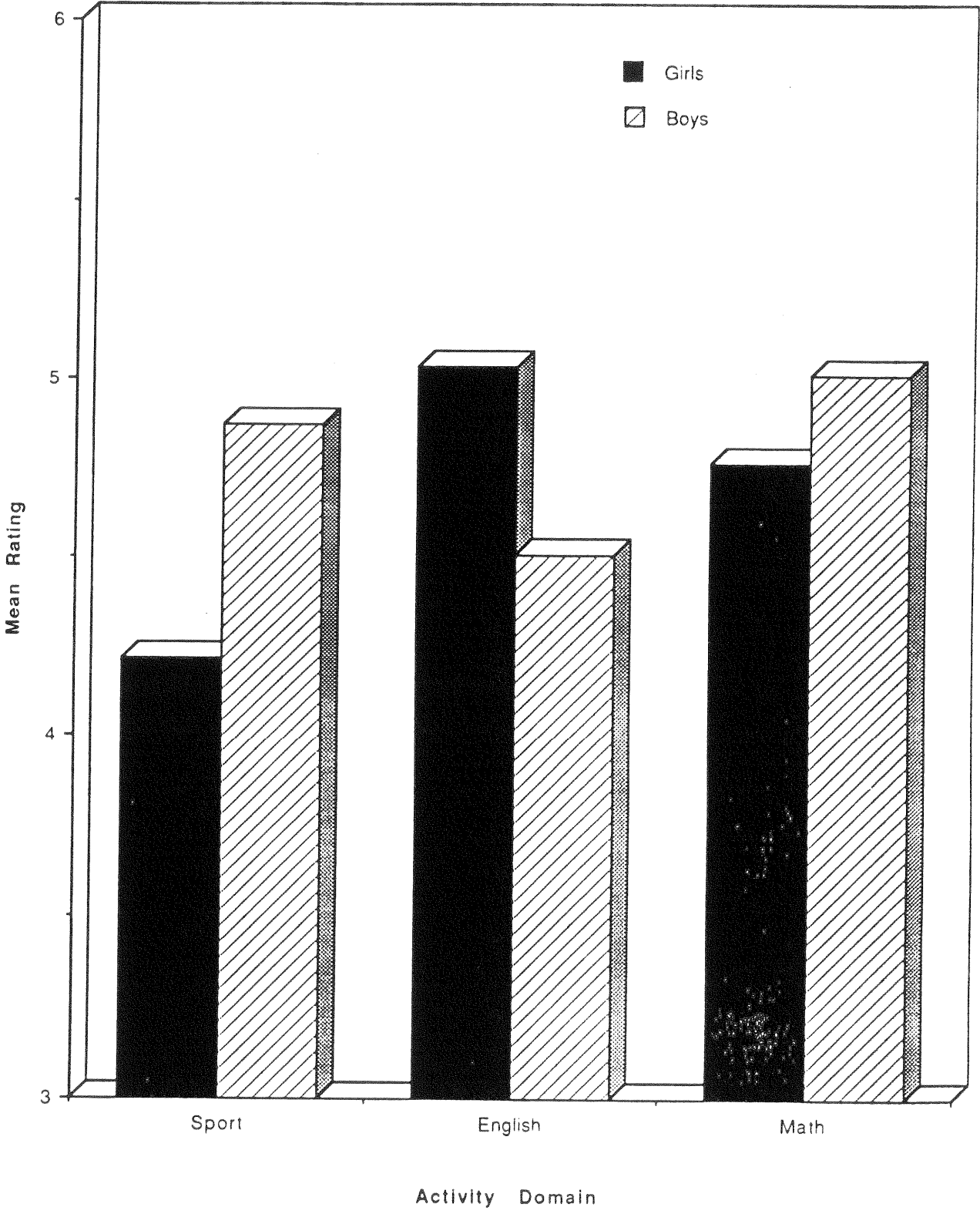
Cross Lagged Structural Equation Modelling of Causal Directions And Mediating Influence of  
 Mother's Perceptions: Data for Sons



$\chi^2$  (df=32) = 51.61  
 Goodness of Fit = .984

Note: Measurement Model Statistics Omitted

Mothers' Perception of Child's Natural Talent  
by Sex of Child and Activity Domain  
(N = 900, Children in Grade 6)

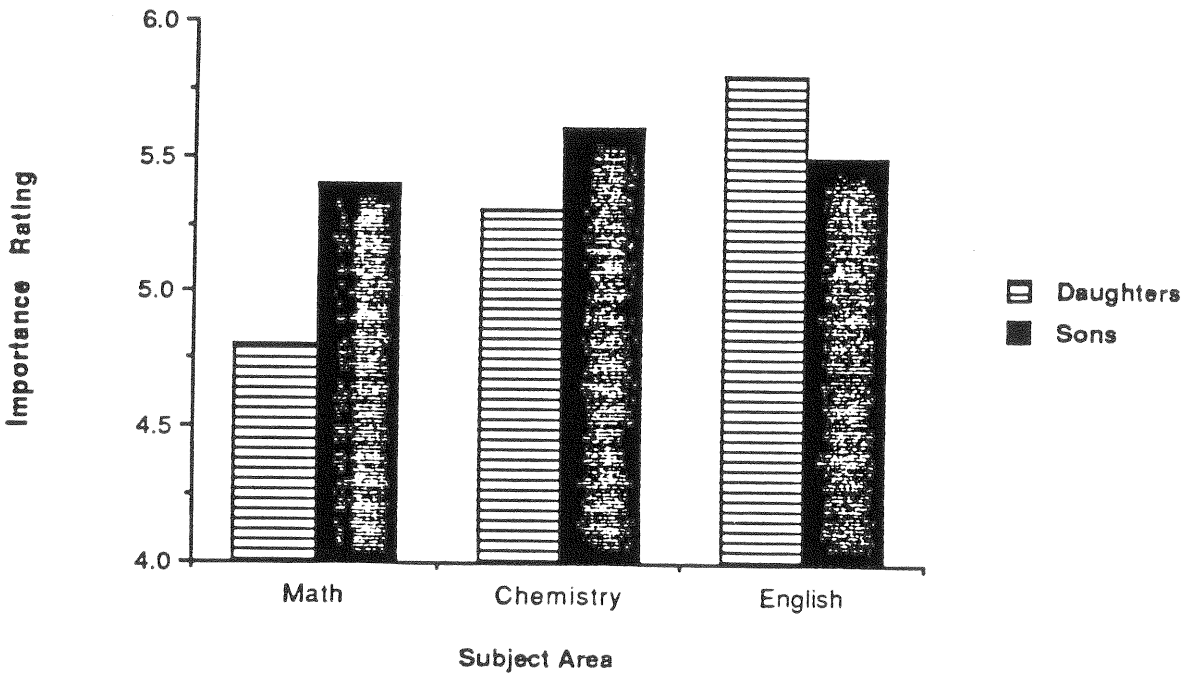


**PARENTAL BELIEFS ABOUT UTILITY OF COURSES  
AND FUTURE ASPIRATIONS FOR THEIR CHILDREN**

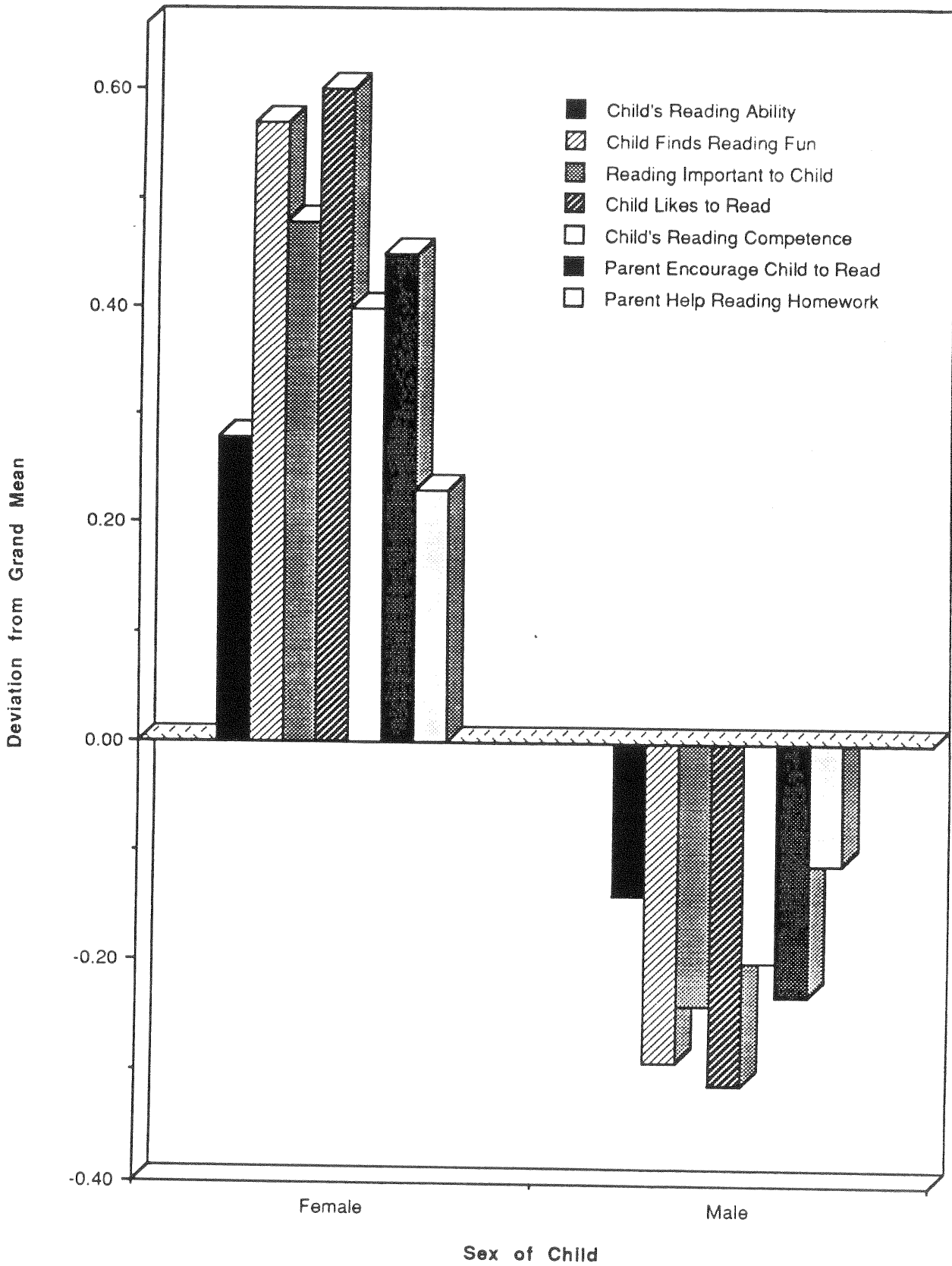
<b>VARIABLES</b>	<b>MORE IMPORTANT FOR...</b>
Future utility of English	Girls
Future utility of math	Boys
Future utility of computer science classes	Boys
Future utility of mechanics / shop	Boys
Future utility of biological science	Girls
Importance of child's future self-sufficiency	Boys
Future job stability	Boys*

\* All items were significant for both fathers and mothers with the exception of job stability which showed a significant difference for fathers only.

**Parents' Rating of Importance of Subject Area for Their Child**



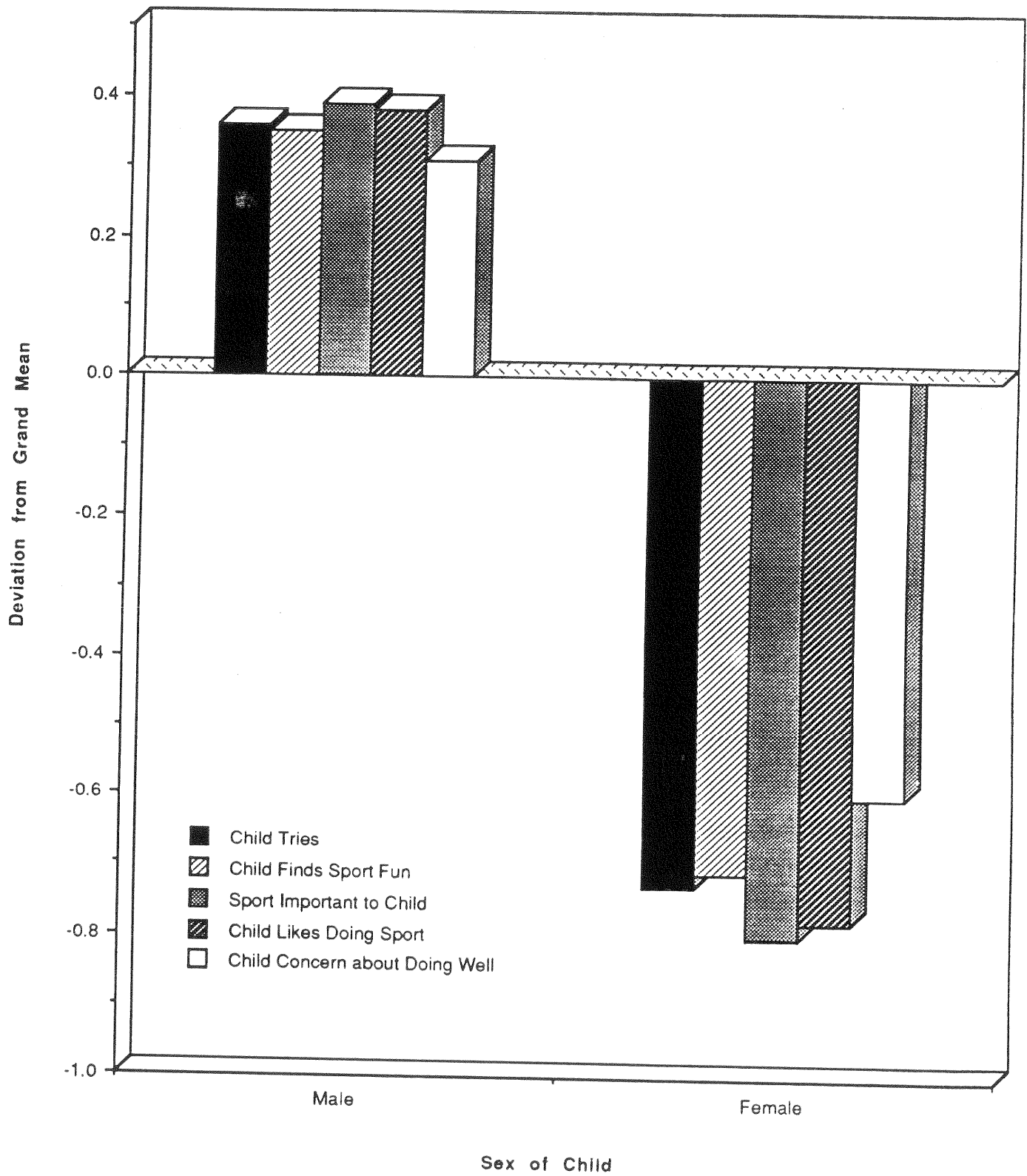
# Parents' Perception of Child in Reading and Parents' Involvement in Child's Reading



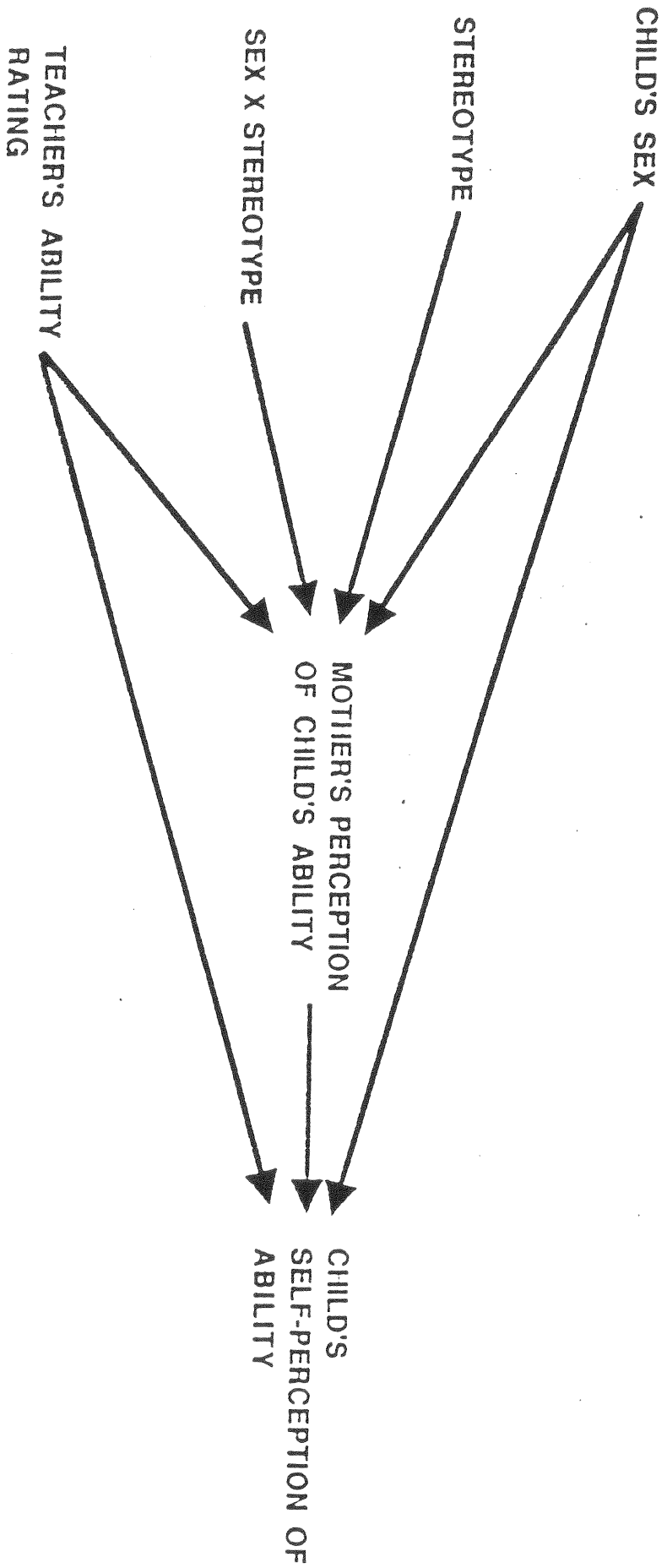
N = 74;  
 Children in Grades 2, 3, and 5 - Gifted Program

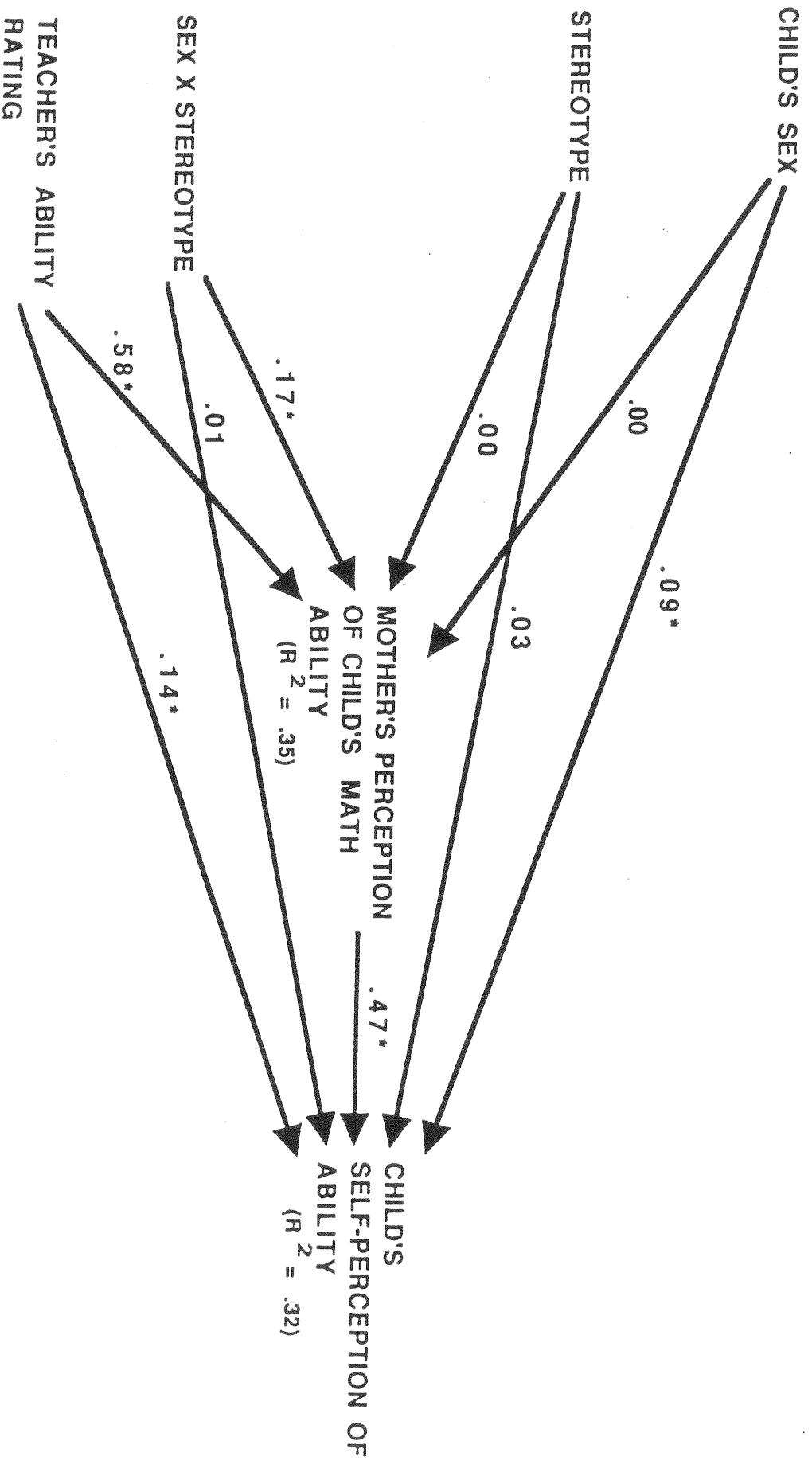


# Parents' Perception of Child's Interest in Sport



N = 68;  
Children in Grades 2, 3, and 5

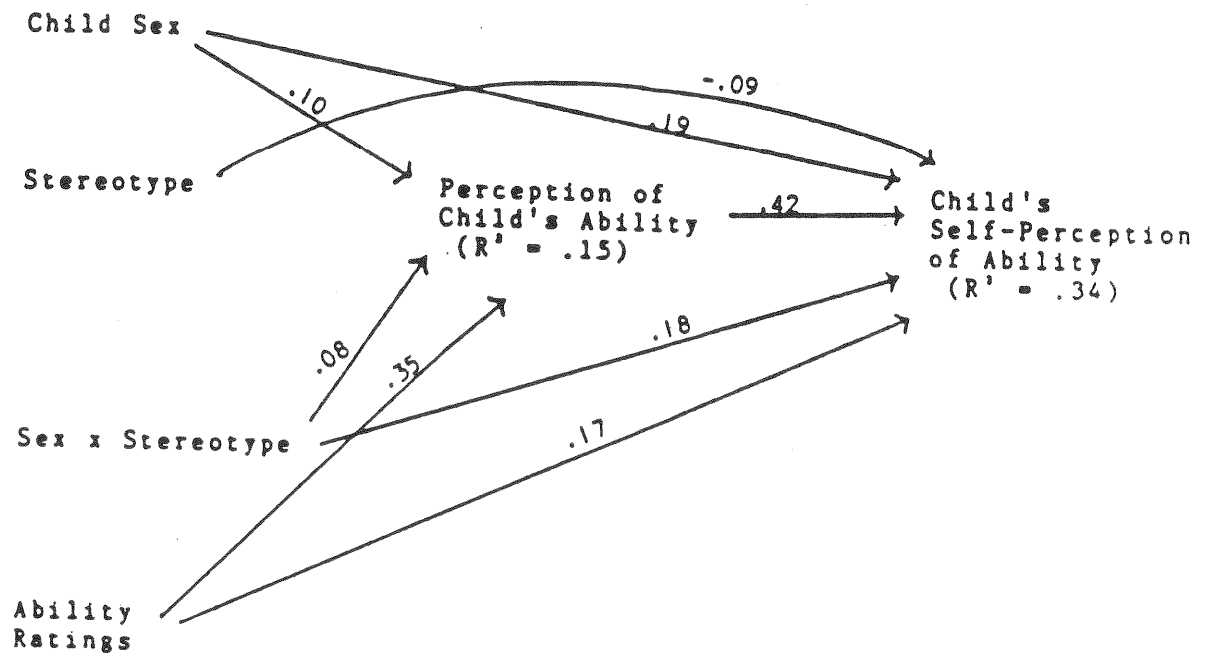




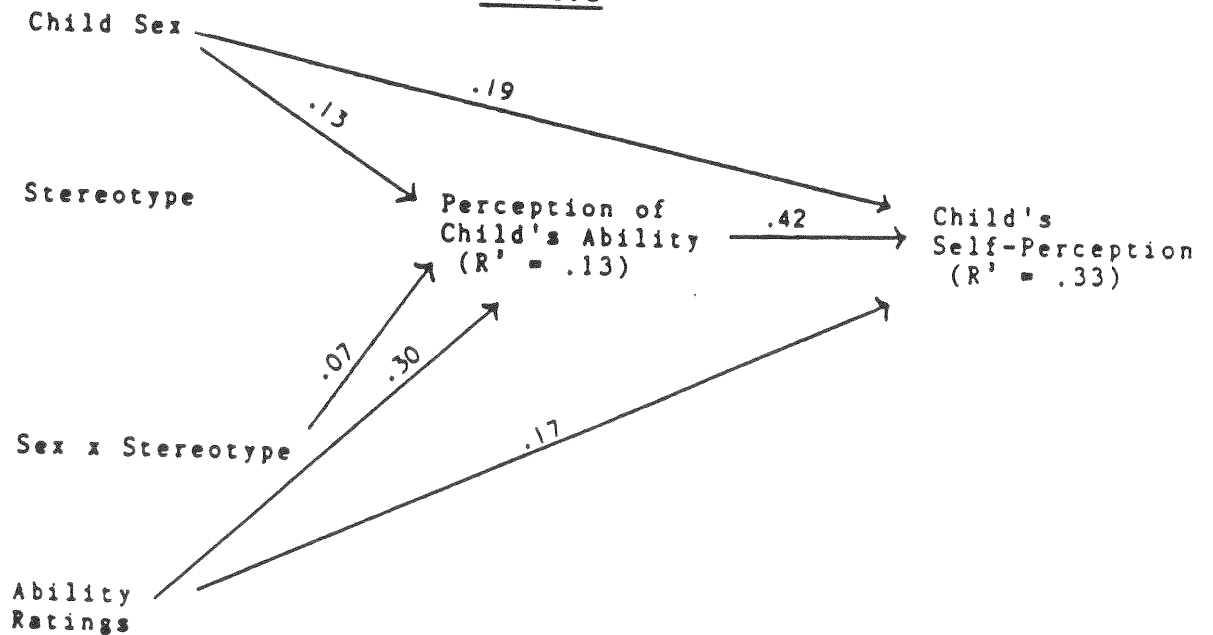
\*  $p < .05$

# SPORTS

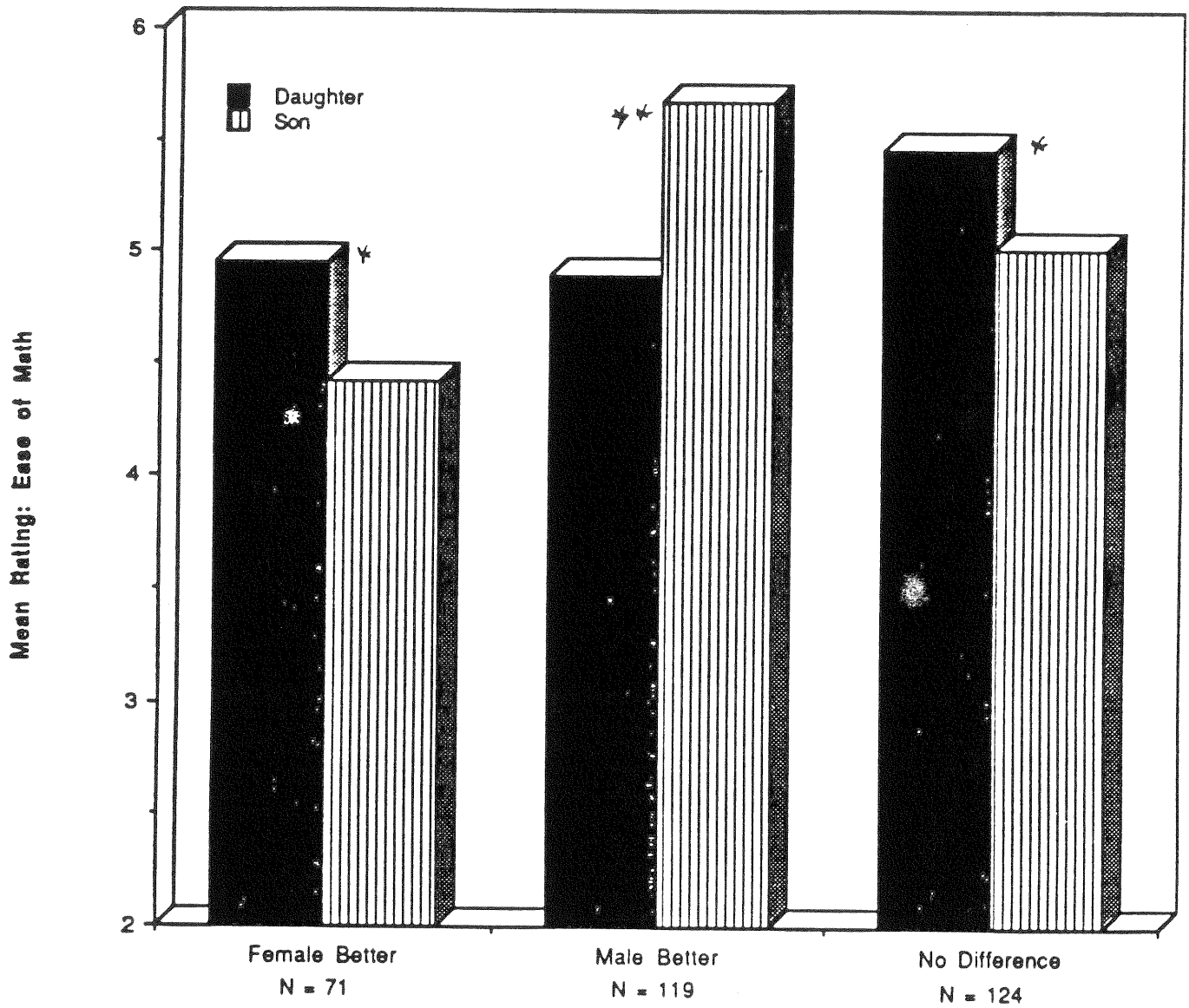
## Mothers



## Fathers

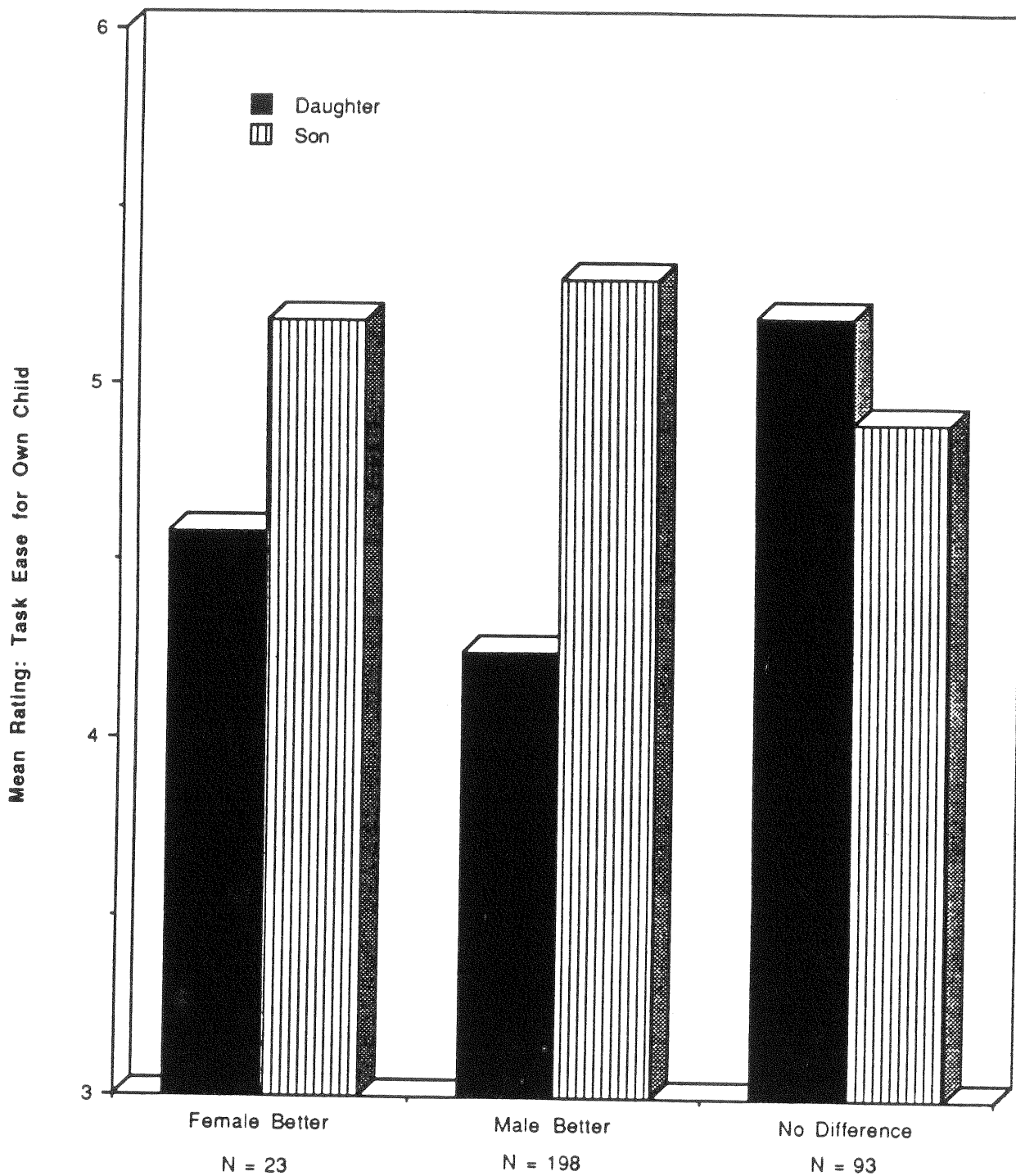


### Mothers' Rating of the Ease of Math for Own Child



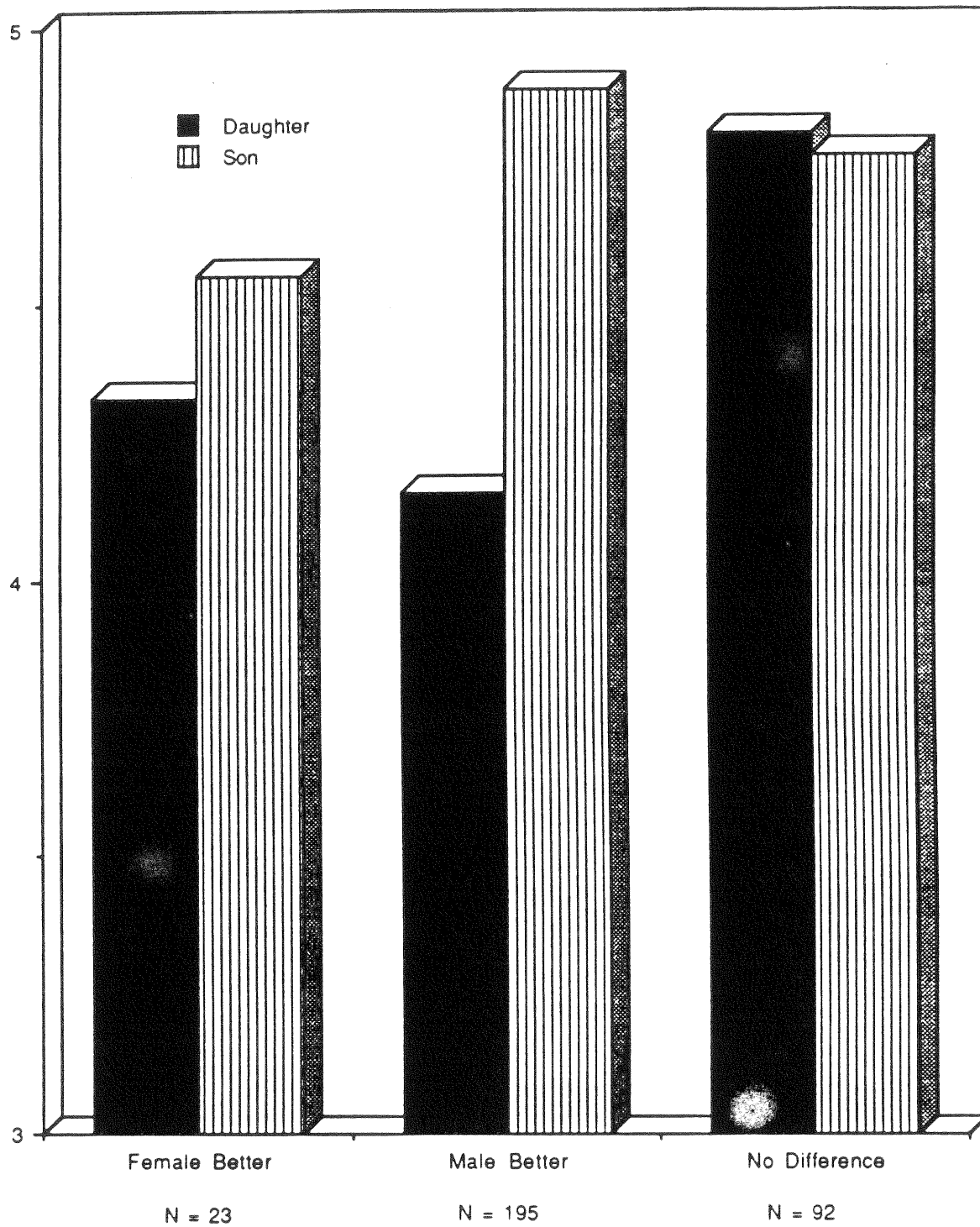
Mothers' Stereotypic Category-Based Belief about Math Ability

# Mothers' Ratings of Sports' Ease for Own Child



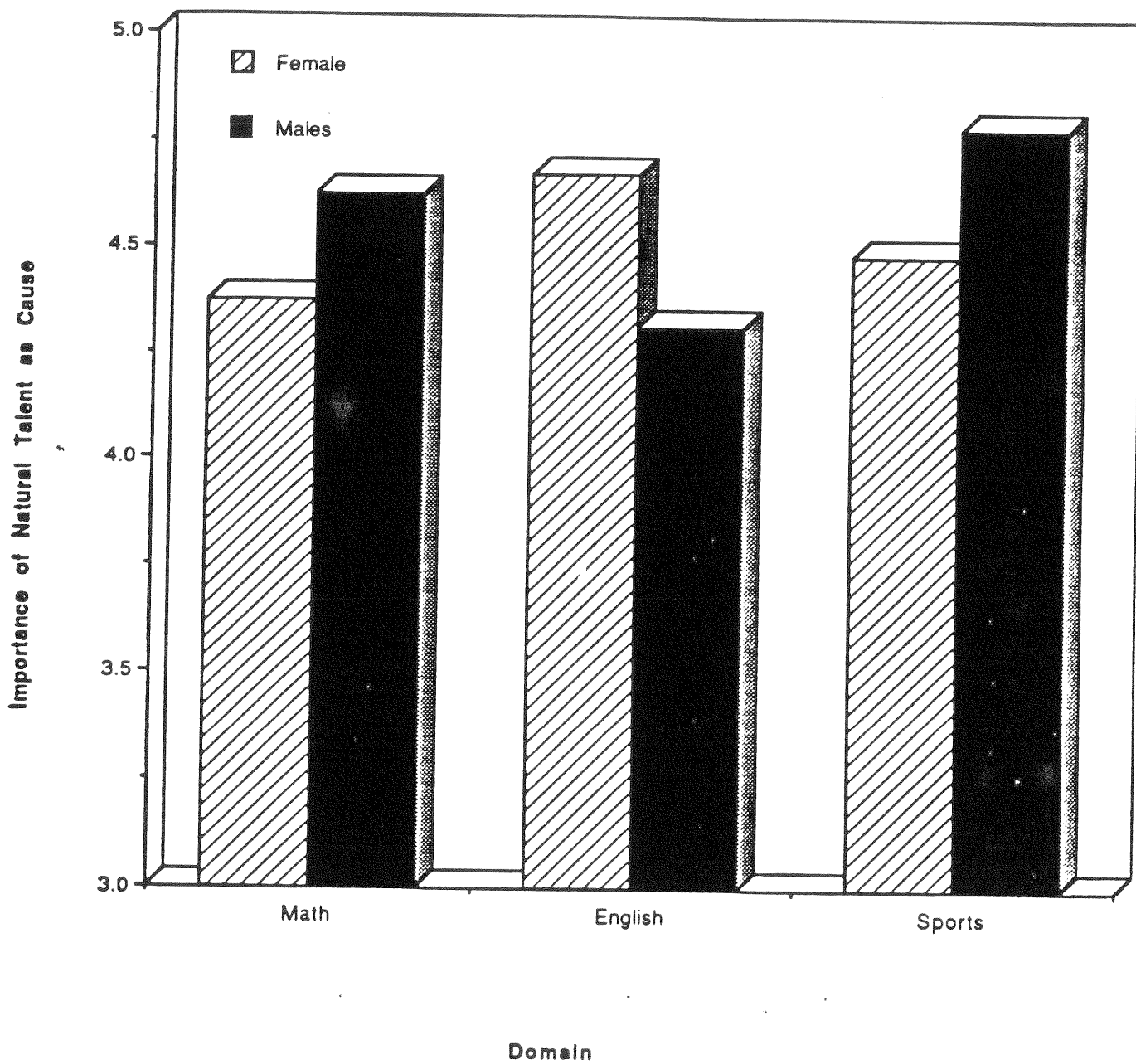
Mothers' Stereotypic Category-Based Belief about Sports' Ability

# Mothers' Ratings of Own Child's Natural Talent in Sports



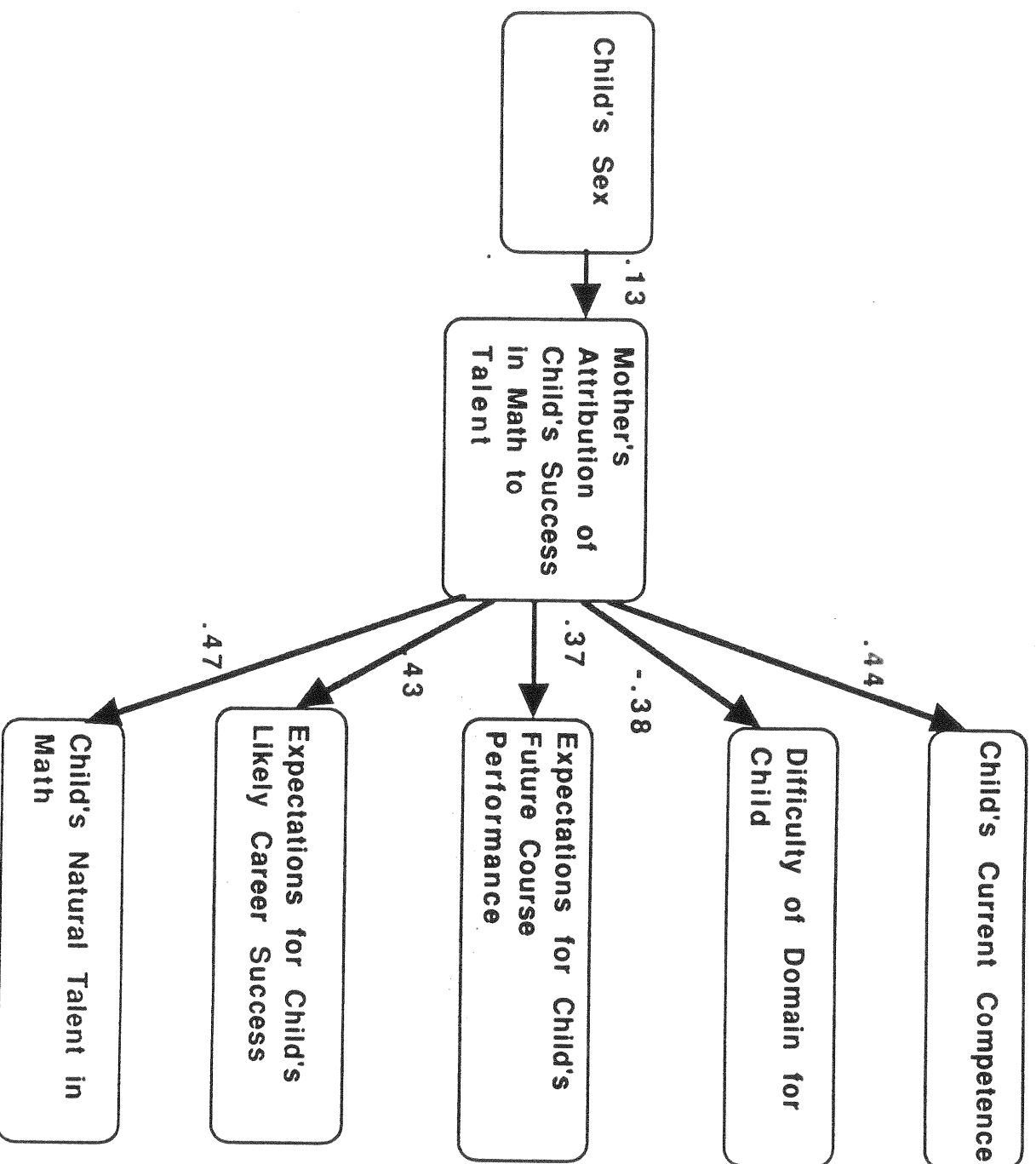
Mothers' Stereotypic Category-Based Belief about Sports' Ability

## Parents' Causal Attributions for Child's Success

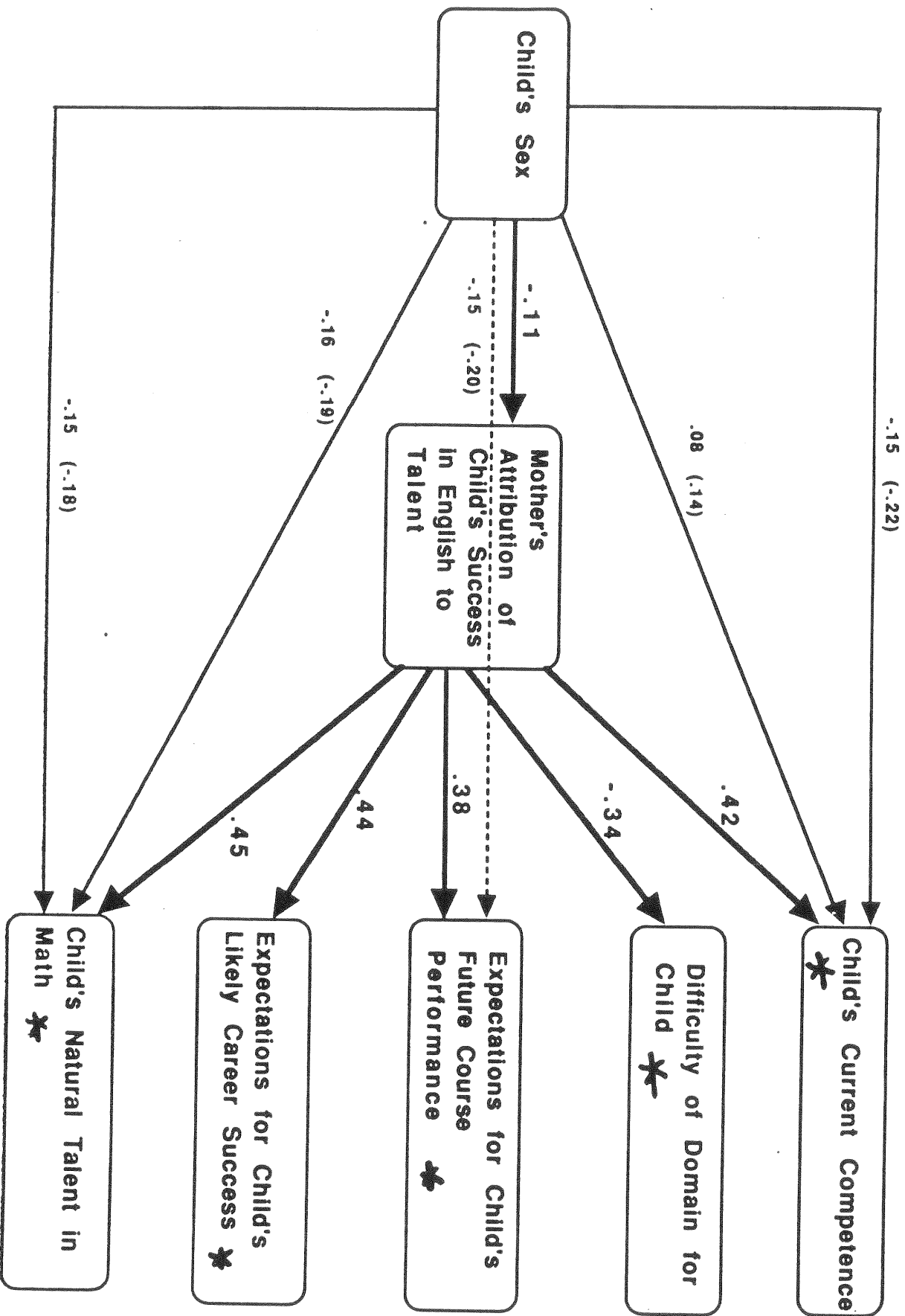




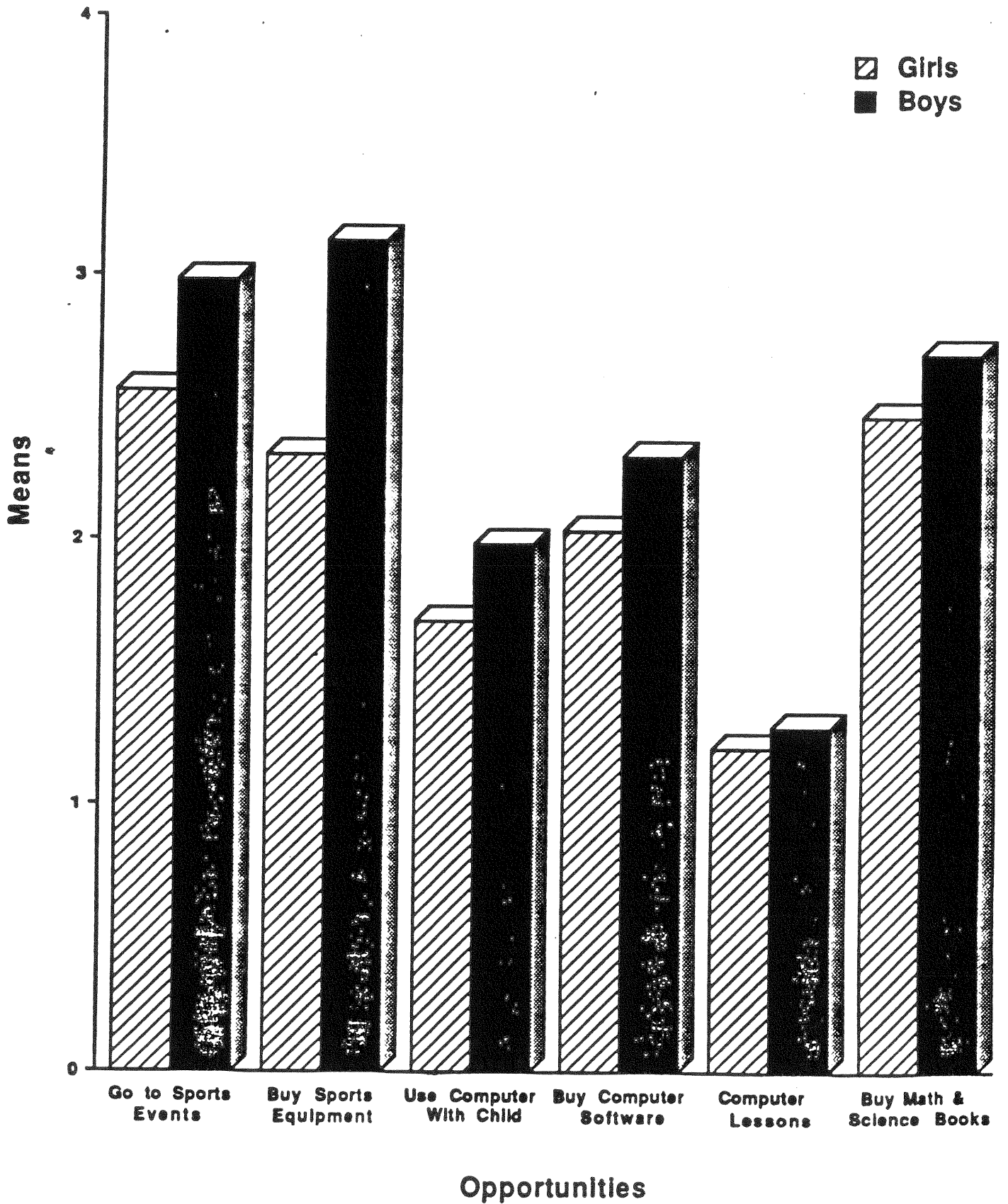
Mother's Perceptions of:



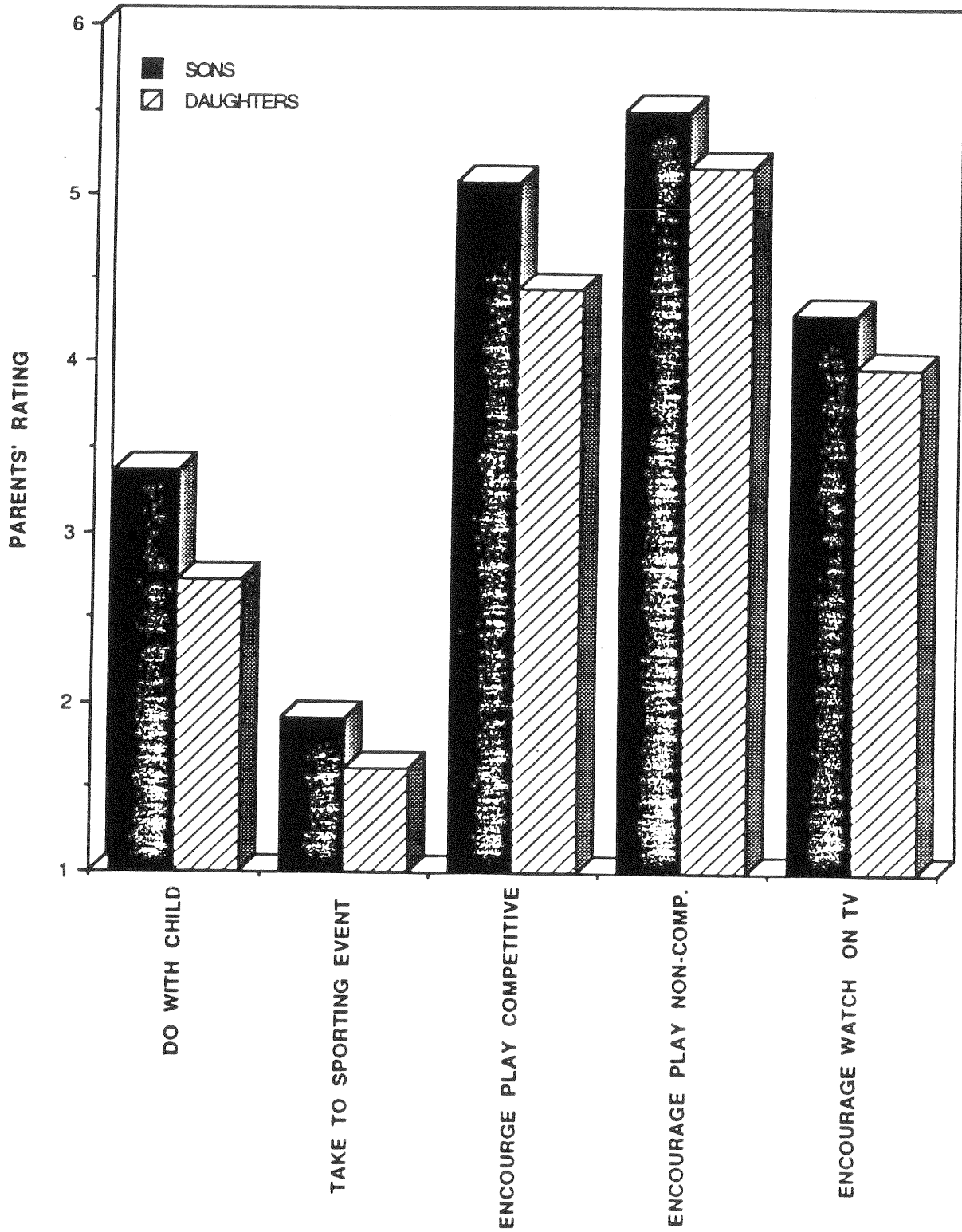
Mother's Perceptions of:



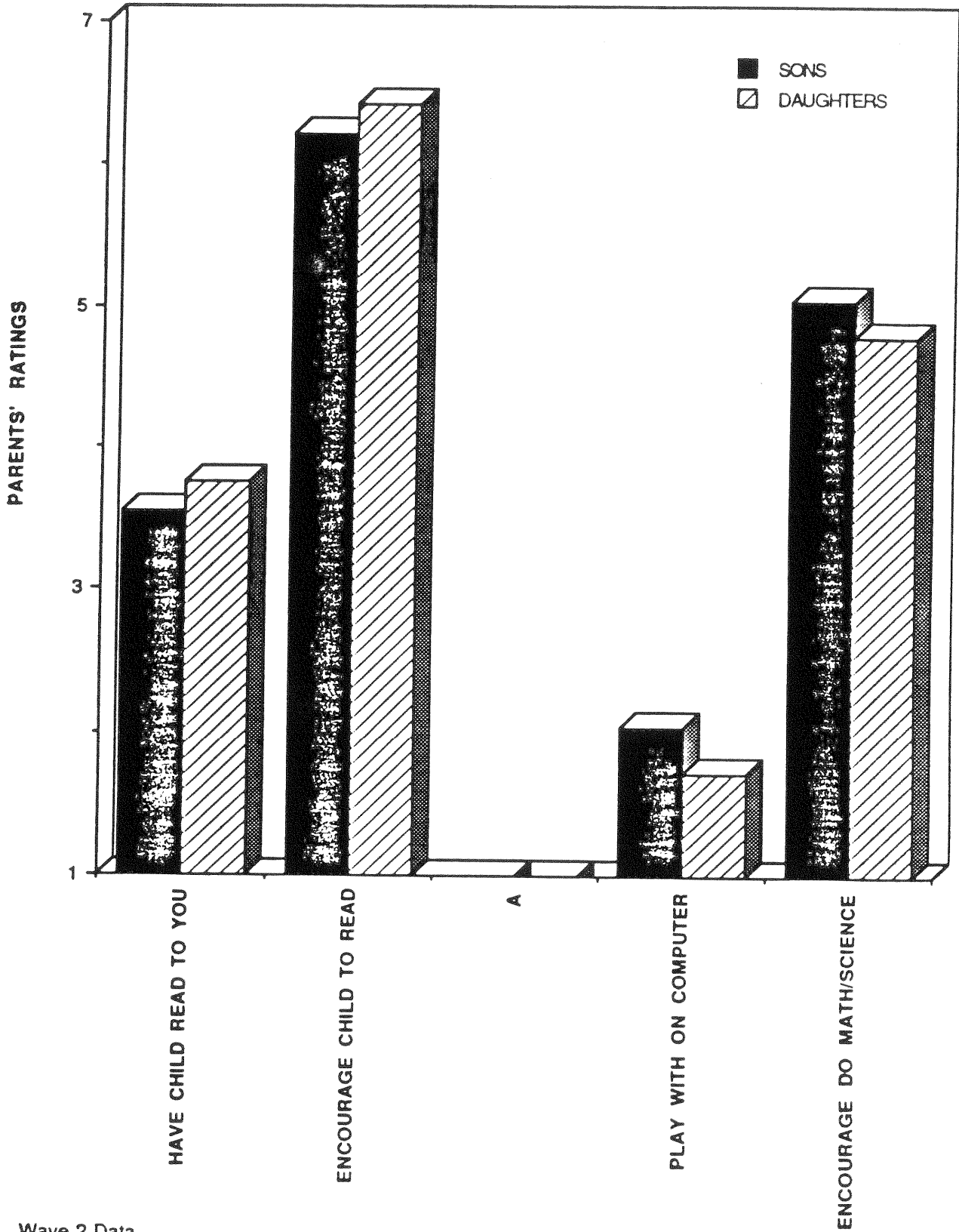
**Figure 3. Mothers' Provision of Opportunities by Sex of Child**



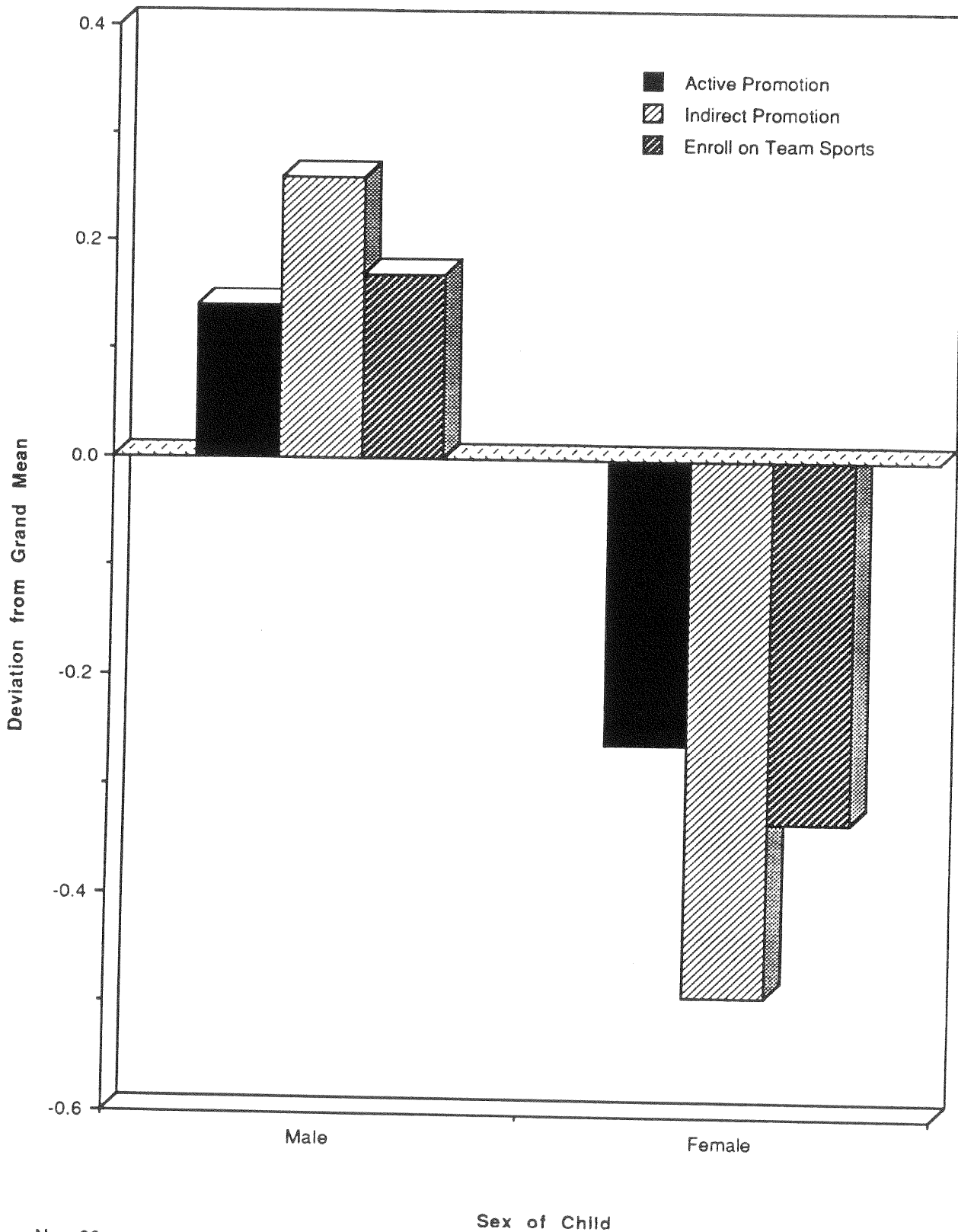
PARENTS' RATING OF EXTENT TO WHICH THEY DO EACH TYPE OF SPORT ACTIVITY WITH CHILD



# PARENTS' RATING OF EXTENT TO WHICH THEY DO EACH ACTIVITY WITH CHILD



# Parent Promotion of Child's Sport Participation



N = 66;  
Children in grades 2, 3, and 5

Path Analysis on the Mediating Role of Parents' Perceptions of Their Child's Ability and Interest in Sports

