

The Relations between Parents' Category-based and Target-based Beliefs: Gender Roles and Biological Influences

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SRCD, Kansas City, April, 1989

A small but growing literature focuses on parental beliefs and stereotypes about child development and individual differences. Several researchers (e.g. Dix, 1985; Eccles & Jacobs, 1986; Goodnow, 1984, 1989; Jacobs, 1987; Miller et al., 1987; Yee & Eccles, 1988) have suggested that such beliefs are important because of their impact on the ways in which parents interact with their children, on the expectations and goals parents develop for their children, and on the parents' perceptions of their children's interests and talents. Today, I'll summarize some of our findings regarding these issues. I will focus in particular, on the following issues:

1. The extent to which parents' gender-role stereotypes, or category based beliefs, regarding both sex differences in talent and the relative role of biological versus environmental influences in determining these sex differences relate to:
 - (a) parents' perceptions of their own child's talent and interests;
 - (b) parents' goals and values for which skills their child ought to be developing;
 - (c) parents' sense of efficacy regarding their potential influence in helping their child acquire various skills.
2. The extent to which parents' general, or category based, beliefs regarding the relative importance of biological versus environmental factors in shaping individual differences relate to parents' estimates of relative influence that each of these factors has had on their own child's development; and
3. The extent to which the parents' general and child specific beliefs outlined in #2 relate to parents' sense of efficacy regarding their potential influence in helping their child acquire various skills.

The general model guiding these questions is illustrated in the first set of overheads.

Background Studies: General Effects of Parents' Beliefs

We know that parents' perceptions of their child's ability and of the difficulty of the subject area for their child has an effect on the children's self-perceptions. For example, in 1982 we published data demonstrating that parents' perceptions of their child's math ability has a significant effect on their child's self-concept of his/her math ability independent of the effect that the child's actual performance has on both the parents' and the child's perceptions.

More recently in a sample of sixth grade children we documented a similar effect for both math and English. (SHOW OVERHEAD #4)

Background Studies: Gender Differences

We also know in the area of math at least that parental perceptions of their child's difficulty with math is affected by their child's sex independent of their child's actual performance in math (Show Overhead #3 again)

We now know that is this also true for the areas of English and Sports for parents of sixth grade children

(SHOW OVERHEADS ON PARENTS' RATINGS OF KIDS ABILITY IN ENGLISH AND SPORTS)

And we know these differences exist even after actual ability level (as assessed by the teacher) is controlled.

Why do parents hold these sex differentiated beliefs?

1. There is a real sex difference.

Although this may be a contributor since actual performance does affect parents' perceptions of their child, it is **not the only** contributor since the difference persists even when indicators of actual ability 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)

We have been investigating these relationships in a variety of ways.

1. **Directly test the model.** Review work done by Janis Jacobs for her dissertation. (SHOW OVERHEADS ON PATH MODELS TESTING MODEL FOR MOTHERS AND FATHERS IN MATH AND ATHLETICS)

Subjects: approximately 2000 sixth graders and their parents from 12 school districts in Southeastern Michigan.

Method: Surveys given in schools to students and teacher and a mailed questionnaire to parents.

For each domain we found evidence that parents' gender-role stereotype affects their perception of their own child's ability in the direction one would expect: namely, if you stereotype an area as male-typed then you will overestimate your child's ability in that area if the child is a boy and you will underestimate your child's ability in that area if the child is a girl. And vice versa if you stereotype an area as female-typed.

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 up 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 measures were the parents' (moms and dads separately) rating of their child's natural ability in the area, the importance they felt their child attached to being good in the area, the difficulty of the domain for their child, the importance they attached to their child being good in the area, and the extent to which they would encourage their child to do well in the area. I have only summarized the mother data due to time limitations. The dad's findings are basically similar but are less likely to yield a significant interaction of category-based beliefs by child's gender. Instead the child's gender seems to be the most important predictor and the pattern is always in a gender-role stereotypic direction.

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. 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.

What is equally interesting is the fact that the interaction is significant primarily for the parents' ratings of their own child and not for the importance they would attach to their child acquiring these skills. For the parents' own importance the child's sex seems most critical and even this is not regularly significant and the effects tend to be small given, I think, a general ceiling effect. (they say all skills are very important.)

2. Look at the impact of category based information on parents' category based and target based beliefs. To do this we looked at the impact of the media's coverage of the original Benbow and Stanley 1980 Science article regarding sex differences in math performance. Most of the media coverage suggested that the sex difference was due to biological factors. We had been in the field testing our parents the spring prior to this report. We went back into the field to test a subset of 250 of parents of 7th, 9th, and 11th graders. 90% returned their questionnaires.

The first part of the questionnaire asked them the same questions we had asked a year earlier (namely, perceptions of their child and general gender-role stereotypes). The last page asked whether they had read about the Benbow and Stanley article, thus we were able to compare parents who had read about the article pre and post exposure and we were able to compare parents who had read the article with those who had not. To do this we used covariance analysis covarying on the pre exposure beliefs and testing for the effect of exposure. Exposed mothers changed their rating of the difficulty of math for their child in a gender-role stereotyped direction: if they had a daughter they now saw math as more difficult for their child and if they had a son they now saw math as easier for their child than the unexposed group of mothers. They did not change their general stereotypes.

In contrast, exposure had no effect on fathers' target based beliefs (i.e. their perceptions of their own child). Instead exposure to the media reports had an effect on their general stereotypes but only if they had a son: Fathers of sons endorsed the traditional gender-role stereotype to a greater extent if they had been exposed to the media reports than if they hadn't.

3. Now looking at how general beliefs regarding the relative influence of biological versus environmental factors on development relate to parents views of the relative influence of these factors on their own child's development.

Subjects: approximately 500 parents of children in K, 1, and 3 grade
in 2 school districts in Southeastern Michigan

Method: interview in the home

Asked parents to rate on scales of 1-7 how important they thought genetic factors and upbringing were in determining individual differences in children in schoolwork, social skills, and athletic skills.

Then asked parents to divide up a pie chart into how much influence they thought the following factors had had in shaping their own child's development.

Results: We correlated the parents responses on the general belief items with their beliefs about their own child. The results are depicted on the next set of

overheads (SHOW THE OVERHEADS ON THE CORRELATIONAL DATA). As you can see there is a consistent pattern of relationships between the parents' category based beliefs and their target based beliefs for this set of beliefs.

NEXT STEPS

Our next steps will be to see how gender role stereotypes and general beliefs regarding the relative influence of biological versus environmental factors on development affect both parents' child specific beliefs and their own feelings of efficacy.

As a first step on this journey, we have looked at the possible role of parents' attributions for their children's successes and failures in math.

We have reported these results in a recent article (Yee & Eccles, 1988). The results are depicted in the next overhead (SHOW OVERHEAD FROM YEE & ECCLES, 1988). As you can see, sex of child does affect parents' causal attributions in the direction that a gender-role stereotypes perspective would predict (i.e. girls' successes in math are attributed relatively more highly to effort than to natural ability while boys' successes in math are attributed equally to these two causes).

We have also tested whether these attributional differences are related to the parents' perceptions of their children. They are. The findings are shown in the next overhead (SHOW CORRELATION OF CAUSAL ATTRIBUTIONS WITH RATINGS OF CHILD'S ABILITY). As one would predict, to the extent that parents attribute their child's math success to natural ability, they also have a higher estimate of the child's ability; in contrast, to the extent that they attribute their child's math successes to effort, they have a lower estimate of their child's math ability.

We have since replicated and extended these findings to include English and Athletics: two other areas that parents sex-type. The results for mothers are depicted in the next set of overheads (OVERHEADS ON MOTHER ATTRIBUTIONS FROM JUNIOR HIGH SCHOOL STUDY)

Subjects: approximately 1300 mothers of sixth grade students in 12 school districts in Southeastern Michigan.

Method: Mailed questionnaires to parents. Attributions measured on 7 point Likert scales rating the importance of each of six possible causal attributions for both success and failure in each domain. The six attributions were: child's natural talent, child's effort, teacher (coach) help, parent help, task ease, and child's skills.

Results: Success: Got significant child sex by domain effect for attributions to talent, effort, and skill. As predicted from a gender-role perspective, talent was seen as a more important reason for boys' success in math and sports while talent was seen as a more important reason for girls' success in English.

Failure: Got significant child sex by domain effects that are consistent with the sex-role belief perspective for the lack of talent: Girls' failures in math and sports were attributed more to lack of talent than were boys' failures in these areas while boys' failures in English were attributed more to lack of talent in English than were girls'.

We are now in the process of looking into how general or category based beliefs like gender-role stereotypes and beliefs in the relative importance of biological versus environmental influences relate to other parental beliefs. In particular we are now looking at the relation of both types of general beliefs to parents' estimates of the extent to which they have been able to help their child acquire skills in math, English, and sports and the extent to which they have tried to have an influence in each of these areas. We predicted that the more the parents believe that abilities in these areas in general are due to biological influences, the less influence they would feel they have had and the less they would have tried to influence their child's skill acquisition in each area. Conversely, the more the parents think that abilities in these areas in general are due

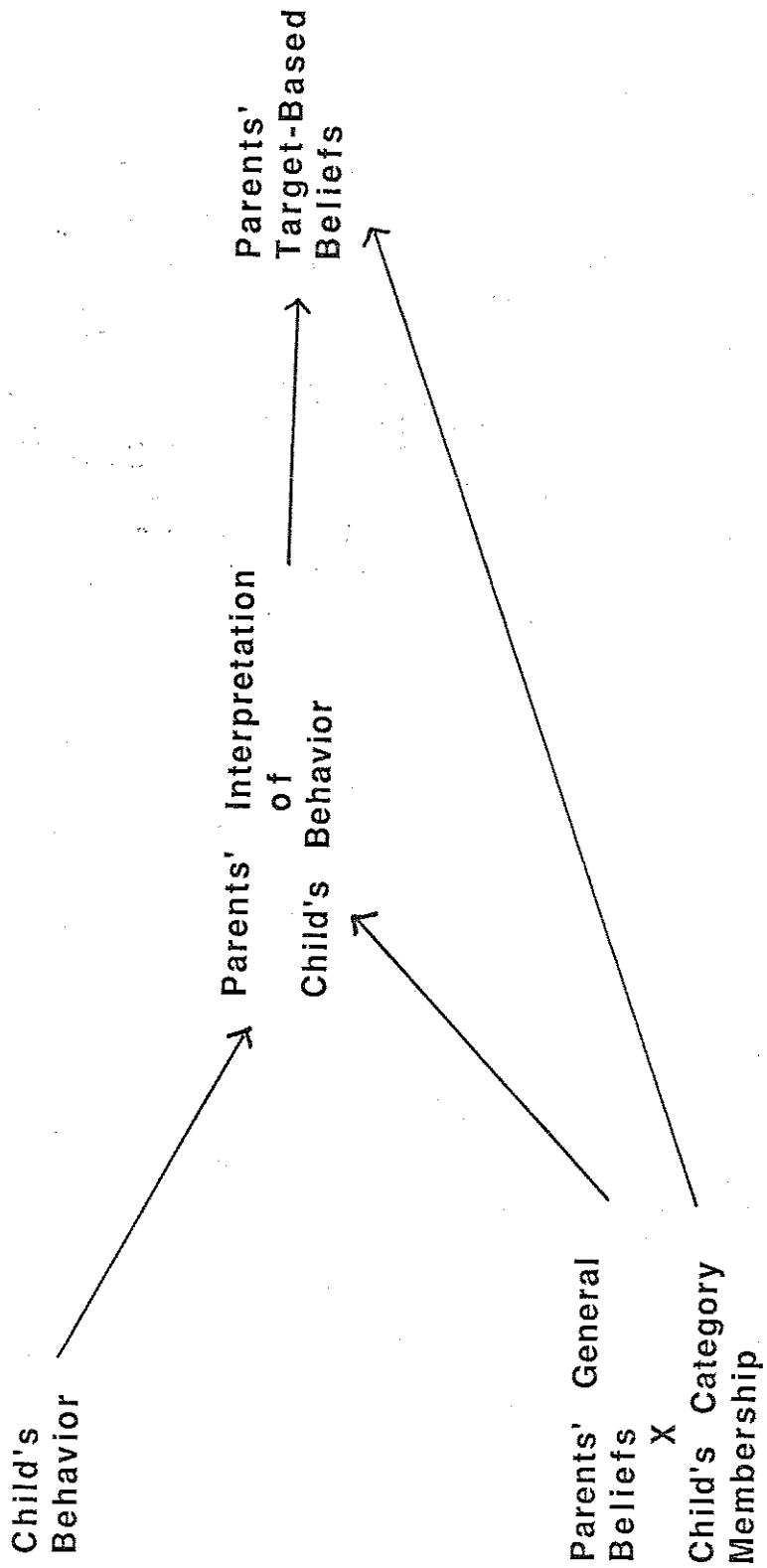
to environmental influences, the more influence the parents will feel they have had and the more influence they will report as having tried to exert in each area.

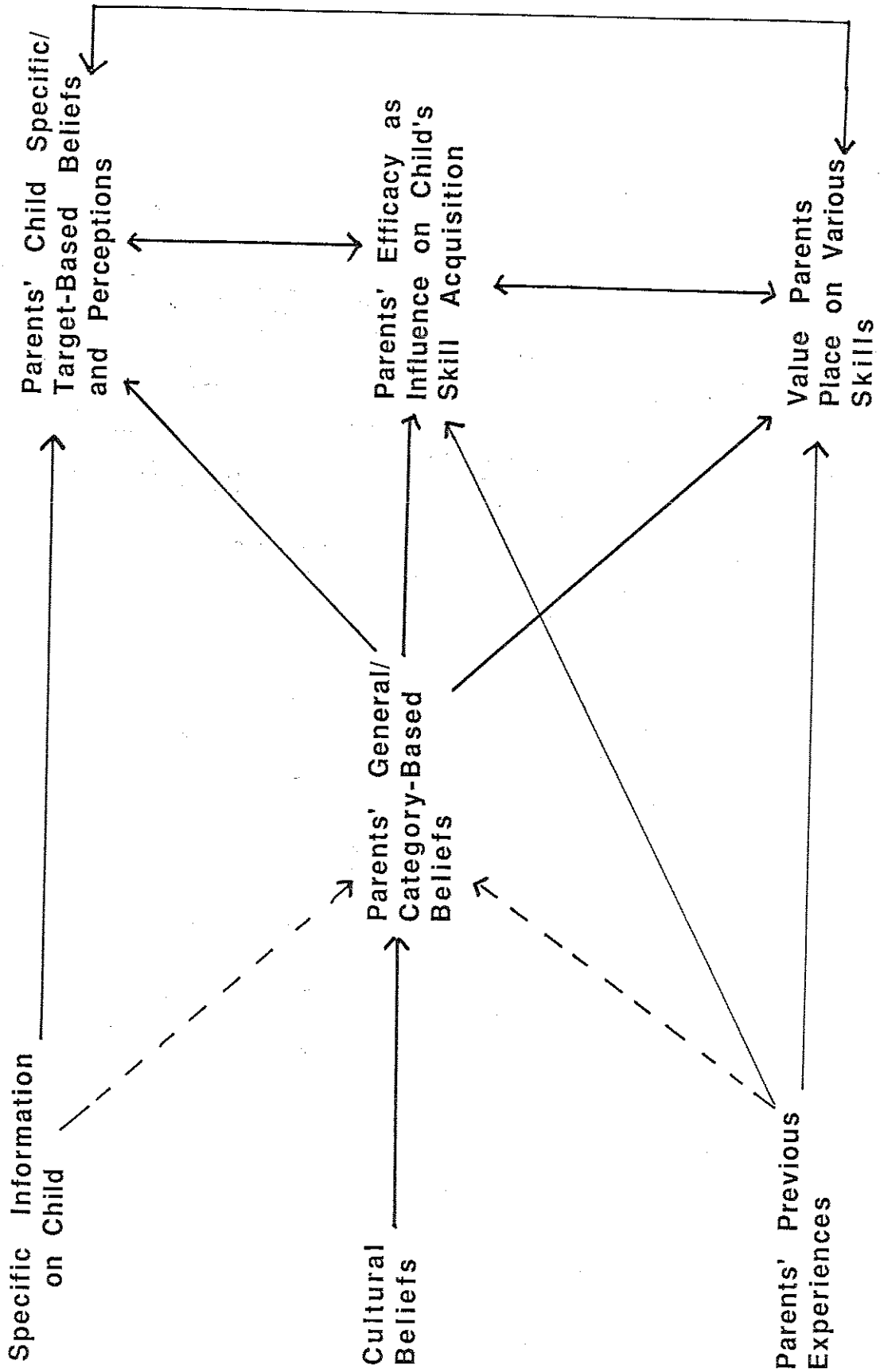
We found little support for the predicted negative impact of parents' belief that individual differences in general are due to genetic factors on their own sense of efficacy or on their efforts to influence their child's ability. We found a minimal but significant negative relationship between parents' belief that biological factors account for the sex difference in reading and parents' reports of their efforts to influence their child's reading ability. The more they endorsed the belief that the differences were due to biology the less likely they were to report trying to influence their child's reading ability.

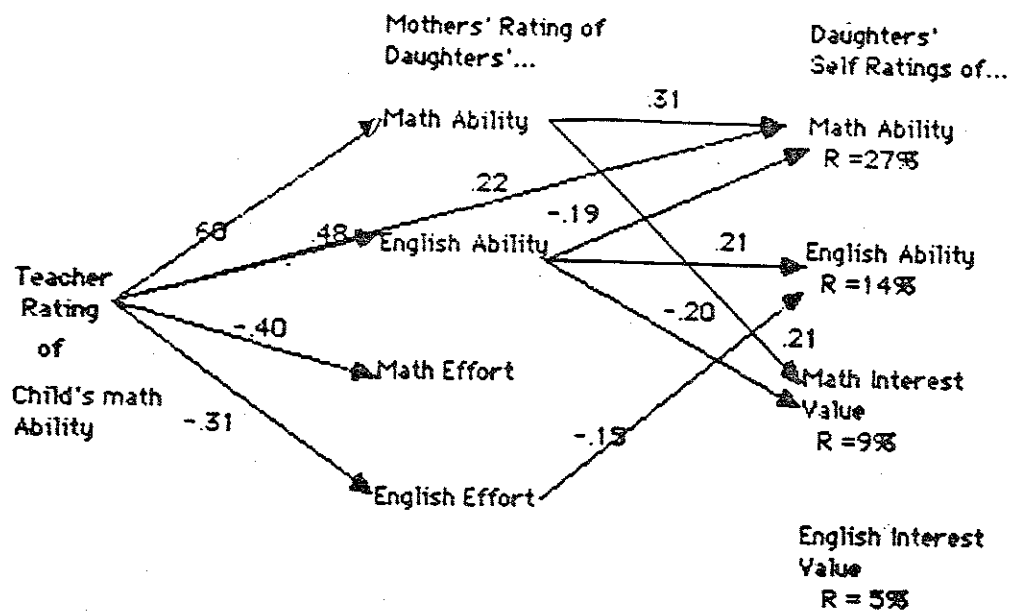
We found more consistent support for the positive association between parents' beliefs that individual differences in school work and sports were due to upbringing and parents' feelings of efficacy as teachers in these areas.

For each comparison, the category-based belief was significantly (although weakly) positively related to parents' reports of how much influence they had had on their child's performance and on their reports of how much influence they had tried to have.

We found even stronger relationships when we correlated the parents' ratings on how much relative influence parents' practices had on their child's abilities and their rating of how much they had tried to influence their child's ability. In each domain (but especially in the sports domain) parents who rated parental practices as a relative more important influence on their child's ability also reported having tried to influence their child's ability level more often. We will discuss possible causal directions of influence for these relationships and will argue that the causal direction is probably bidirectional.







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FIGURE 5. Mothers' Influence on Daughters' Self-Perceptions

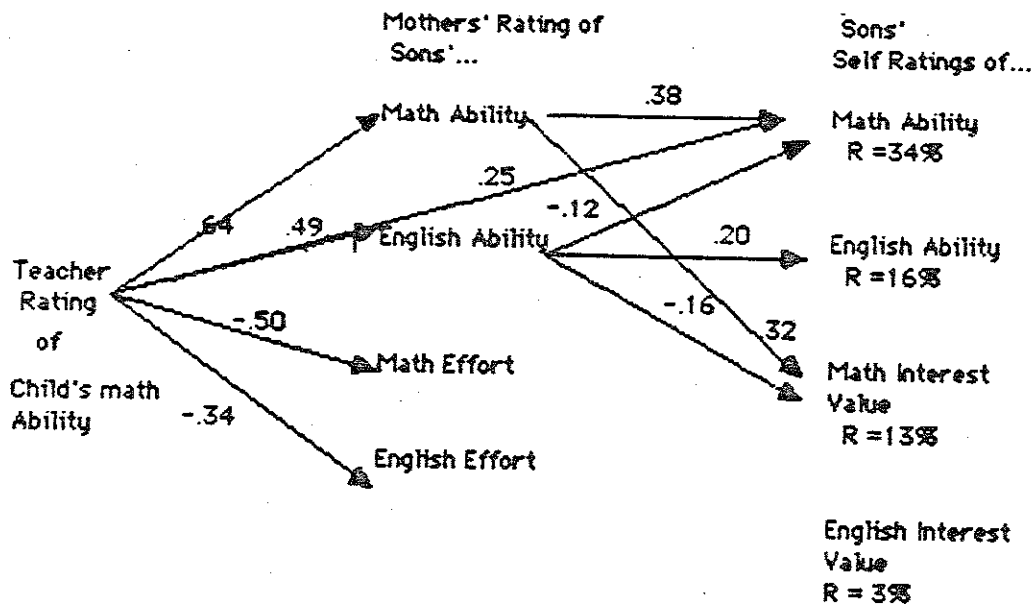
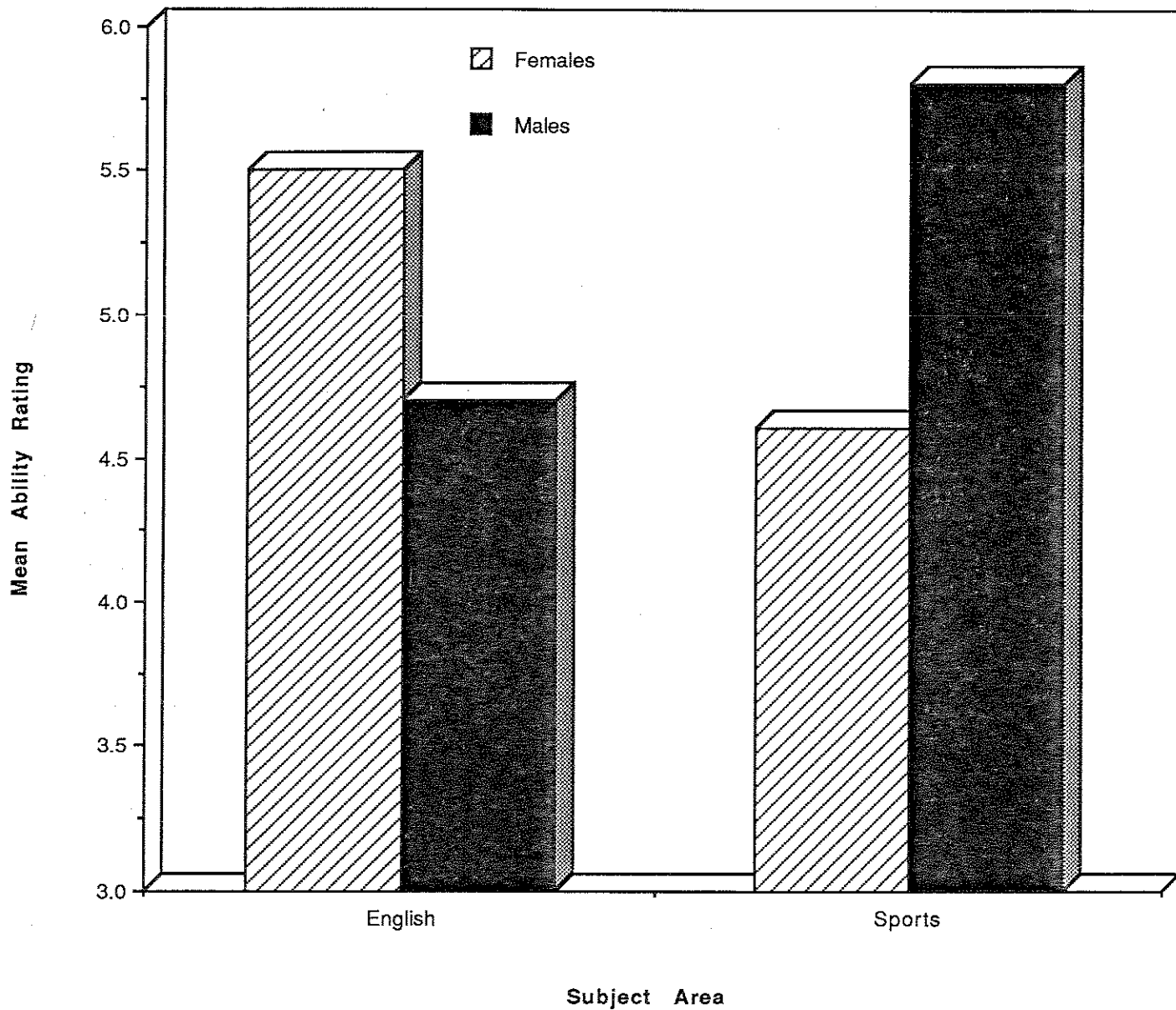
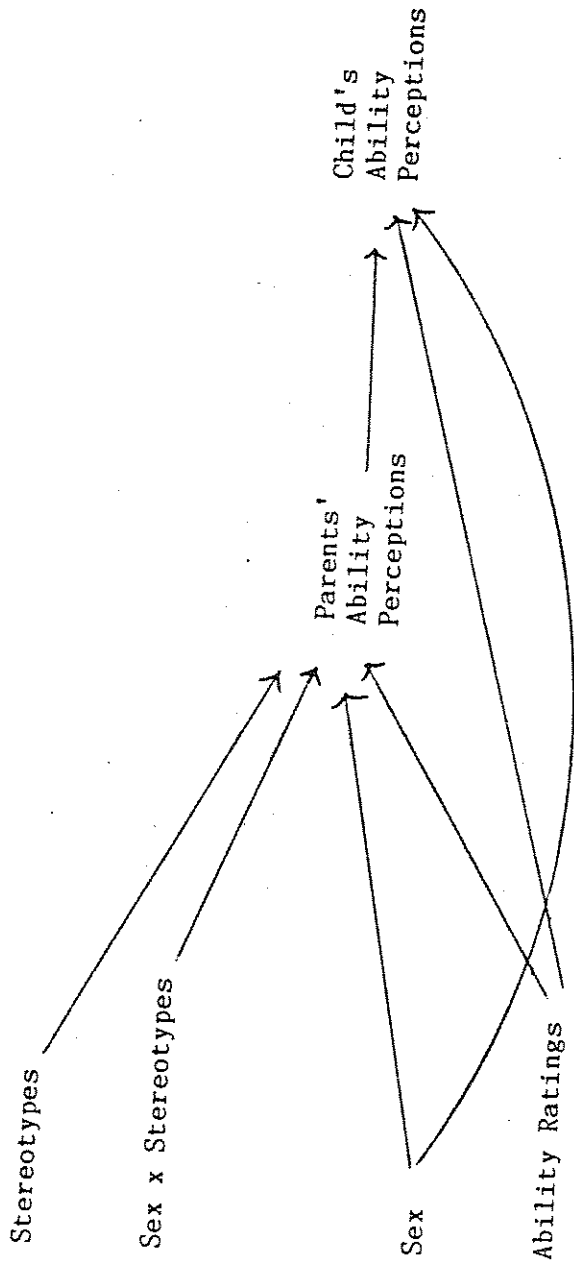


FIGURE 6. Mothers' Influence on Sons' Self-Perceptions

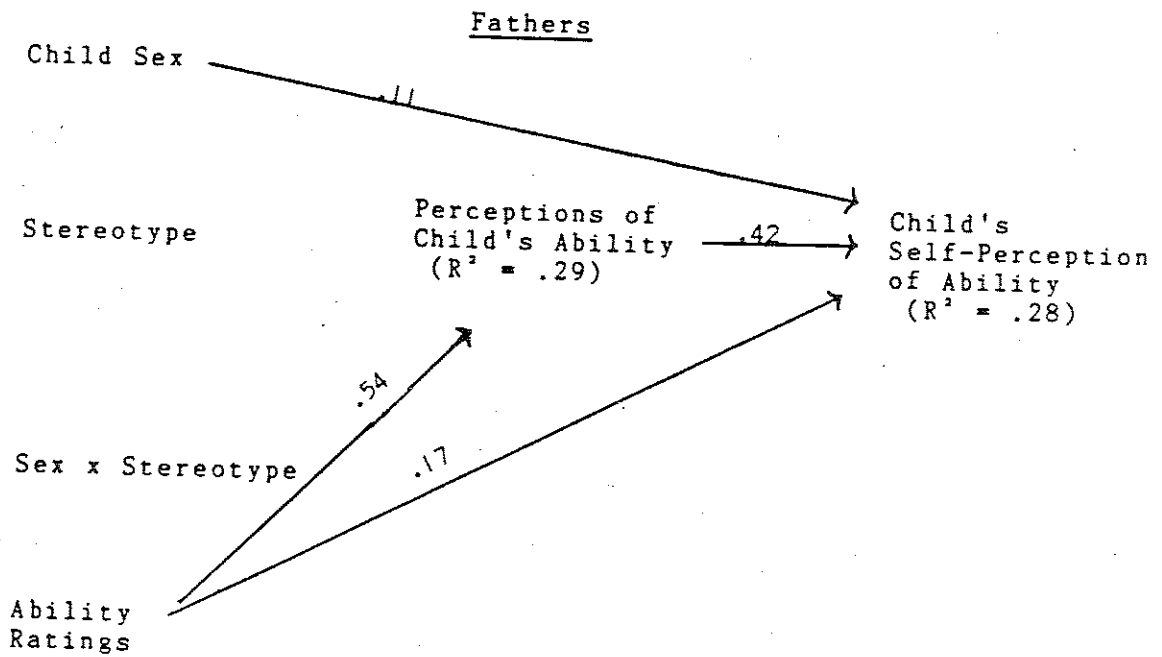
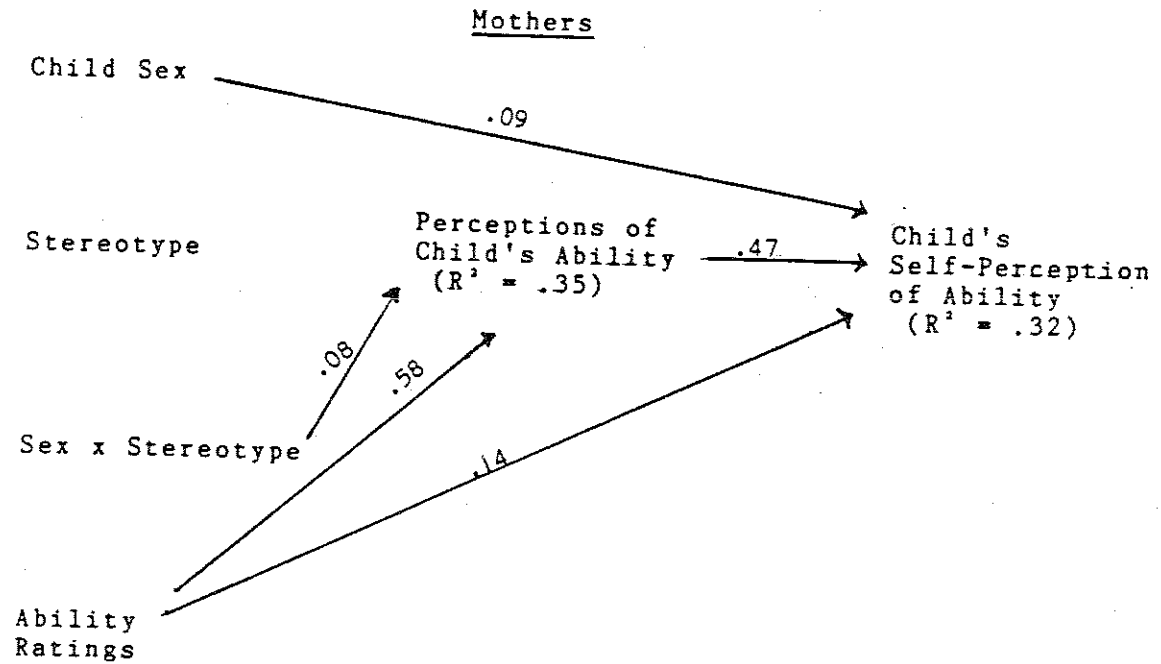
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Parents' Rating of Child's Ability



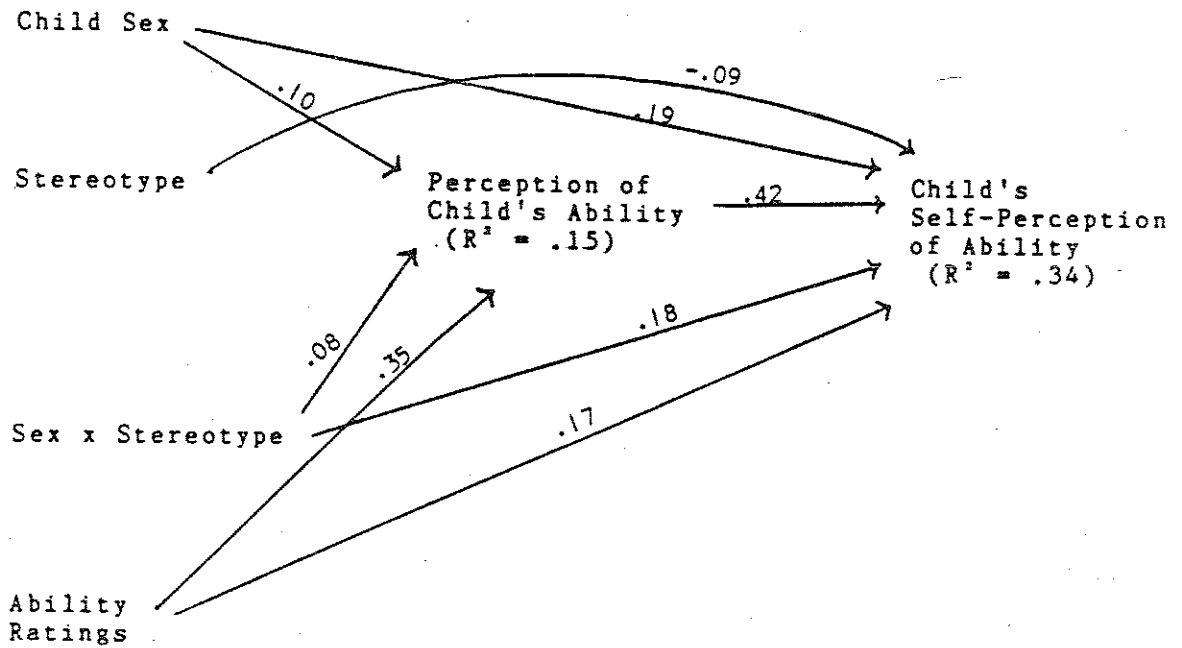


MATH

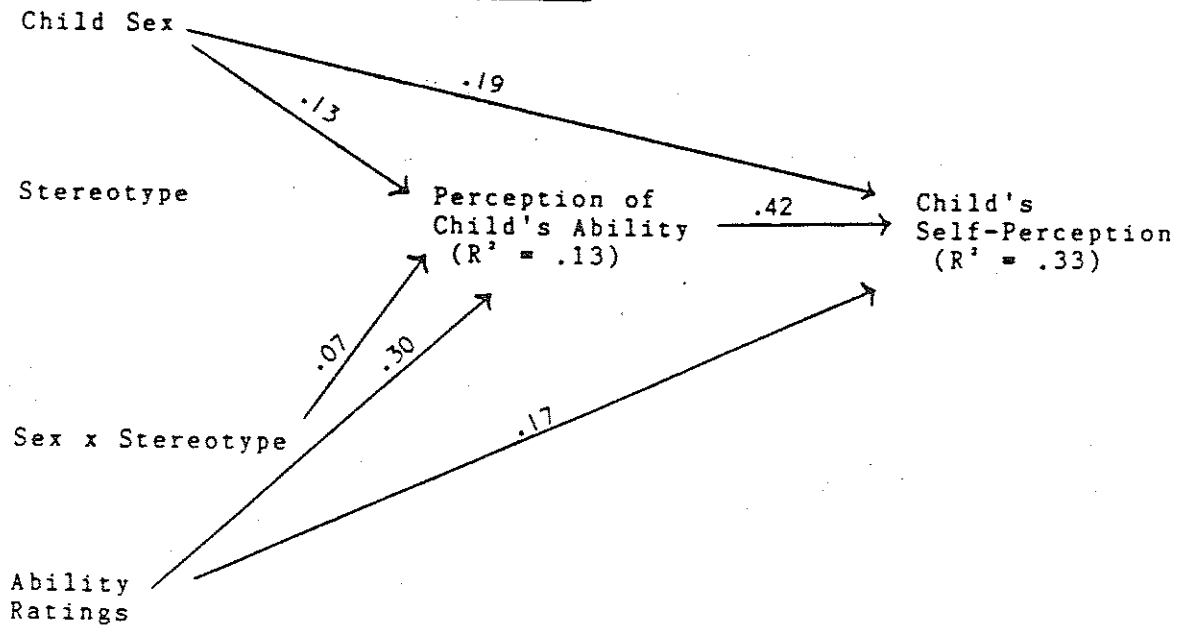


SPORTS

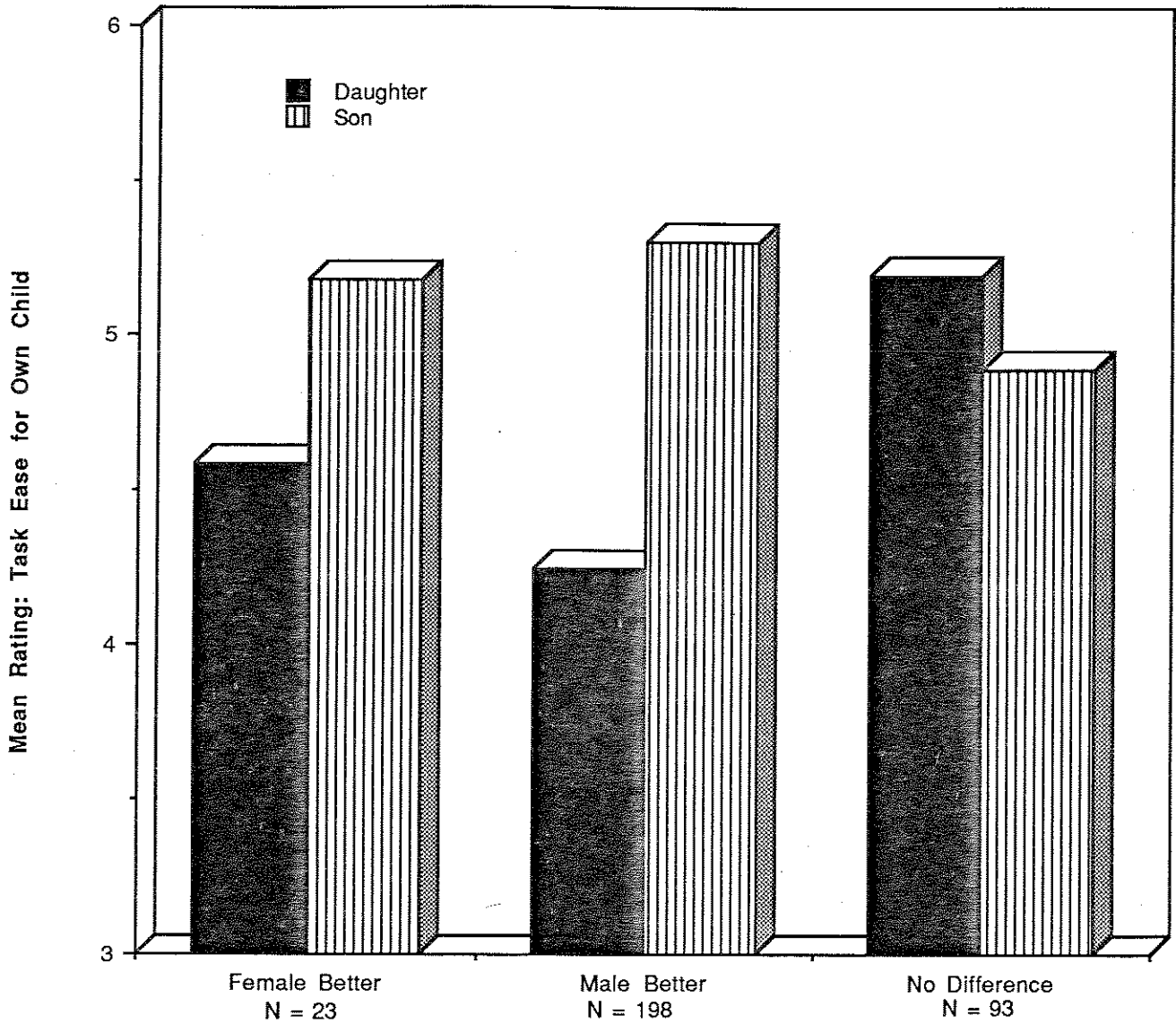
Mothers



Fathers

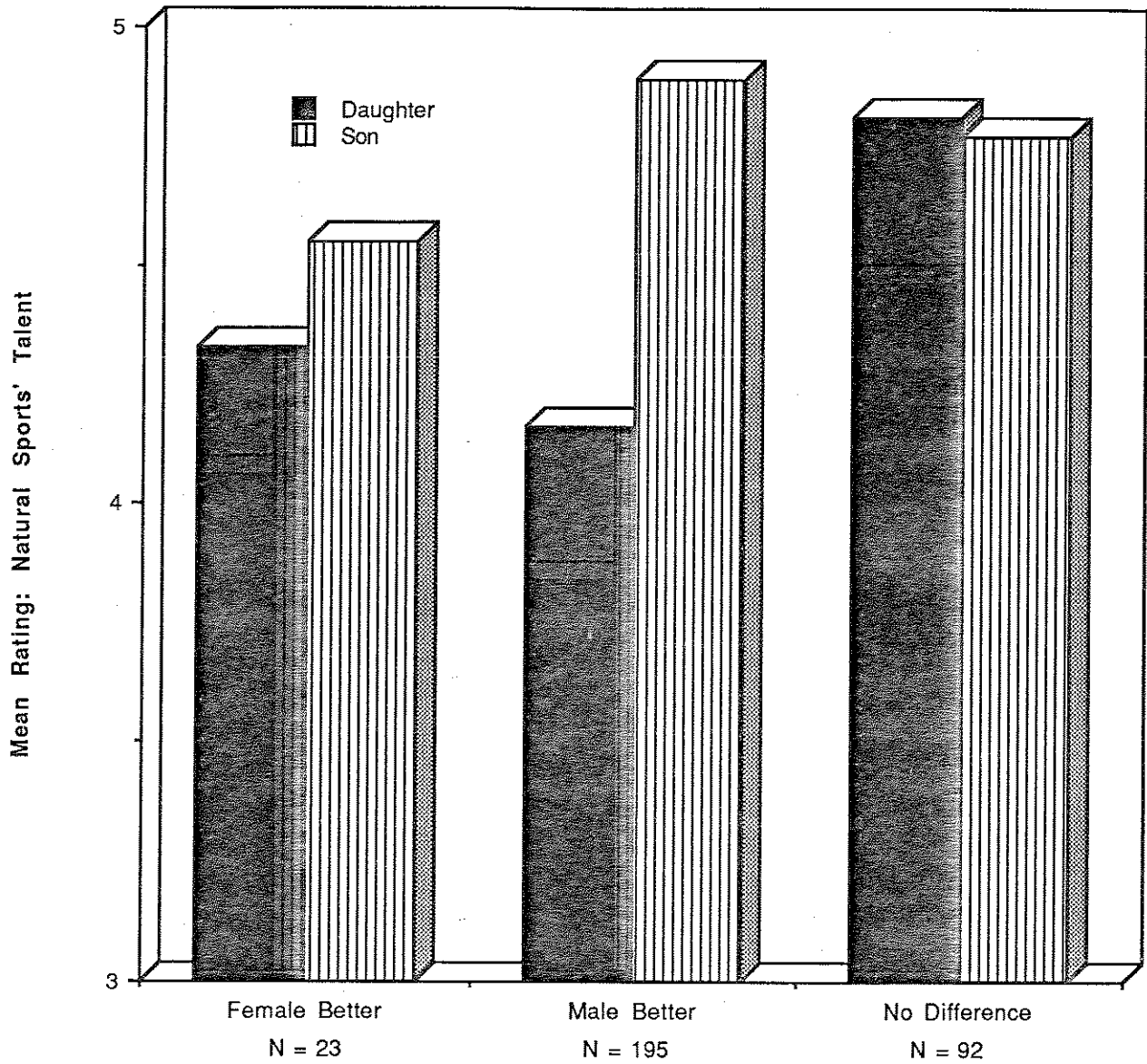


Mothers' Ratings of Sports' Ease for Own Child



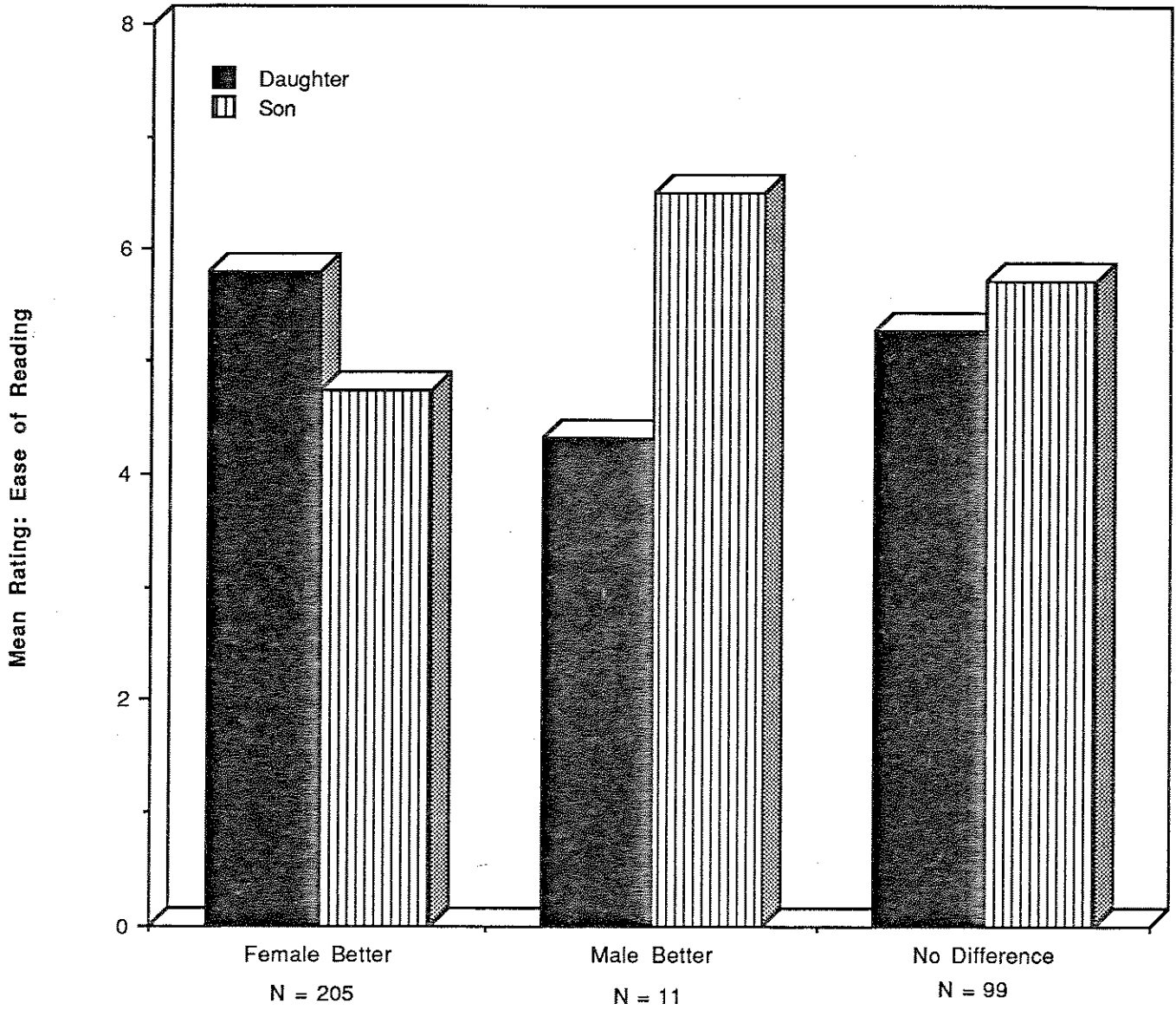
Mothers' Stereotypic Category-Based Belief about Sports' Ability

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



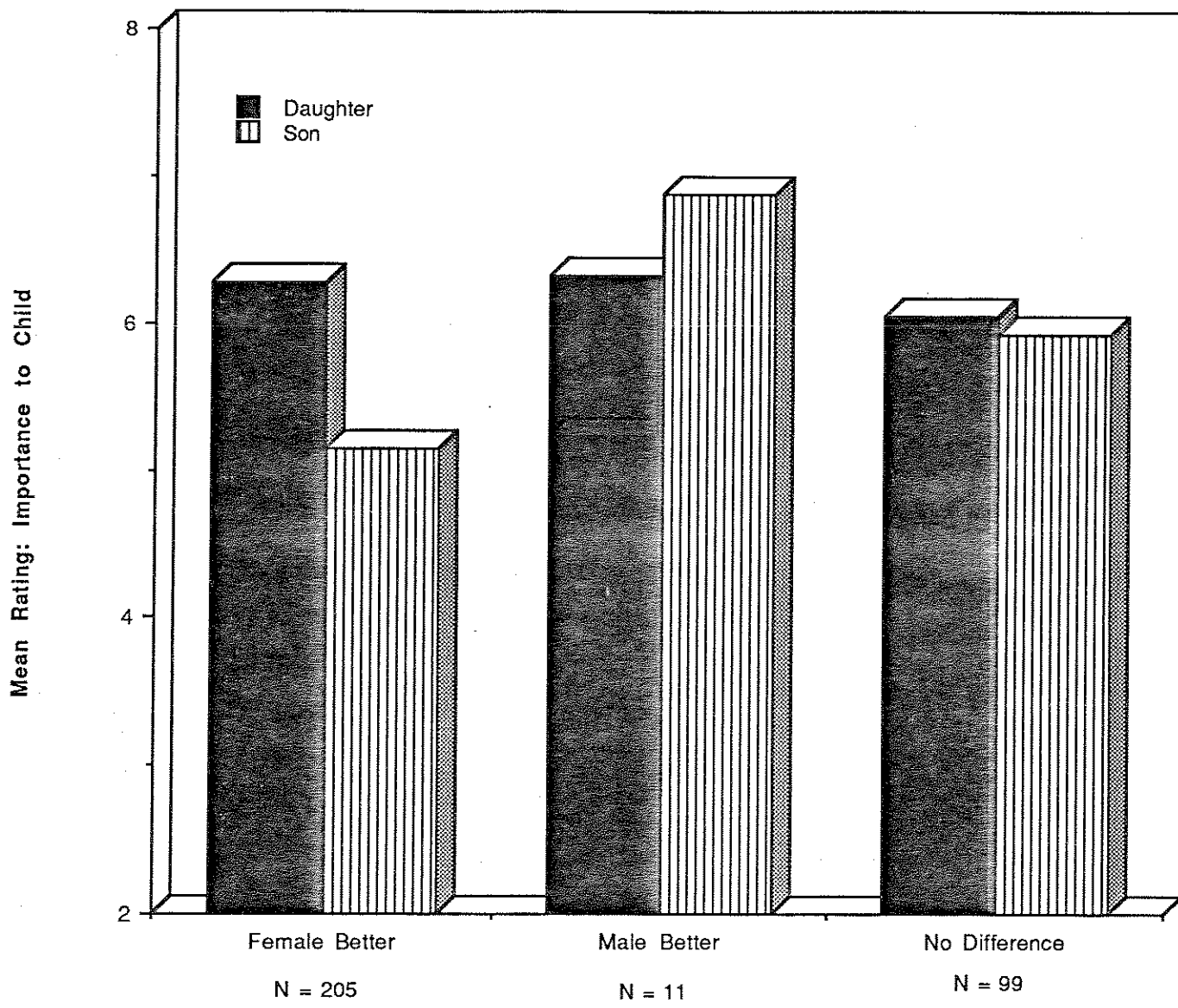
Mothers' Stereotypic Category-Based Belief about Sports' Ability

Mothers' Rating of Ease of Reading for Own Child



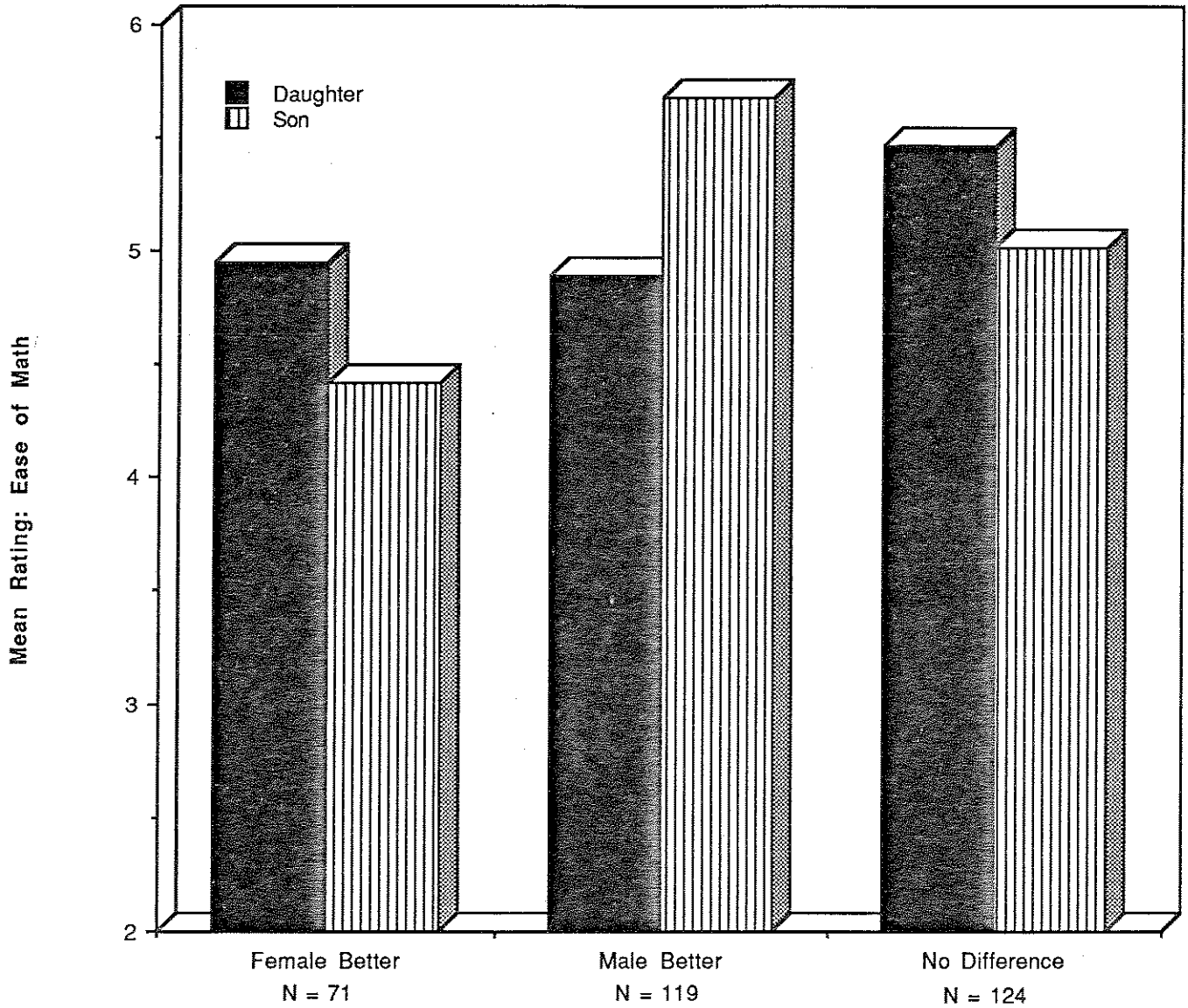
Mothers' Stereotypic Category-Based Belief about Reading Ability

Mothers' Rating of Importance of Reading Skill to Own Child



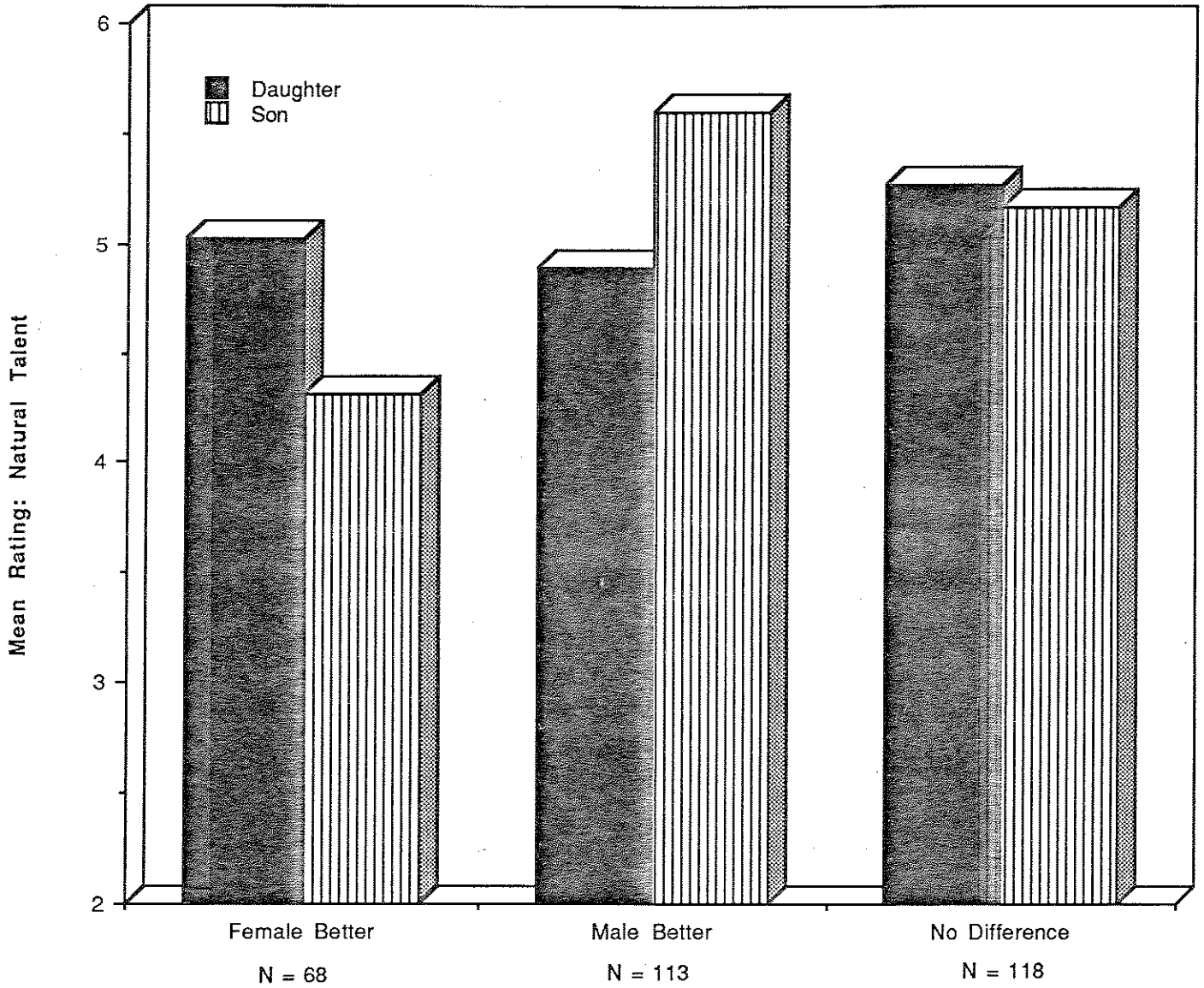
Mothers' Stereotypic Category-Based Belief about Reading Ability

Mothers' Rating of the Ease of Math for Own Child



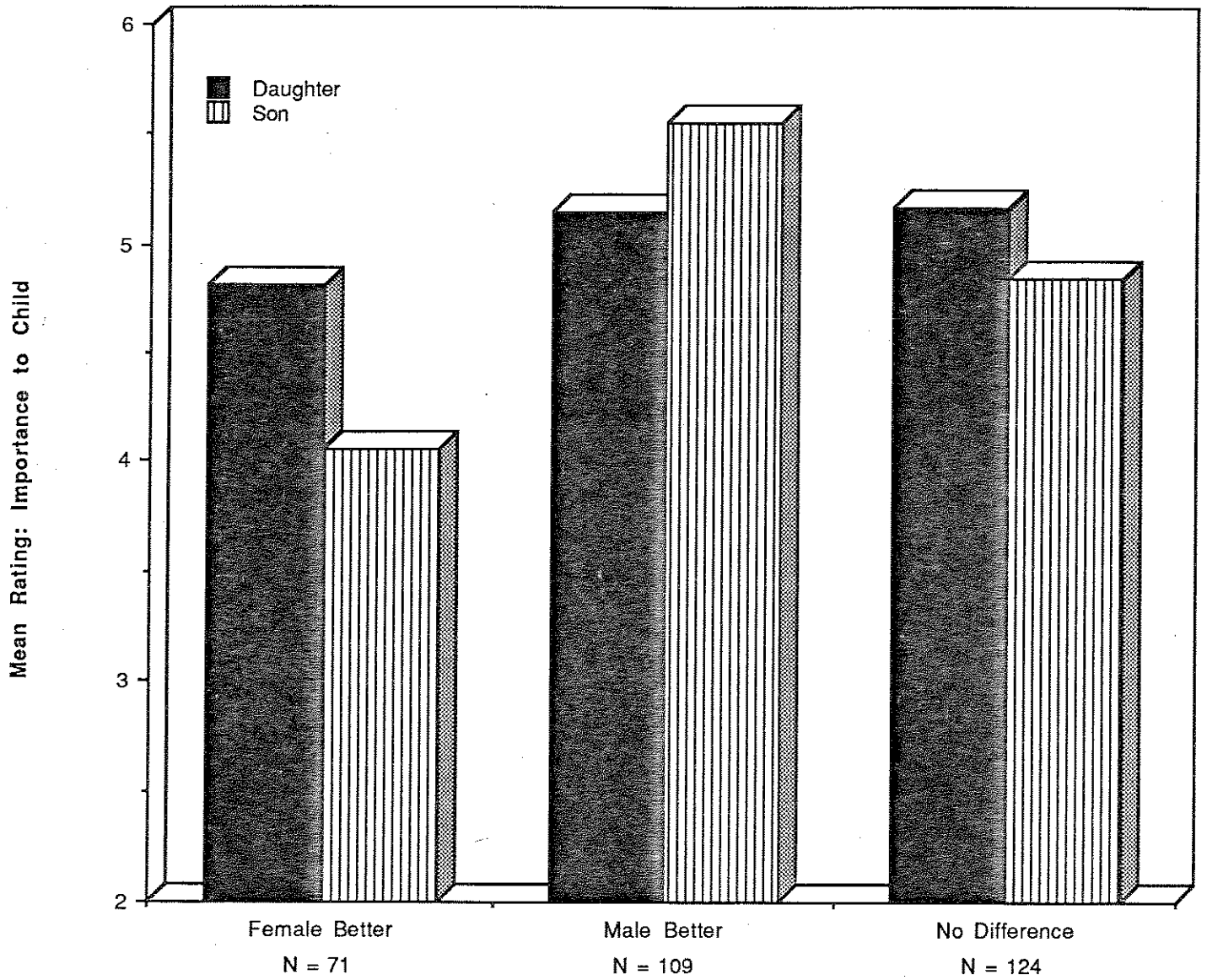
Mothers' Stereotypic Category-Based Belief about Math Ability

Mothers' Rating of Own Child's Natural Talent for Math



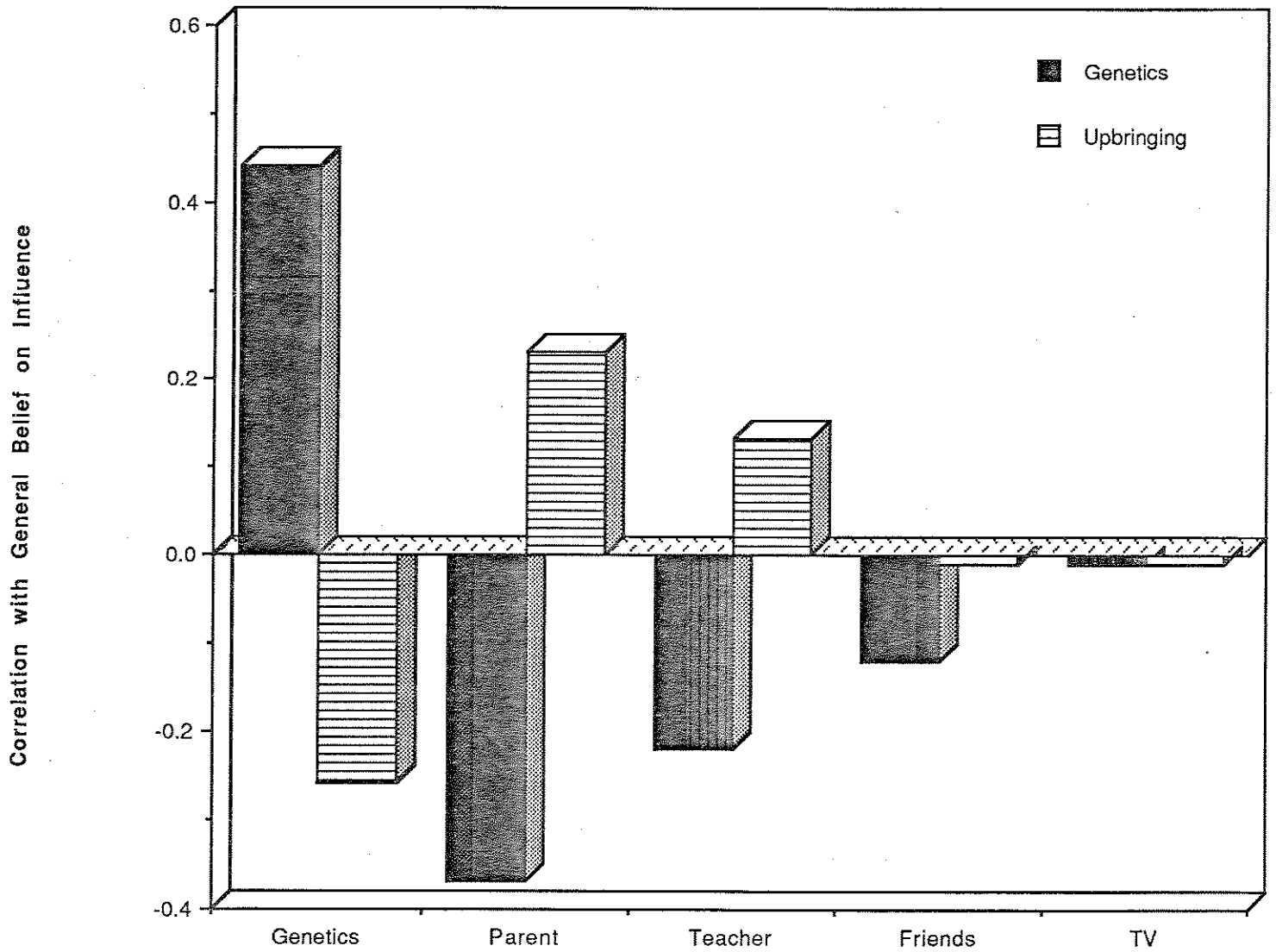
Mothers' Stereotypic Category-Based Beliefs about Math Ability

Mothers' Rating of Importance of Math Skill to Own Child



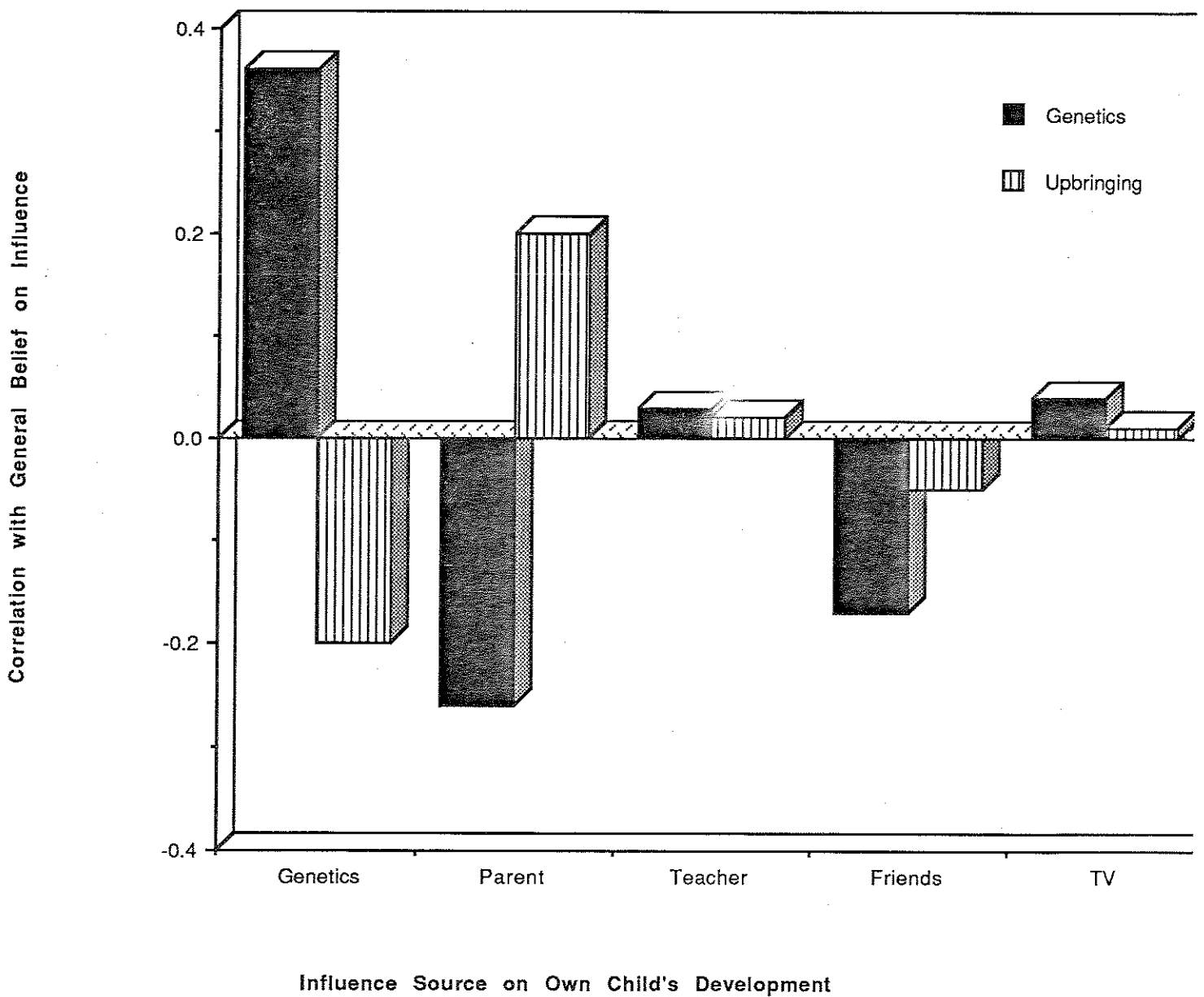
Mothers' Stereotypic Category-Based Beliefs about Math Ability

Relation of General and Specific Belief for Schoolwork

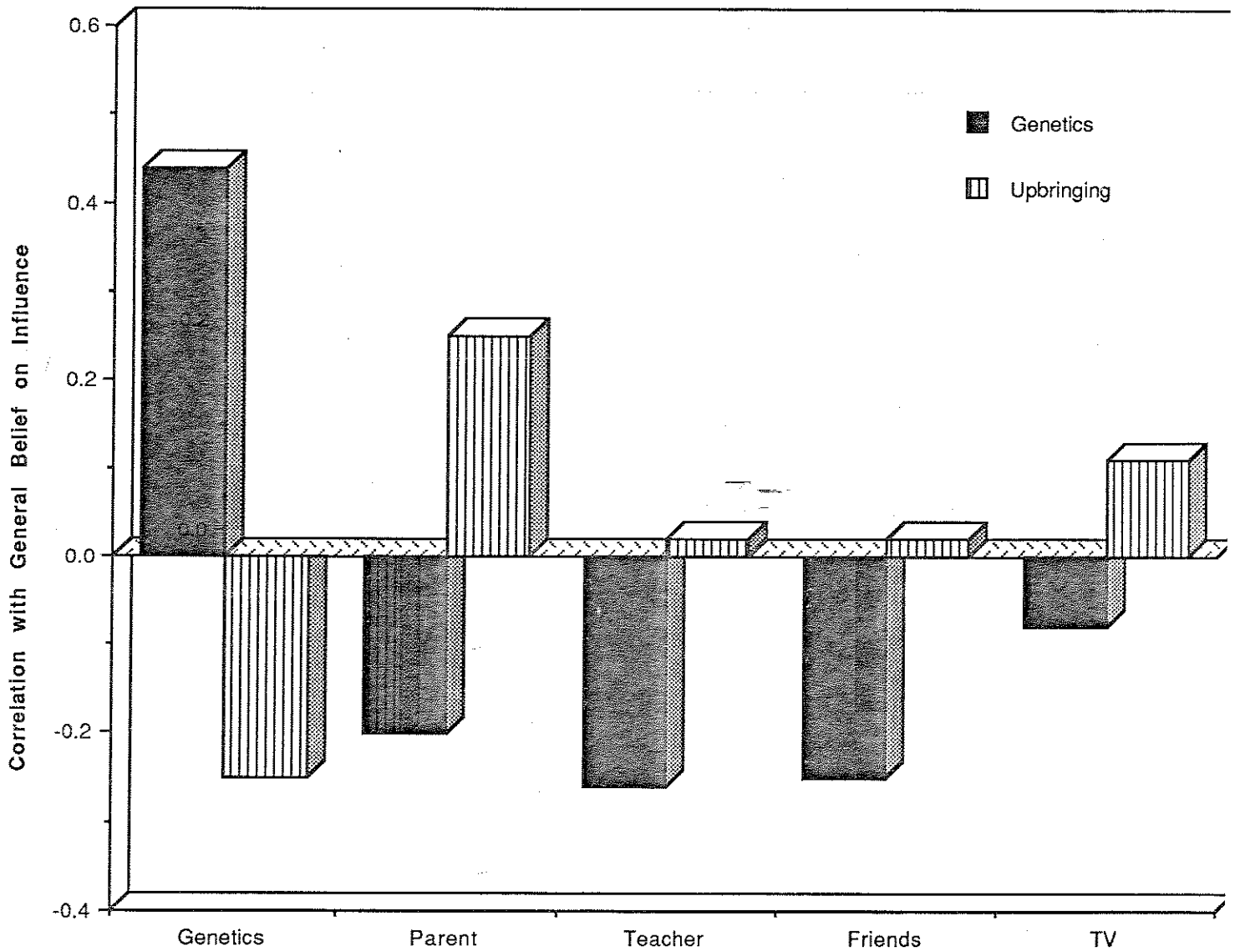


Influence Source on One's Own Child's Development

Relation of General and Specific Beliefs for Social

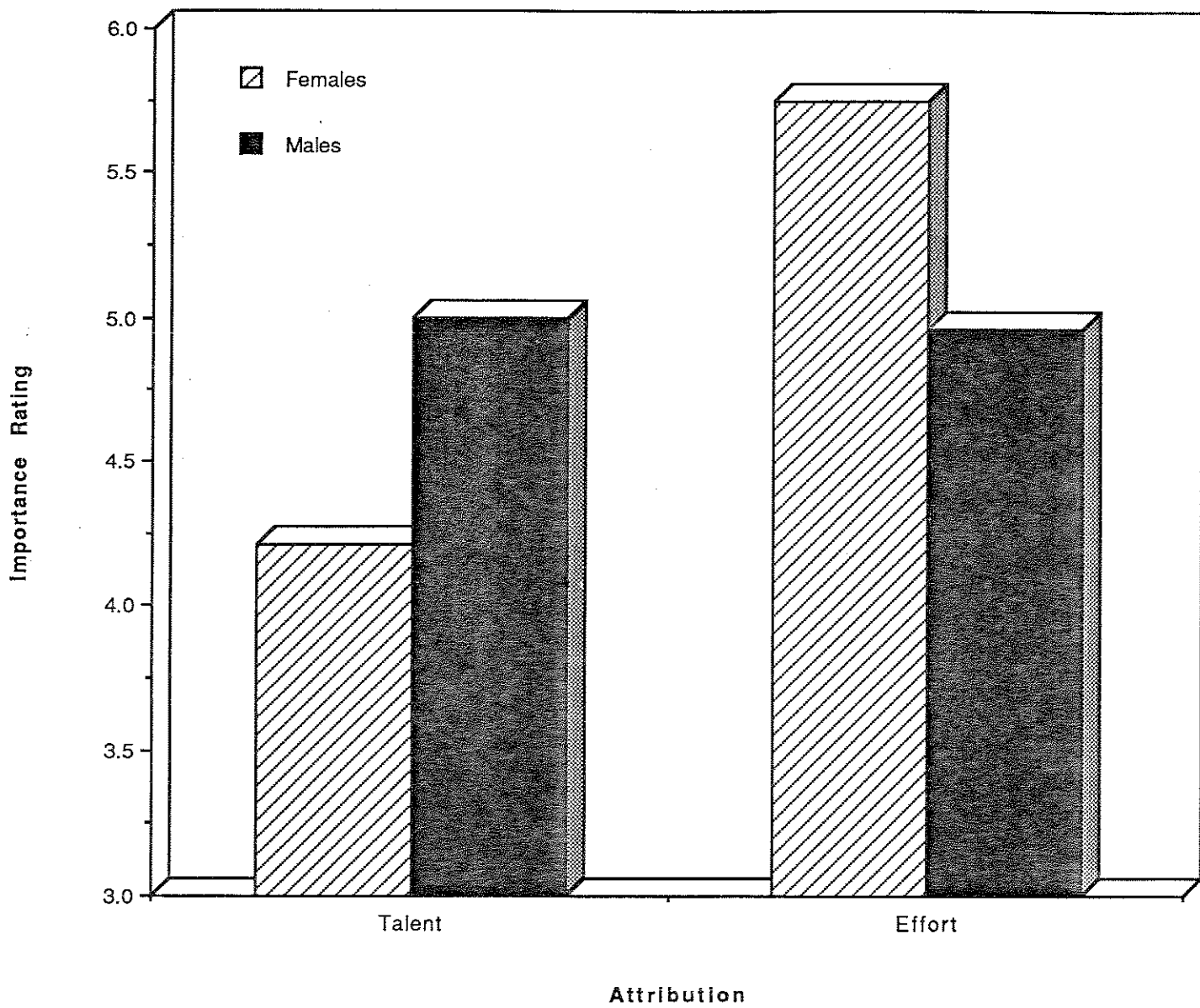


Relation of General and Specific Beliefs for Sports

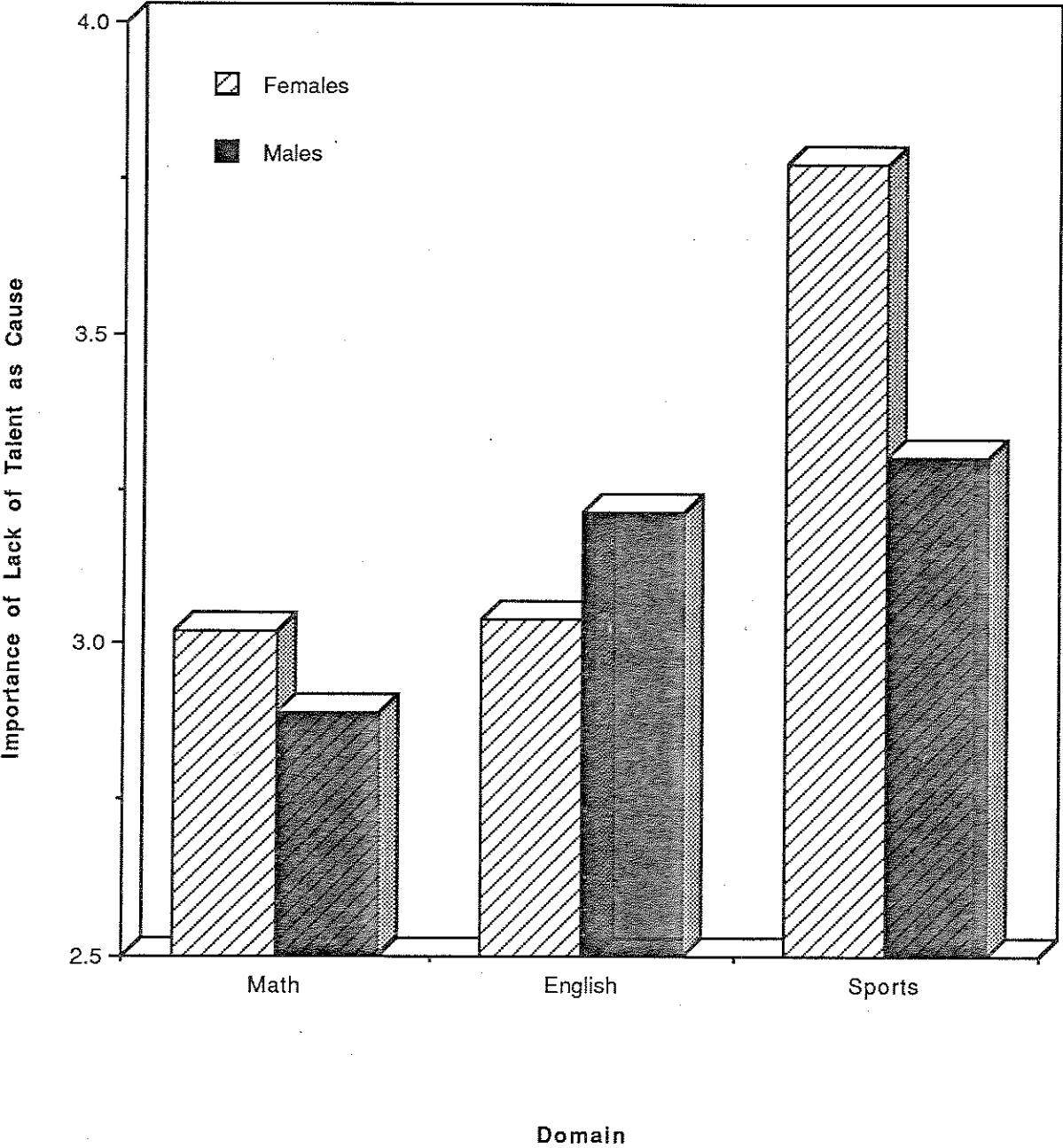


Influence Source on One's Own Child's Development

Parents' Causal Attribution for Child's Math Successes



Parents' Causal Attributions for Child's Failure



Parents' Causal Attributions for Child's Success

