

Society for Research on Child Development, Biennial Meeting, Seattle, WA, April, 1991.

SYMPOSIUM TITLE: PARENTS' BELIEFS AND CHILDREN'S PERFORMANCE

PAPER TITLE: INFLUENCES ON, AND CONSEQUENCES OF, PARENTS' BELIEFS REGARDING THEIR CHILDREN'S ABILITIES AND INTERESTS

AUTHORS: Jacquelynne S. Eccles, University of Colorado; Rena Harold, Michigan State University; Janis Jacobs, Univ. of Nebraska; Allan Wigfield, University of Maryland; Kwang Suk Yoon, Amy Aberbach, Carol Freedman Doan, University of Michigan

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 et al., 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?

(Show General Model)

This paper outlines a theoretical framework (see Model) for investigating both the influences on parents' beliefs regarding their children's abilities across activity domains, and the processes through which these beliefs may be affecting both children's performance and involvement in various activities, and their perceptions of their own competence in these various activity domains. Basically, we believe that parents' views of their children's competencies in various activities are influenced by several social factors in addition to their 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, 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 performances in various gender-role stereotyped activity domains. These inferences, in turn, should affect parents' expectations for their children's future performance in these activities, and should affect the opportunities these parents give their children to develop skills in these various activity domains.

My colleagues and I have been studying these relationships for the past 15 years. We have been gathered longitudinal information from children and their families in three different samples. Today I'll present some of the results relevant to these predictions from two of these samples. I am going to focus on the issue of gender differences because this is an easy individual difference variable to assess, and because there are substantial gender differences in children's involvement in the activity domains we have studied across both the elementary and secondary school years. Today I am going to talk in particular about two school achievement domains (math and reading/English) and the sport domain. The work I am reporting has

been done collaboratively with the following people: Allan Wigfield, Janis Jacobs, Rena Harold, Amy Aberbach, Carol Freedman-Doan, and Kwang Suk Yoon. In this session I am presenting some of the work we have done together. On Saturday at 12:30, Rena Harold will be presenting more of our work in a poster session in Convention Center 6 B-C on family beliefs.

(Show path analyses on mediating effects of parent beliefs)

Let me begin with one background finding. In our previous work 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. The next figures illustrate similar findings with a new sample of sixth graders in southeastern Michigan. I will be referring to this sample as Study 1. This is a sample of approximately 1800 children and their parents drawn from 12 public school districts. 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's 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).

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)

We have used path analytic techniques to test this model. The data are taken from Study I (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.)

(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. I will be referring to this sample as Study 2. 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 and our current findings will be presented at the poster session by Dr. Rena Harold on Saturday at noon. But 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.

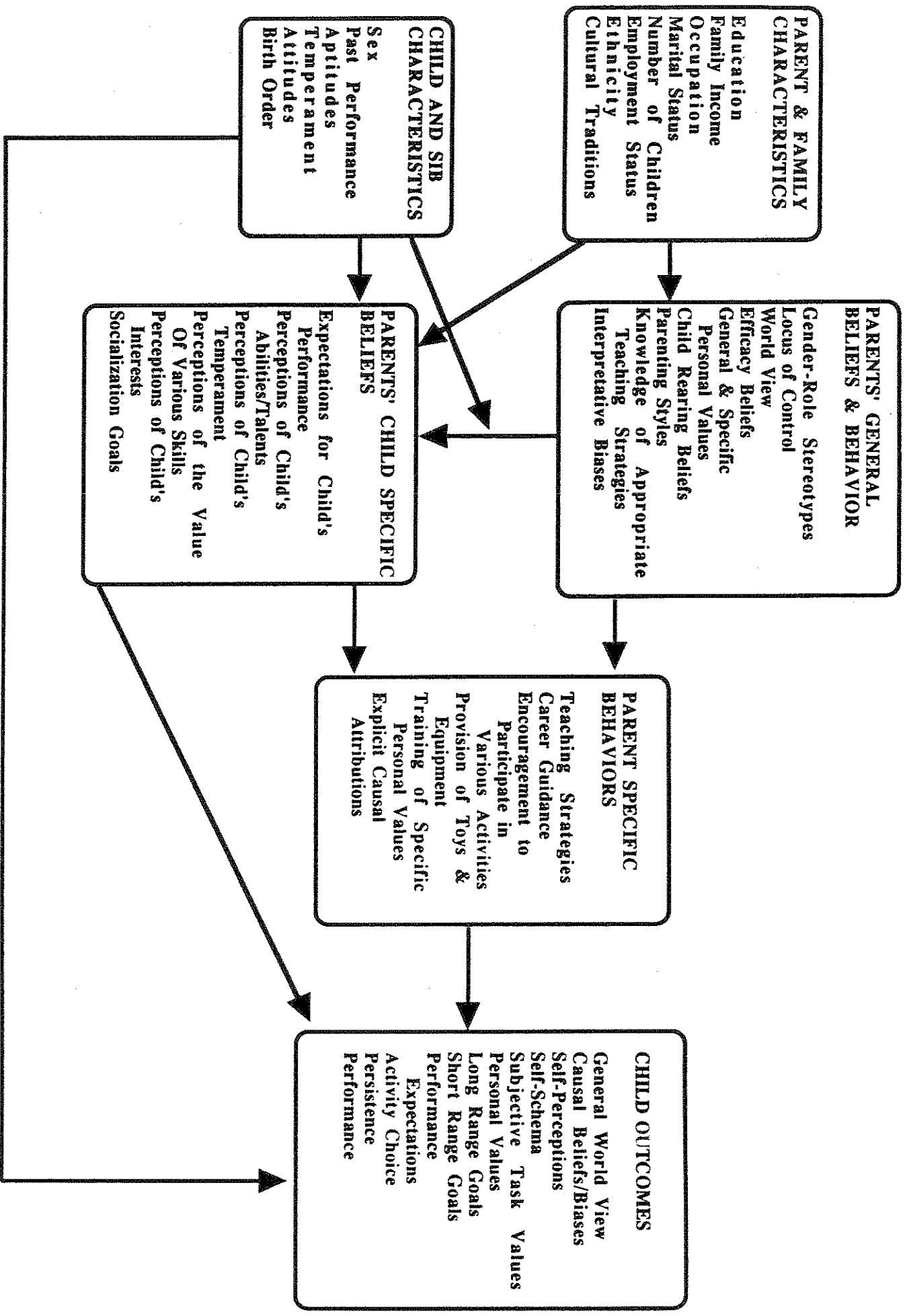
As a first step in this process we tested whether parents provide different types of experiences for girls and boys. They clearly do in several of the activity domains we are studying. For illustrative purposes, I'll focus on the sport domain. Not surprisingly, parents report being more likely to actively 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.

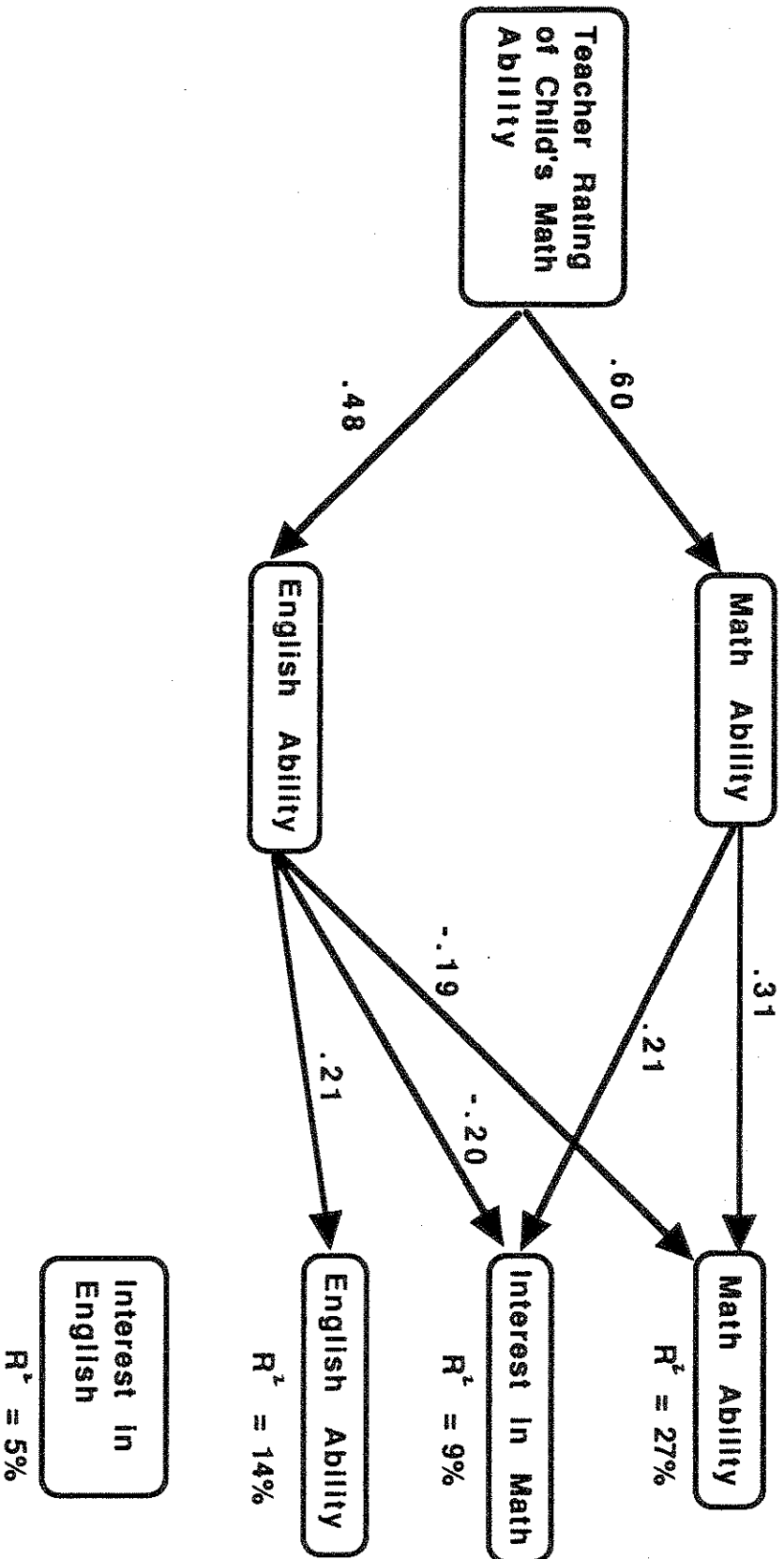
References

- Alexander, K. L., & Entwisle, D. R. (1988). Achievement in the first two years of school: Patterns and processes. Monograph of the Society of Research in Child Development, 53(2), entire issue.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. Journal of Personality and Social Psychology, 51, 1173-1182.
- Parsons, J. E., Adler, T. F., & Kaczala, C. M. (1982). Socialization of achievement attitudes and beliefs: Parental influences. Child Development, 53, 310-321.
- Weiner, B. (1974). Achievement motivation and attribution theory. Morristown, NJ: General Learning Press.
- Yee, D., & Eccles, J. S. (1988). Parent perceptions and attributions for children's math achievement. Sex Roles, 19, 317-333.



Mother's Influence on Daughter's Self-Perceptions

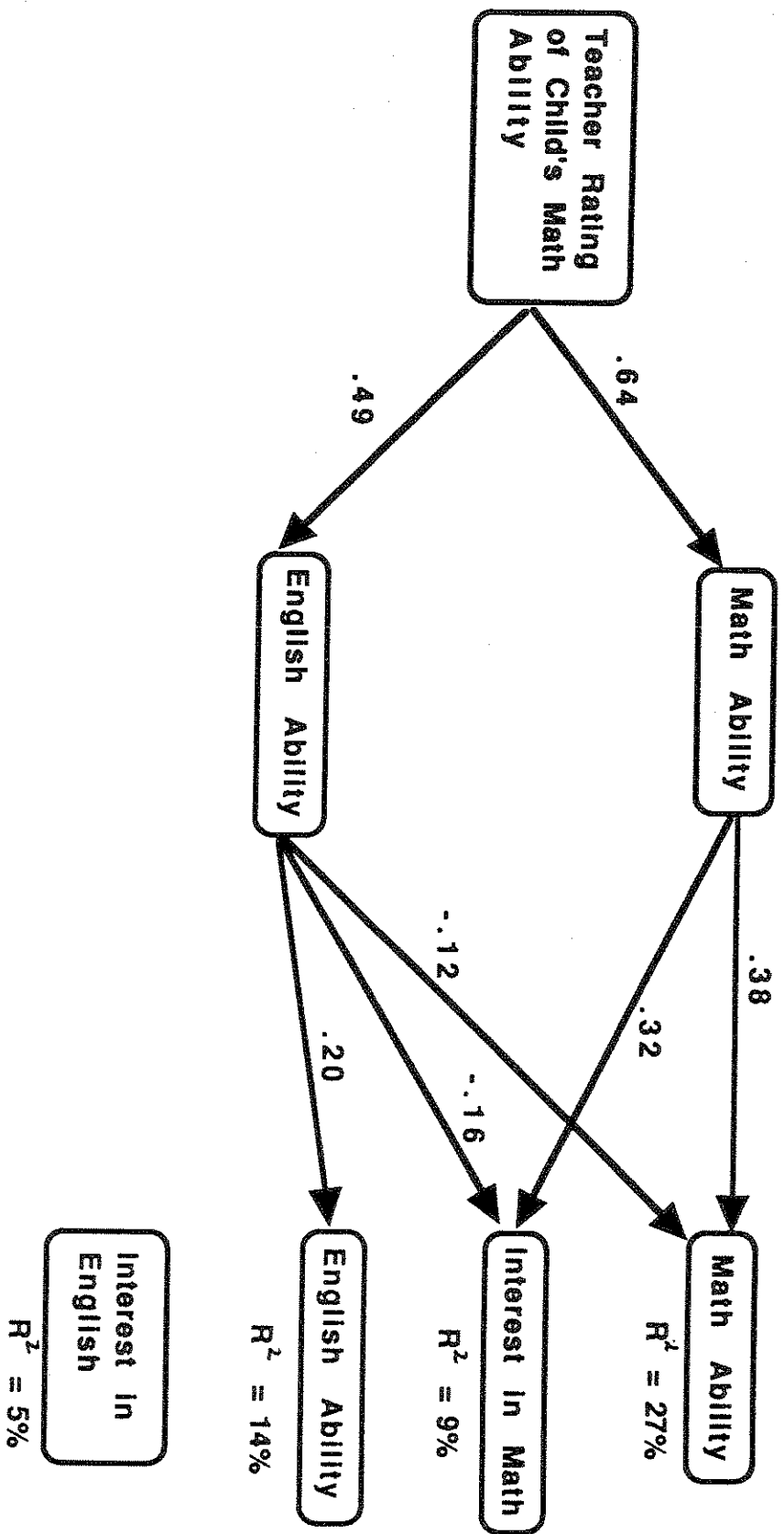
Mother's Rating of Daughter's: Daughter's Self Rating of:



Mother's Influence on Son's Self-Perceptions

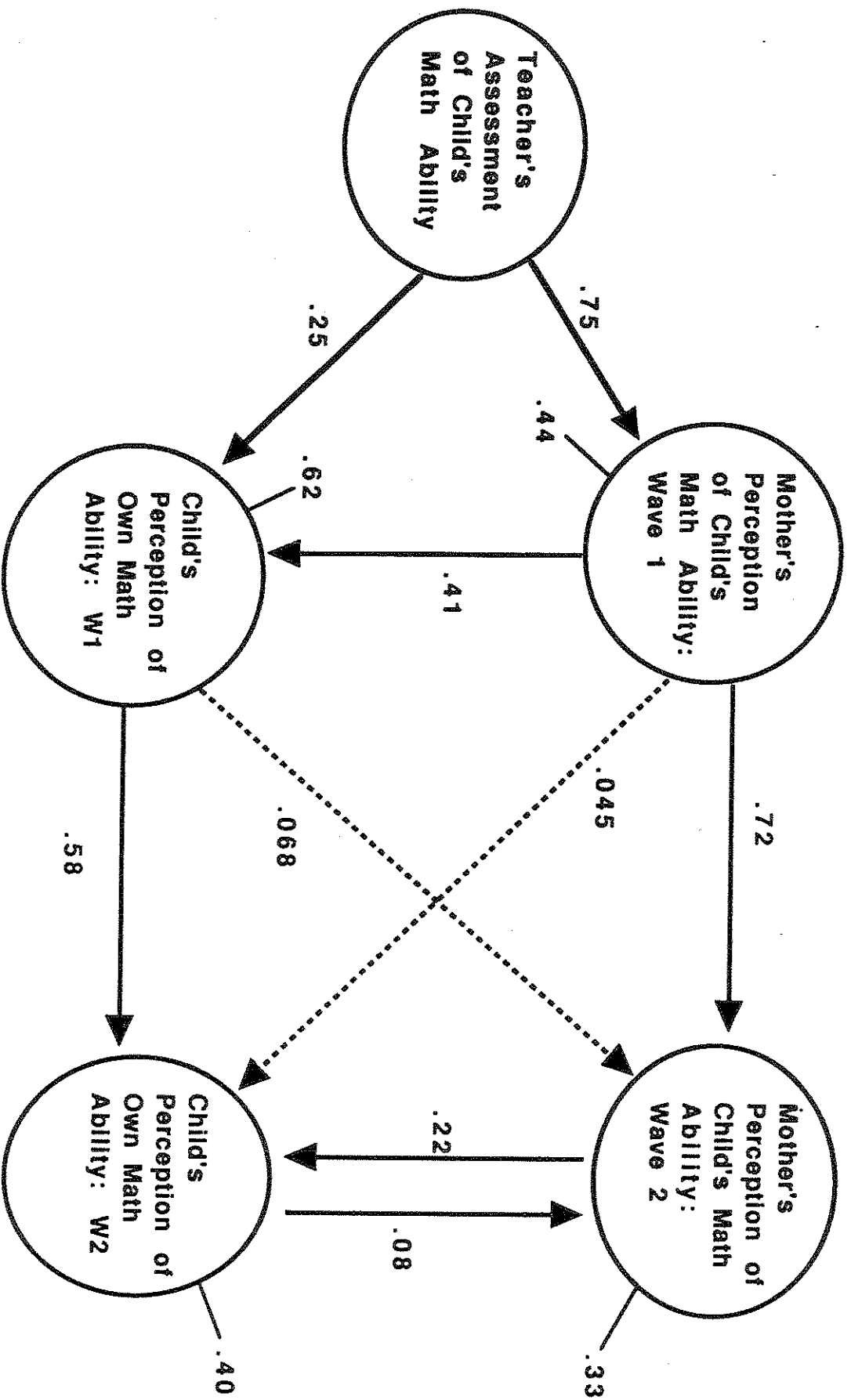
Mother's Rating of Son's:

Son's Self Rating of:



N = 920

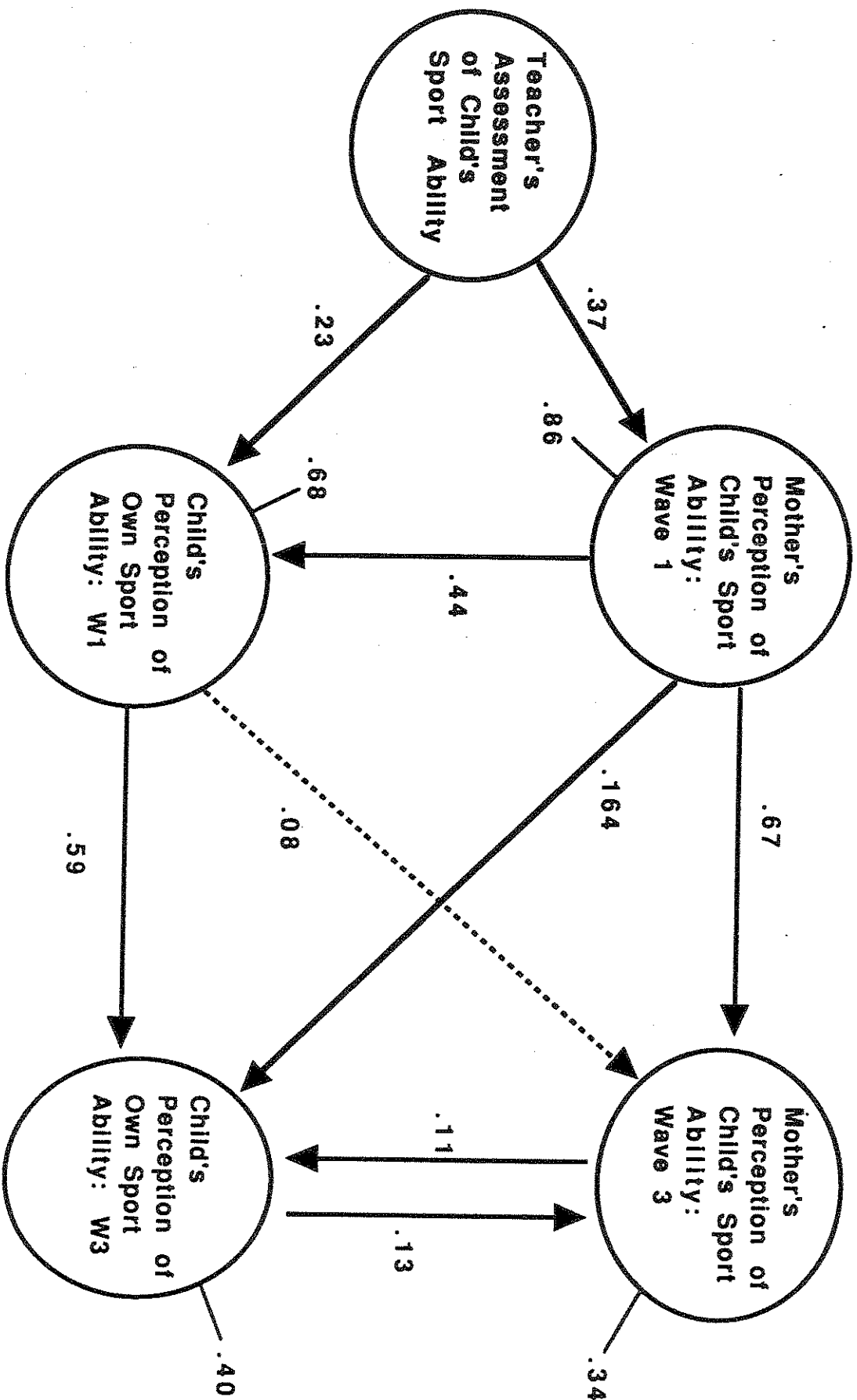
Cross Lagged Structural Equation Modelling of Causal Directions And Mediating Influence of Mother's Perceptions



Note: Measurement Model Statistics Omitted

χ^2 (df=44) = 143.96
 Goodness of Fit = .98
 Adjusted GFI = .96

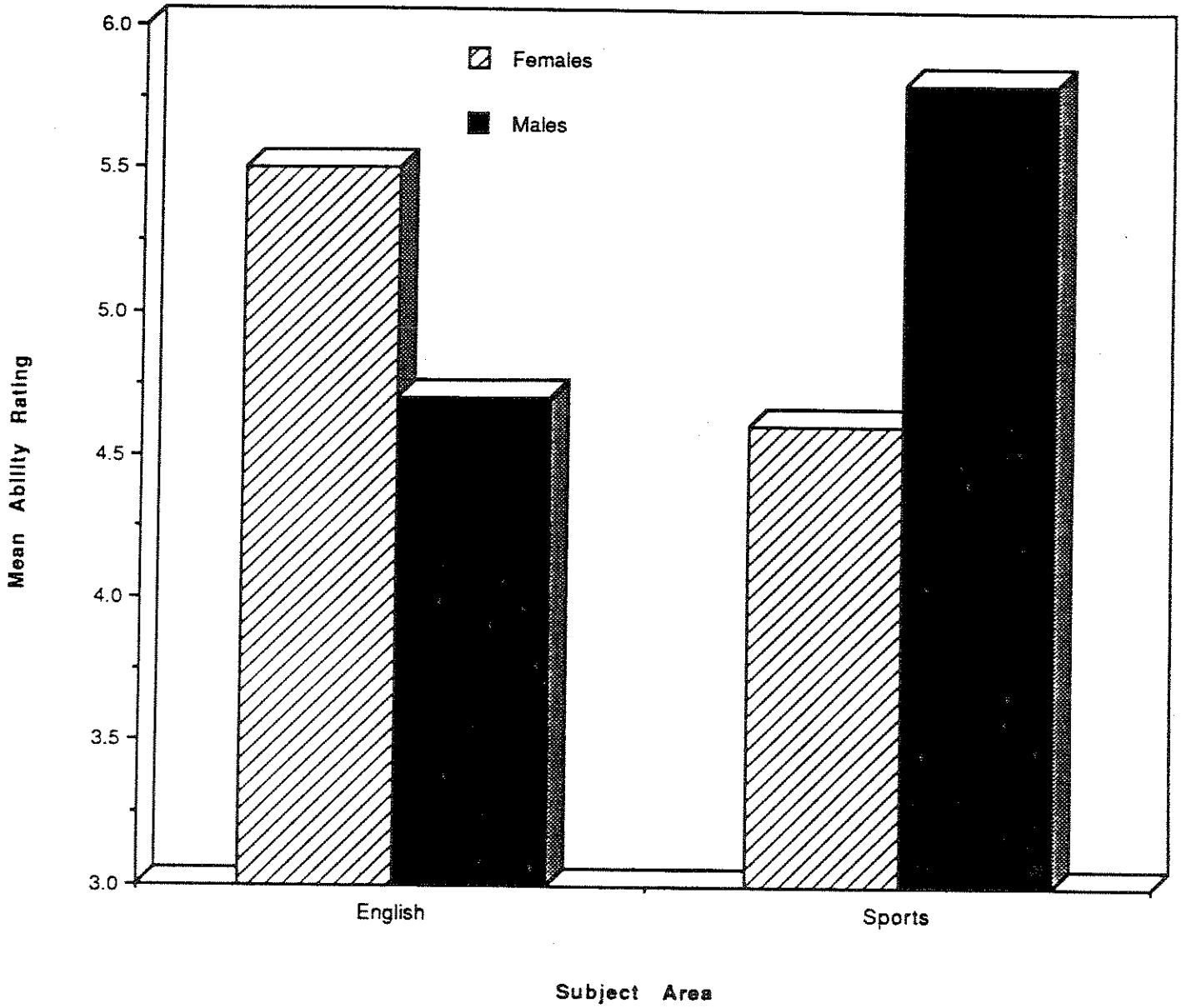
Cross Lagged Structural Equation Modelling of Causal Directions And Mediating Influence of Mother's Perceptions

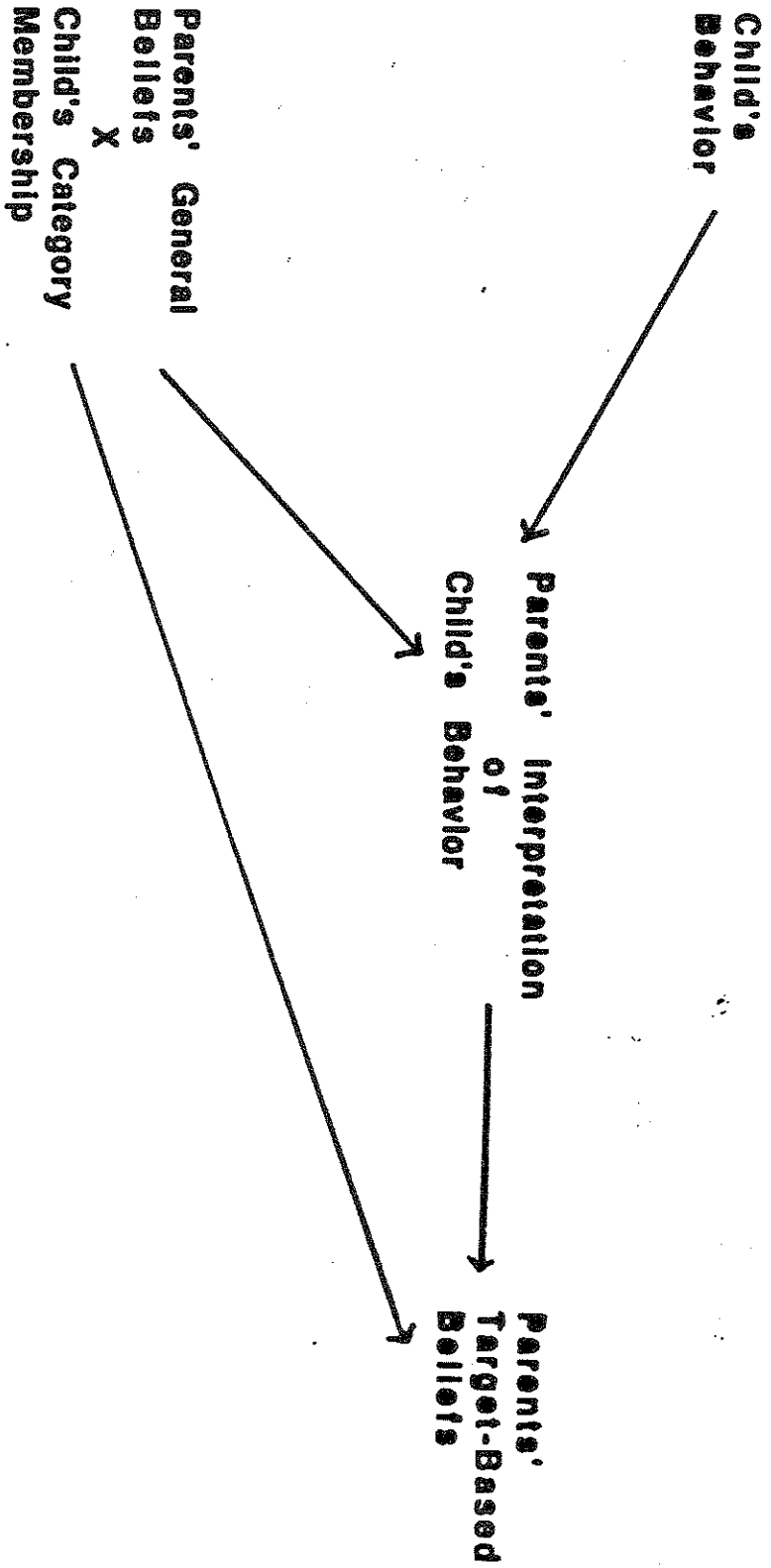


Note: Measurement Model Statistics Omitted

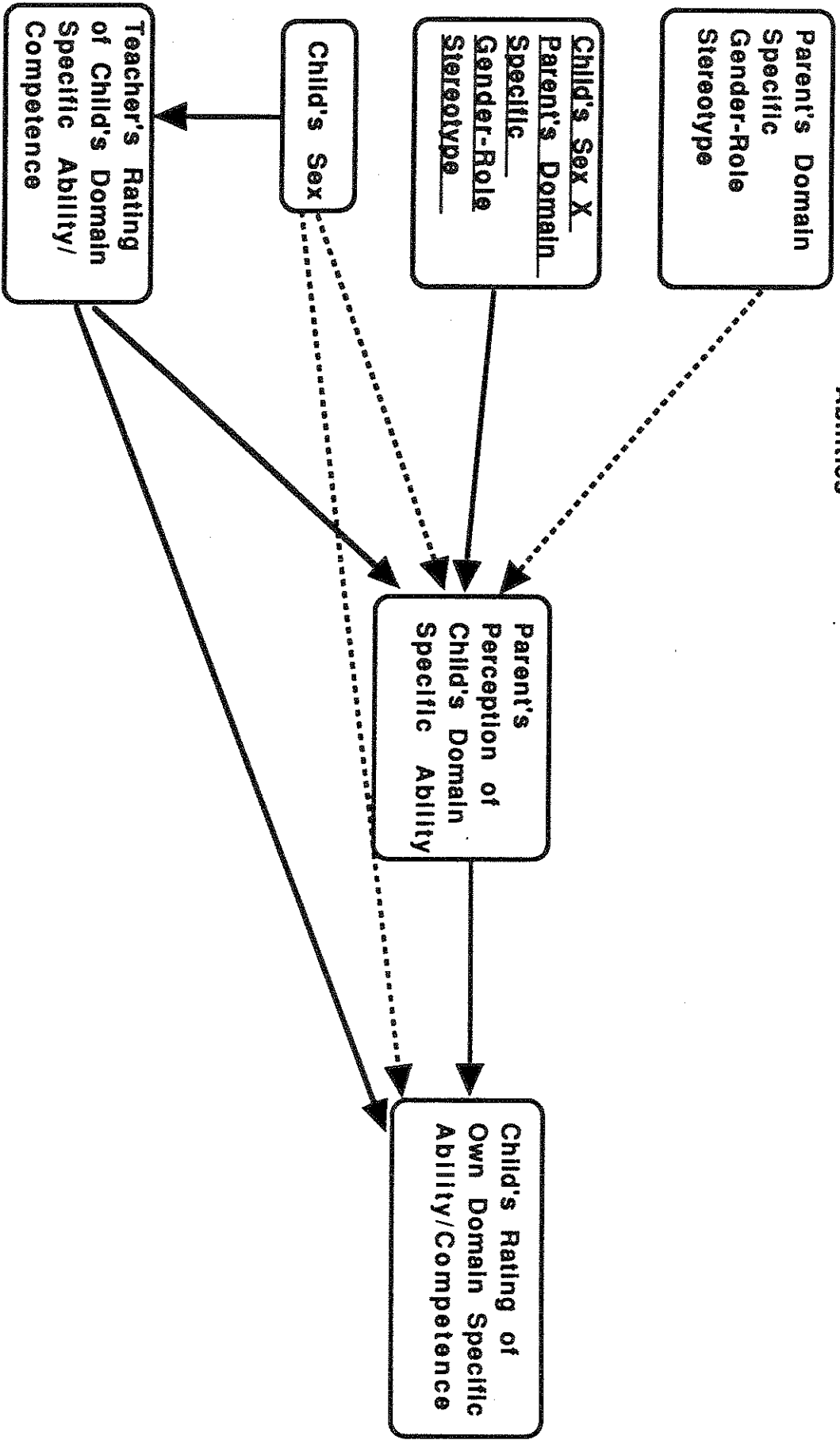
χ^2 (df=17) = 61.55
 Goodness of Fit = .986
 Adjusted GFI = .978

Parents' Rating of Child's Ability

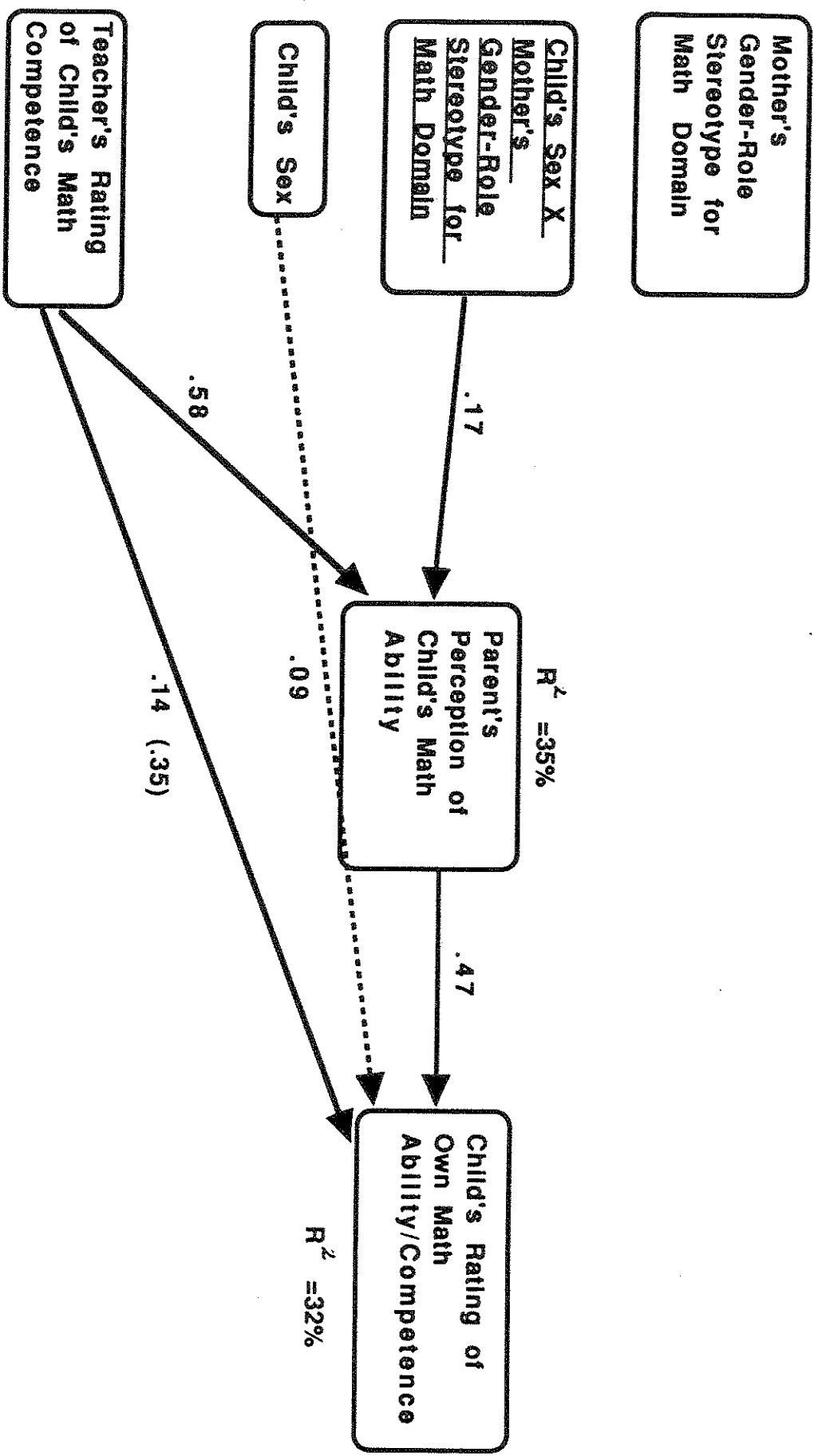




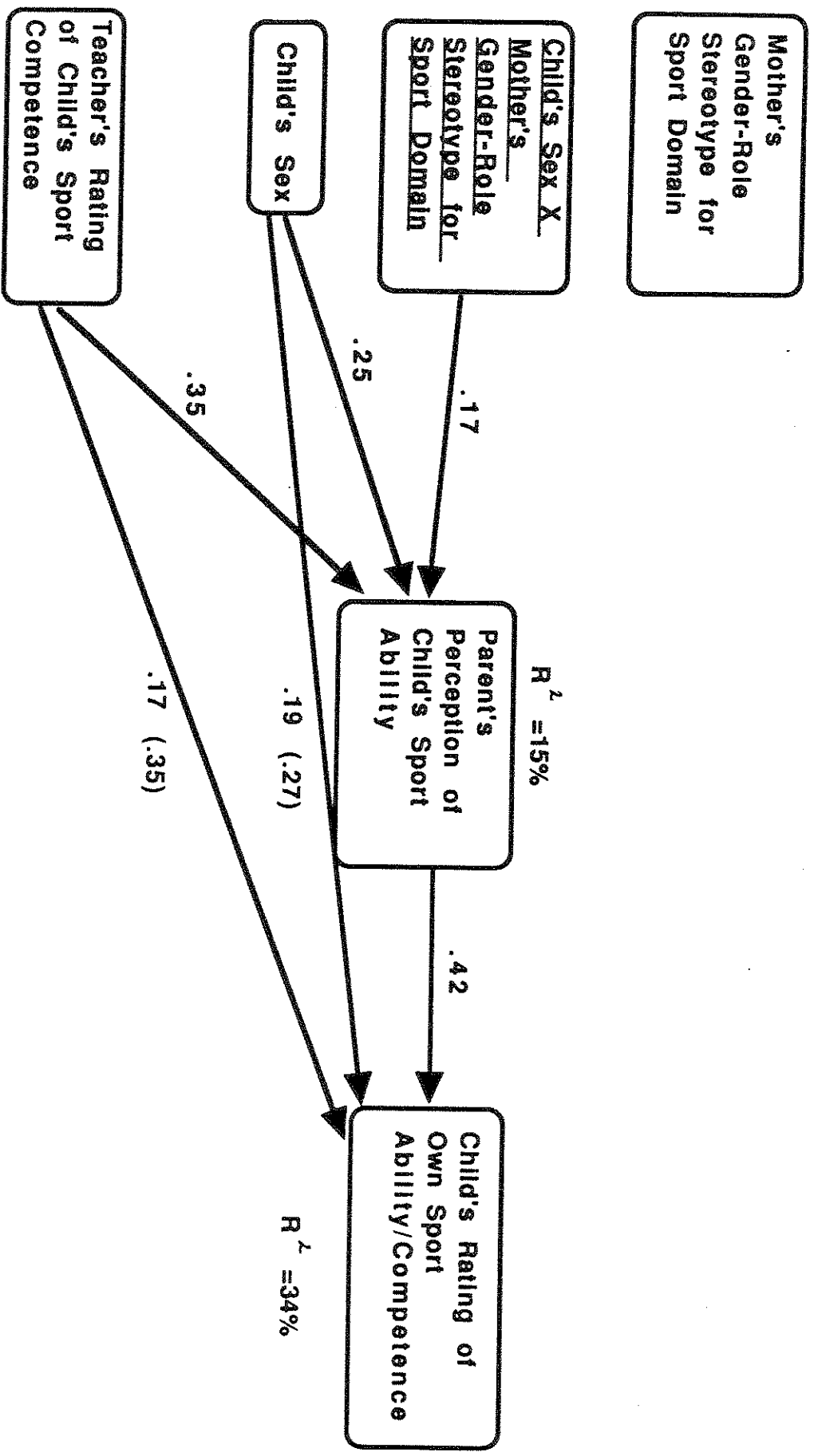
General Model of the Moderating Effects of Parents' Domain Specific Gender-Role Stereotypes on the Impact of Child's Sex on Parents' Perceptions of Their Child's Domain Specific Abilities



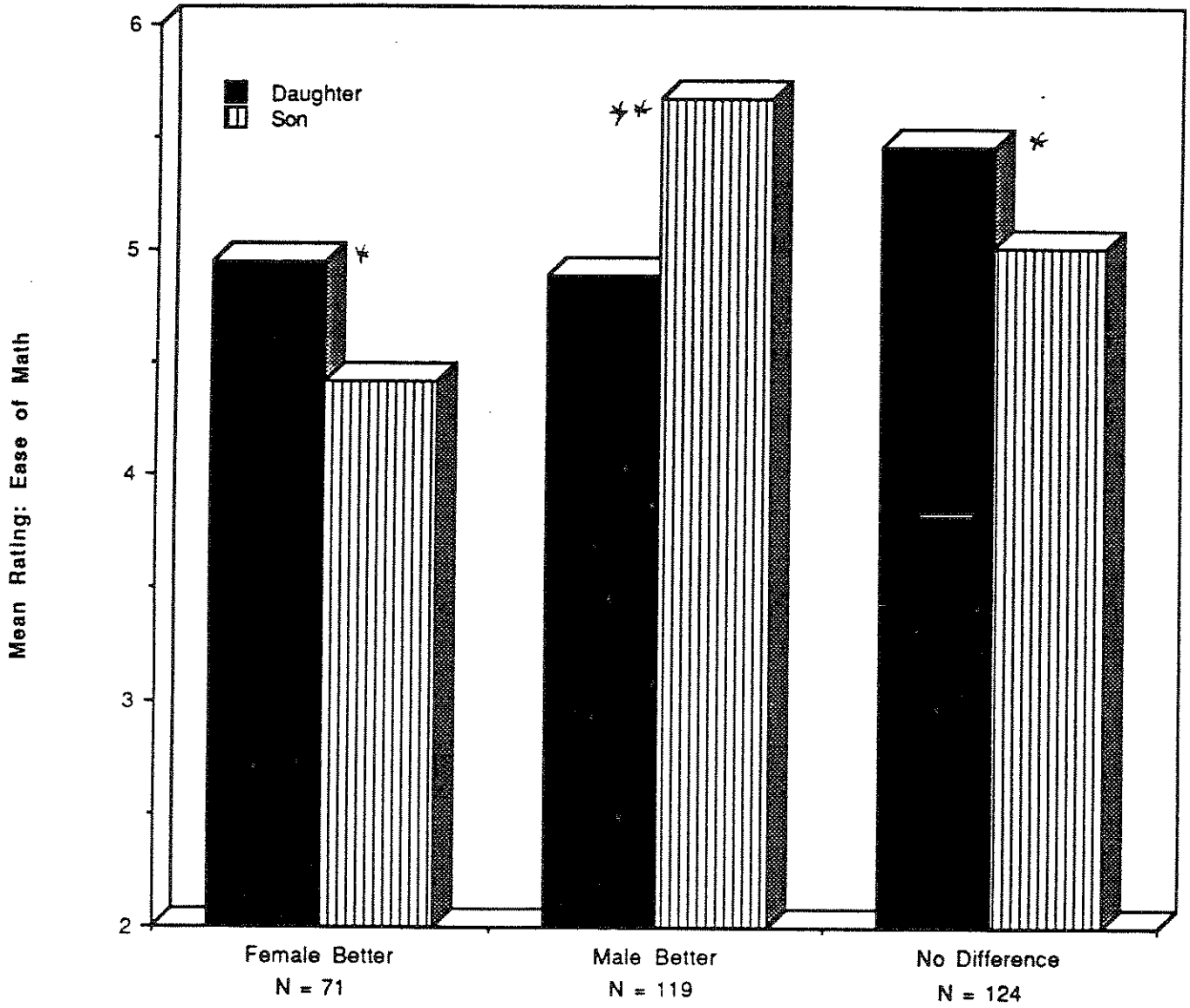
Moderating Effect of Mother's Gender-Role Stereotype for the Math Domain on the Impact of Child's Sex on Mother's Perceptions of her Child's Abilities in Math



Moderating Effect of Mother's Gender-Role Stereotype for the Sport Domain on the Impact of Child's Sex on Mother's Perceptions of her Child's Abilities in Sports

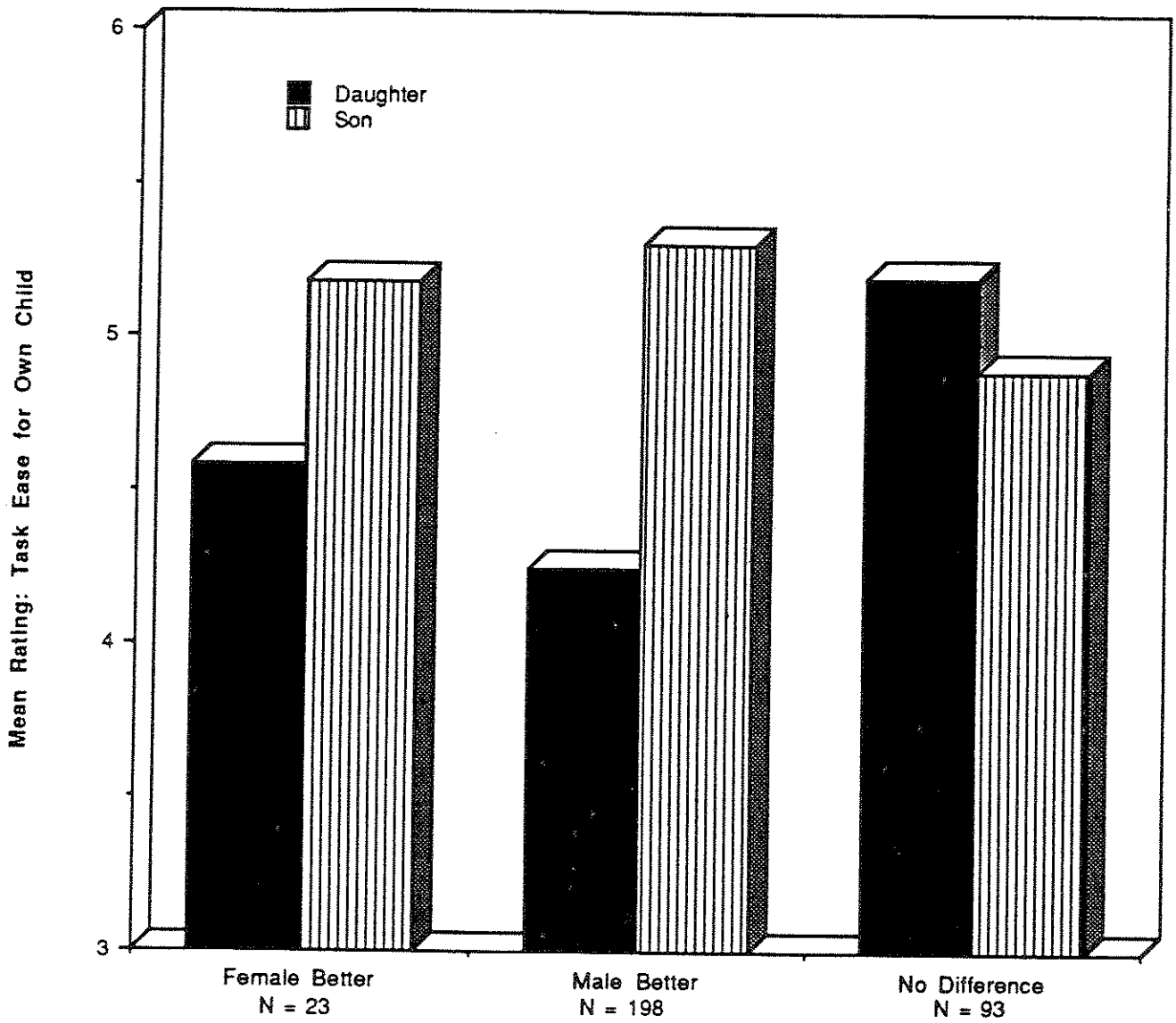


Mothers' Rating of the Ease of Math for Own Child



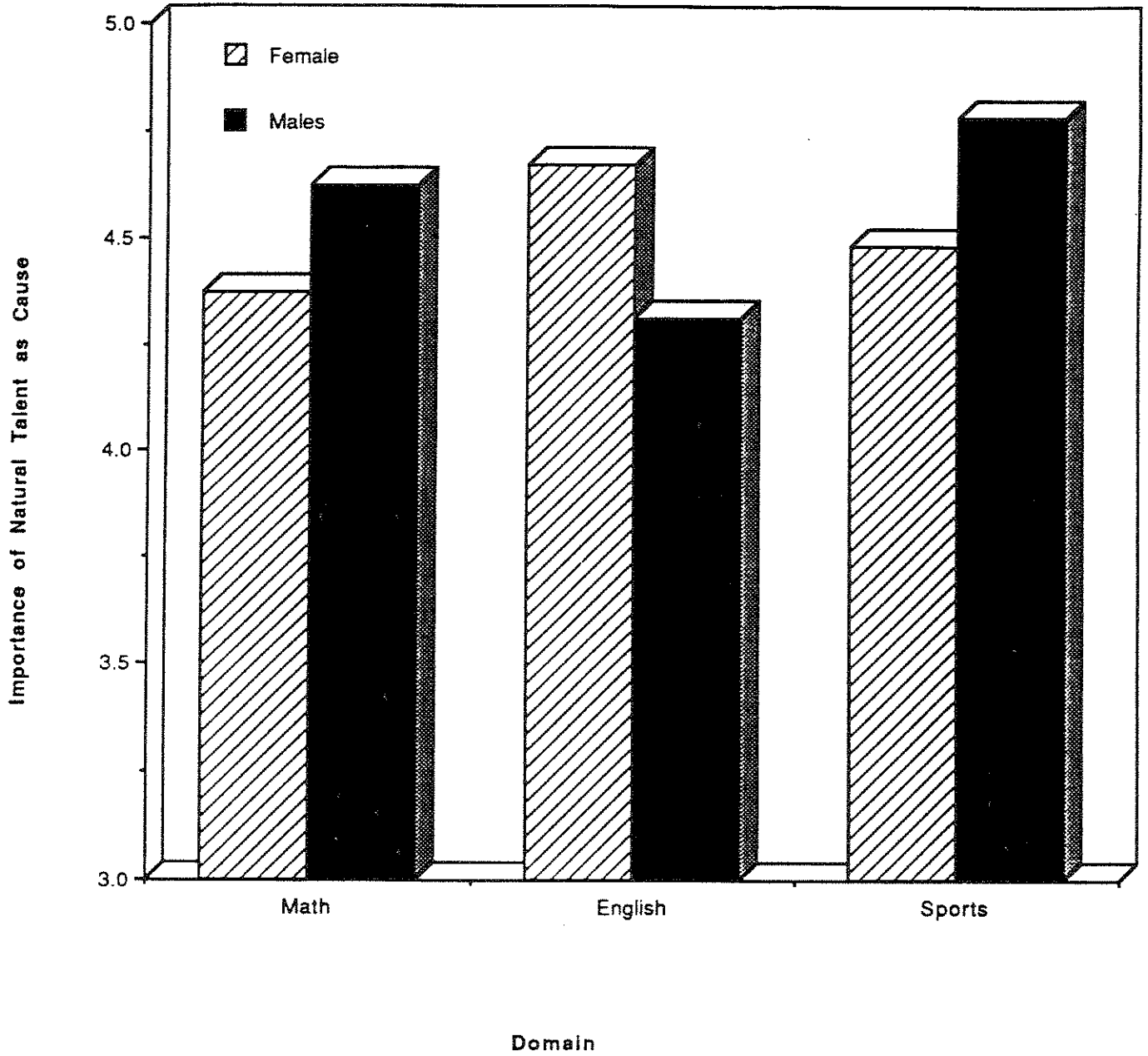
Mothers' Stereotypic Category-Based Belief about Math Ability

Mothers' Ratings of Sports' Ease for Own Child

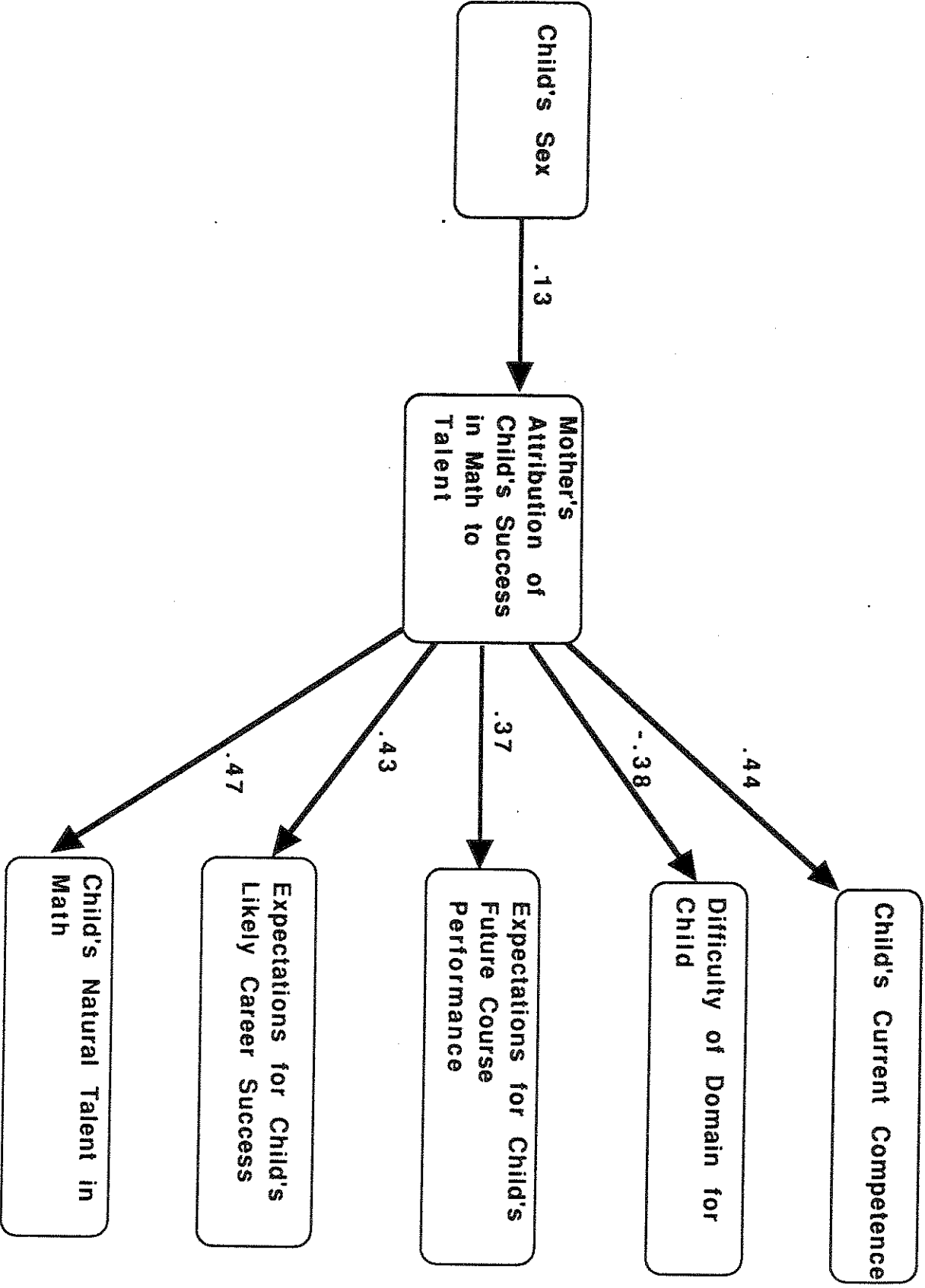


Mothers' Stereotypic Category-Based Belief about Sports' Ability

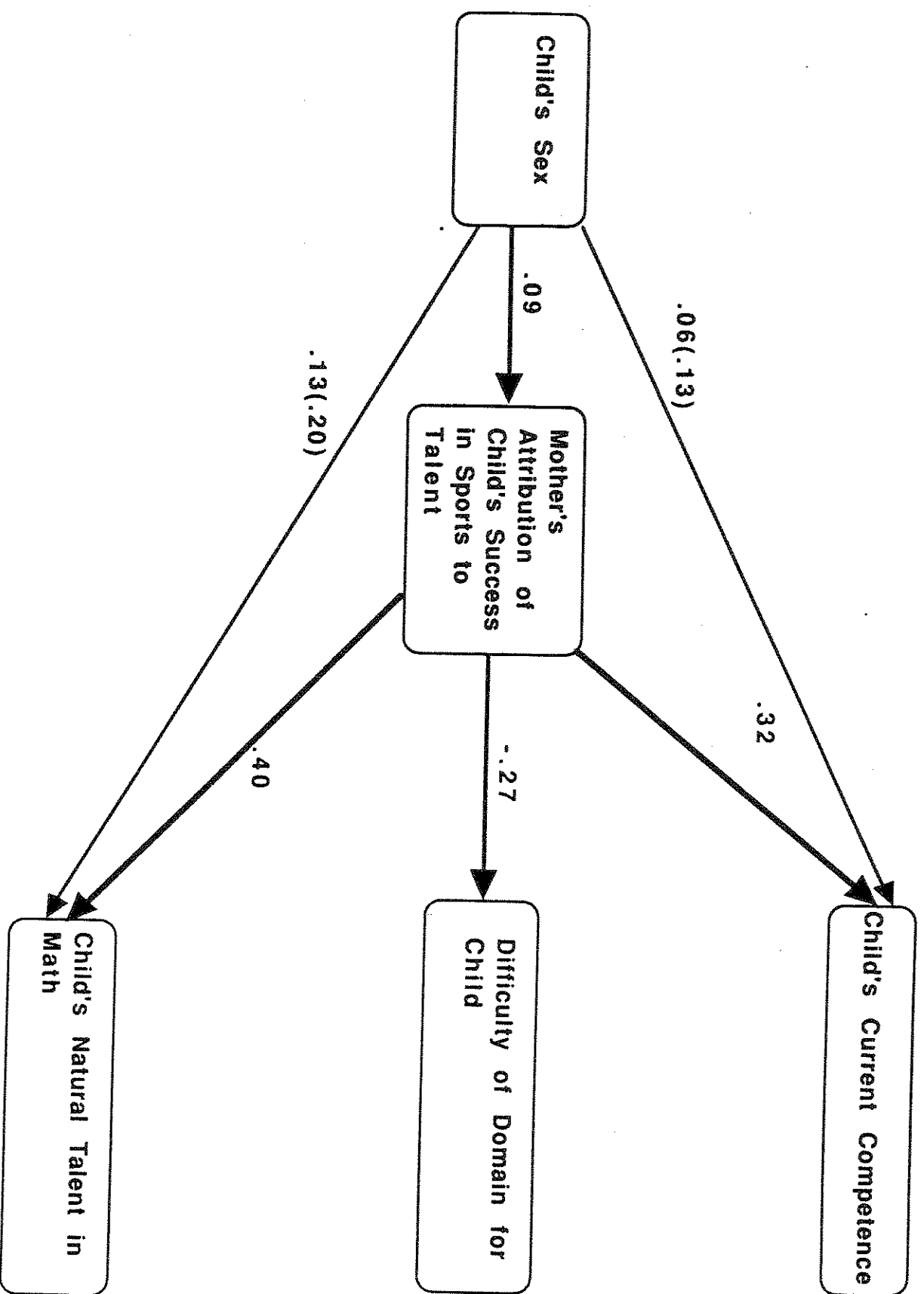
Parents' Causal Attributions for Child's Success



Mother's Perceptions of:



Mother's Perceptions of:



Mother's Perceptions of:

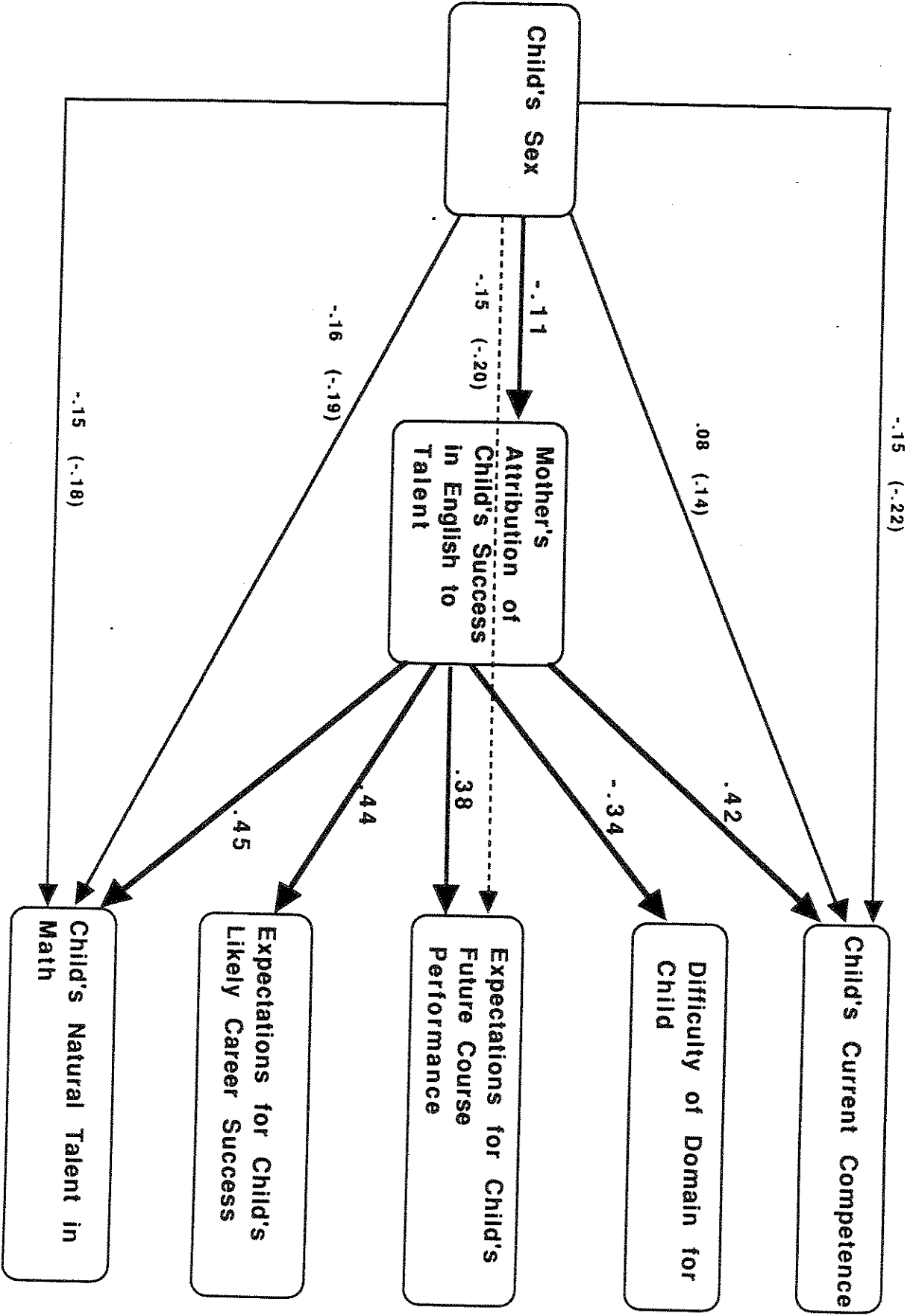
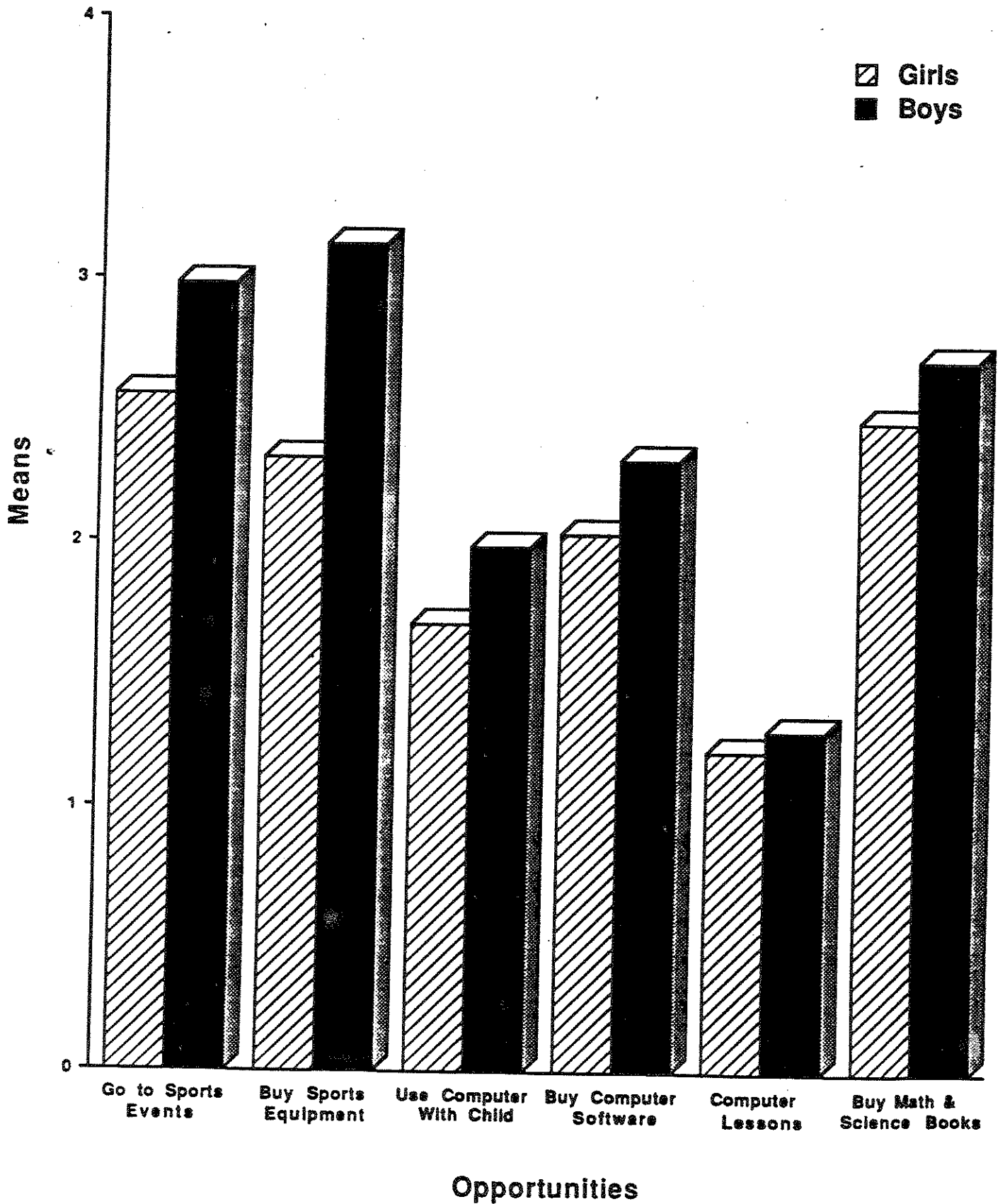


Figure 3. Mothers' Provision of Opportunities by Sex of Child



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

