

Parents as Socializers of Achievement Attitudes

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Parsons, Kaczala, and Adler (1982) found that parents' math-related beliefs have a strong influence on junior high schoolers' perceptions of their own math abilities, perceptions of the value of math, future expectations, and course plans. Parsons et al also documented the role parents play in perpetuating sex differences in junior high schoolers beliefs about mathematics. Building on this work, this paper examines the role parents play in shaping sex differences in children's achievement beliefs in three separate studies. Study 1 provides a replication of Parsons et al., (1982) on a more diverse age range (grades 5-12 instead of grades 7-9). Study 2 relates sex differences in parental beliefs to sex differences in parents' causal attributions for their children's math performance. Study 3 provides a comparison of parental influence in math and English and examines the joint influence of parental beliefs for each of these academic subjects on children's beliefs for each subject.

Study 1: Approximately 300 children in grades 5-11 and their parents participated. Children's attitudes were assessed in their classrooms; parents' attitudes were collected with a mailed questionnaire. The results are displayed in Study 1: Table 1. Consistent with the findings of Parsons et al., (1982) parents of sons held more positive beliefs regarding both their child's math abilities and the importance advanced level math courses have for their child than did parents of daughters, despite the fact that there were no sex differences in the children's math grades and performance on standardized tests. In addition, the parents of daughters rated English as more important and rated their child's general school performance as better than did parents of sons. Finally, consistent with Parsons et al., (1982) path analyses indicated that these parental perceptions of their child's math ability and ratings of the importance of various subjects have a stronger influence on

children's self-perceptions and task perceptions than they do children's academic grades.

Study 2: Study 2 examined parents' attributions for their child's math performances. Approximately 80 parents were asked, in a home survey, to rate their child's math abilities and to make causal attributions for their child's successes and failures on math tests. The results are displayed in Study 2: Tables 1-3. Both the child's math ability level (based on school records and class assignments) and the sex of child affected parents' perceptions of their child's math ability, performance and effort and parents' attributions for their child's math success to effort and talent. Consistent with Study 1, and with the results of Parsons et al., (1982), mothers of boys rated their child's relative math talent higher than mothers of daughters. Conversely, mothers of girls rated their child's effort in math higher than did mothers of sons. In addition, fathers of sons set a higher relative performance standard for their child and were less likely to believe that their child was doing as well as possible than fathers of girls.

Each of these differences exist despite the fact that there were no actual performance differences between the boys and girls in this sample. Why might this be so? Attribution theory suggests that causal attributions for success and failure influence the inferences one draws from one's experiences. If parents make differential interpretations for boys' and girls' math successes then parents may develop different views of their sons' and daughters' math competence despite similar school performance information. As a first step toward testing this reasoning, we compared the causal attributions these parents made for a recalled math success and a recalled math failure for their child. Parents rated the importance of each of the causal attributions listed in Study 2: Tables 1 and 2 on a 7-point scale

ranging from not at all important to very important. Parents, especially mothers, of boys rated talent as a relatively more important reason for their sons' math successes than parents of daughters; in contrast, parents, especially mothers, of girls rated effort as a relatively more important reason for their daughters' math successes than parents of sons. These results suggest that parental attribution differences may underlie parents' sex-differentiated perceptions of their children's' math abilities.

To test this hypothesis more directly, we correlated parents' attributions with their perceptions of their children's math ability. Attribution theory suggests that attributing success to talent should have a positive effect on perceptions of one's child's math ability; conversely, attributing success to effort should have a negative impact on perceptions of one's child's math ability since effort and ability are typically considered to be compensating causes. As is clear in Study 2: Table 3, the relationship between parents' causal attributions for their children's math successes and parents' rating of their child's effort and talent confirm these predictions. This pattern of relationships could explain why parents perceive their daughters as being less able in math than sons despite the fact that boys and girls get equivalent grades and test scores in both of these samples.

Study 3: Study 3 was designed to look at the joint impact of parental beliefs about their child's math and English ability on early adolescents' self and task perceptions in both subject area. Data from Study 1 suggested that parents may have subject-matter stereotyped beliefs regarding their children's abilities. To test this hypothesis and to assess the impact of these gender-role stereotyped beliefs on their children's beliefs, the beliefs of approximately 1500 parents regarding their children's math and English achievements on 7-point Likert-type scales were compared.

There were consistent subject matter by sex of child interactions (See Study 3: Figures 1-4). Parents of girls rated their child's English abilities more positively than her math abilities, despite the fact that the girls had been getting equivalent grades in math and English; parents of girls also rated English skills as more important for their child than math skills. Parents of boys showed the opposite pattern for both sets of beliefs. Contrary to what one might expect given the current concern over girls and math, sex of child effects were more marked for English than for math and subject matter effects were more marked for boys than for girls.

To assess the impact of parental beliefs on children's self perceptions, these beliefs were entered as lagged predictors of the children's subsequent self-perceptions in a path analysis. Mothers results are depicted in Study 3: Figure 5 and 6. The mothers' beliefs and the teachers' rating of the children's math ability were assessed in the fall while the child's self-perceptions were gathered in the spring. Fathers' data yielded comparable patterns. These path analyses (Study 3: Figures 5 and 6) document the general impact of mothers' beliefs on children's math and English self-perceptions. Consistent with the findings of Parsons et al., (1982) mothers' ratings of their child's math ability had a positive and significant effect on the children's subsequent math and English self perceptions. In addition mothers' ratings seemed to mediate the impact of teacher's ratings on the children's confidence in their own math ability and interest in math.

The path also documents an interesting across subject area suppression effect. Parents' ratings of their child's English abilities had a negative impact on the children's math ability self-perceptions after holding the children's math performance constant. This finding suggests that girls' confidence in their math ability is being undermined by two parental beliefs:

First it is being undermined by the fact that parents over estimate how difficult math is for daughters; and, second, it is being undermined by parents' high ratings of their daughters' English abilities.

These results will be discussed in terms of gender role socialization and in terms of more general parental influences on children's achievement beliefs. As a result of the patterns of data reported, it seems probable that parents may try to steer boys and girls into different academic courses and into different occupations; courses and occupations that capitalize on what the parents believe are their children's strongest intellectual abilities. And, in fact in both Study 1 and Study 3, parents reported that they believe English literature is more important for their girls and feel they would be more likely to encourage boys to take advanced math courses (See Study 1: Table 1).

Mean differences (student t) between parents of daughters and parents of sons
on selected parent-child variables

Variable	Mothers		Fathers		P
	Daughters	Sons	Daughters	Sons	
Perception of child's math ability (scale)	52.8	54.8	51.4	52.1	n.s.
Perception of child's effort in math (scale)	43.2	40.0	45.7	43.3	.05
Perception of child's difficulty in math (scale)	39.3	35.5	41.3	39.0	.05
Importance of math for child (scale)	55.0	57.0	54.8	56.1	n.s.
Perception of child's perception of importance of math (scale)	55.8	55.9	53.4	53.1	n.s.
Future expectancy in math for child (scale)	55.1	56.3	55.2	55.0	n.s.
Trigonometry/calculus important for child	4.8	5.4	5.0	5.6	.0001
Geometry important for child	5.7	5.9	5.5	5.7	n.s.
Chemistry important for child	5.3	5.6	5.3	5.4	n.s.
Child enjoys math	5.3	5.5	5.1	5.2	n.s.
Child thinks math learned in courses useful in future	5.4	5.7	5.1	5.4	.05
Child doing as well as possible in math	5.5	5.2	5.3	4.9	.05
Strongly encourage child to take math	5.2	5.7	5.3	5.7	n.s.
Satisfied with child's math education	5.3	5.3	5.0	5.2	.05
English literature important for child	5.8	5.5	5.3	5.0	.05
Child feels important to do well in school	6.3	6.1	6.2	4.6	.0001
Child doing well in academic subjects	6.1	5.7	6.1	5.6	.0001

NOTE: Unless otherwise indicated, variables are individual questions asked of parents about their daughters or sons.

n.s. : t was non-significant.

Table 1

Impact of child's math ability level on parents' math achievement-related perceptions and expectations

Variable	Mothers*			Fathers†			
	High	Average	Low	F-ratio	High	Average	F-ratio
General school performance	6.31	5.38	4.19	16.75 ⁴	5.94	5.31	3.93 ¹
Current math performance	5.94	4.75	3.69	11.13 ⁴	5.94	4.88	12.57 ³
Future math performance	6.25	5.31	4.44	8.15 ³	6.06	5.19	1.89 ²
Maximum standard	13.13	12.63	11.44	12.50 ⁴	13.06	12.81	2.95 [†]
Minimum standard	9.63	9.19	8.69	.....	9.75	9.00	.....
Relative minimum standard	2.06	1.94	1.88	.....	2.13	1.81	.....
Required effort	3.81	4.50	4.56	.....	3.75	4.88	4.93 ¹
Relative effort	1.81	2.19	2.25	2.47 [†]	1.94	2.13	.....
Talent	5.88	4.81	4.13	12.40 ⁴	5.69	5.00	5.68 ¹
Relative talent	2.38	1.88	1.88	3.73 ¹	2.06	2.06	.....
Doing as well as possible	3.31	2.69	2.38	5.95 ²	3.31	3.00	.....
<u>Success attributions</u>							
Talent	5.63	4.50	3.69	7.77 ³	5.63	4.81	3.83 [†]
Enjoyment	5.56	4.88	4.44	.....	4.88	4.44	.....
Effort	4.63	5.75	5.69	3.18 ¹	5.19	5.19	.....
Task easiness	3.19	3.13	3.88	.....	2.81	3.87	3.10 [†]
Teacher help	4.75	5.13	5.56	.....	4.25	5.25	3.41 [†]
Parent help	2.13	2.06	4.00	7.08 ²	1.75	2.63	.....
Good day	2.94	3.75	4.13	.....	2.67	3.19	.....
<u>Failure attributions</u>							
Lack of talent	2.00	2.88	3.50	3.00 [†]	1.53	2.38	4.53 ¹
Lack of enjoyment	2.60	3.31	3.94	.....	2.40	3.50	2.97 [†]
Lack of effort	4.93	5.31	5.50	.....	5.67	4.94	.....
Task difficulty	3.86	4.13	4.53	.....	3.13	4.31	3.67 [†]
Lack of teacher help	2.80	3.50	4.69	2.84 [†]	2.79	3.25	.....
Lack of parent help	2.73	2.56	4.94	6.92 ²	2.28	2.50	.....
Bad day	3.20	3.06	3.80	.....	3.07	2.94	.....

Note: F-ratios are derived from 2-way ANOVAs with child math ability level and child sex as independent factors.

Items regarding maximum and minimum grade standards are coded from 1 (F) to 14 (A+). Items about relative minimum standard, relative effort, and relative talent are rated on 3-point scales. The item about performance matching potential is rated on a 4-point scale. All other items are rated on 7-point scales.

*N's range from 46 to 48

†N's range from 30 to 32

†p < .10

¹p < .05

²p < .01

³p < .001

⁴p < .0001

Table 2

Impact of child sex on parents' math achievement-related perceptions and expectations

Variable	Mothers*			Fathers‡		
	Girls	Boys	F-ratio	Girls	Boys	F-ratio
General school performance	5.50	5.08	.....	6.06	5.19	7.71 ²
Current math performance	4.83	4.75	.....	5.69	5.13	3.52†
Future math performance	5.33	5.33	.....	5.81	5.44	.....
Maximum standard	12.25	12.54	.....	13.06	12.81	2.95†
Minimum standard	9.04	9.29	.....	9.19	9.56	.....
Relative minimum standard	1.96	1.96	.....	1.63	2.31	11.93 ²
Required effort	4.83	3.75	6.52 ²	4.25	4.38	.....
Relative effort	2.38	1.79	11.25 ²	2.19	1.88	.....
Talent	4.71	5.17	.....	5.31	5.38	.....
Relative talent	1.83	2.25	5.83 ¹	2.00	2.13	.....
Doing as well as possible	2.83	2.75	.....	3.47	2.88	5.81 ¹
<u>Success attributions</u>						
Talent	4.21	5.00	3.86 ¹	5.19	5.25	.....
Enjoyment	4.63	5.29	.....	4.88	4.44	.....
Effort	5.75	4.96	3.74 ¹	5.56	4.81	.....
Task easiness	3.63	3.17	.....	2.73	3.88	4.50 ¹
Teacher help	4.88	5.42	.....	5.06	4.44	.....
Parent help	2.67	2.79	.....	2.00	2.38	.....
Good day	3.71	3.50	.....	2.57	3.25	.....
<u>Failure attributions</u>						
Lack of talent	3.09	2.54	.....	1.60	2.31	3.30†
Lack of enjoyment	3.57	3.04	.....	3.40	2.56	.....
Lack of effort	5.43	5.08	.....	5.33	5.25	.....
Task difficulty	4.65	3.70	3.47†	3.73	3.75	.....
Lack of teacher help	3.52	3.83	.....	3.14	2.94	.....
Lack of parent help	3.48	3.38	.....	2.14	2.63	.....
Bad day	3.30	3.39	.....	2.86	3.13	.....

Note: F-ratios are derived from 2-way ANOVAs with child math ability level and child sex as independent factors.

Items regarding maximum and minimum grade standards are coded from 1 (F) to 14 (A+). Items about relative minimum standard, relative effort, and relative talent are rated on 3-point scales. The item about performance matching potential is rated on a 4-point scale. All other items are rated on 7-point scales.

*N's range from 46 to 48

‡N's range from 30 to 32

†p \leq .10

¹p \leq .05

²p \leq .01

Table 3

Mothers' success attributions and math-related perceptions.

Math-related Perceptions	Success Attributions	
	Talent	Effort
Required effort	-.34 ¹	.30 ¹
Relative effort	-.54 ⁴	.52 ³
Talent	.67 ⁴	-.43 ²
Relative talent	.42 ²	-.50 ³

Note: Relative effort and relative talent items are rated on 3-point scales. All other items are rated on 7-point scales.

¹p < .05

²p < .01

³p < .001

⁴p < .0001

Study 3

Figure 1

Parents' Rating of Child's Ability in Math and English

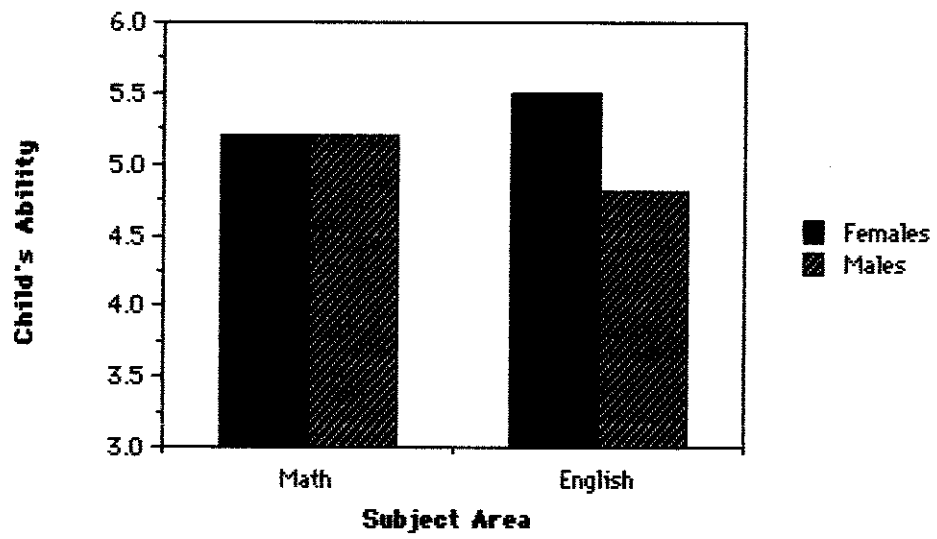


Figure 2

Parents' Rating of Child's Effort in Math and English

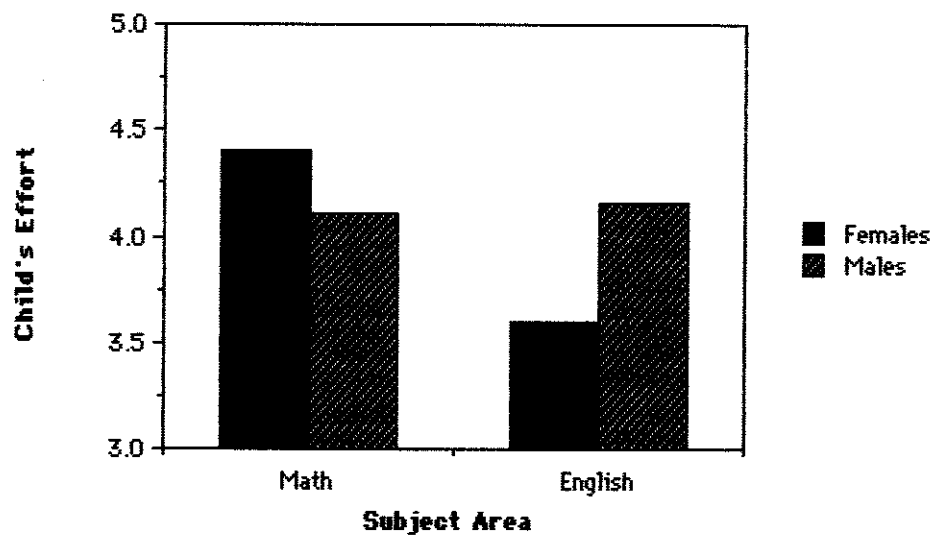


Figure 3

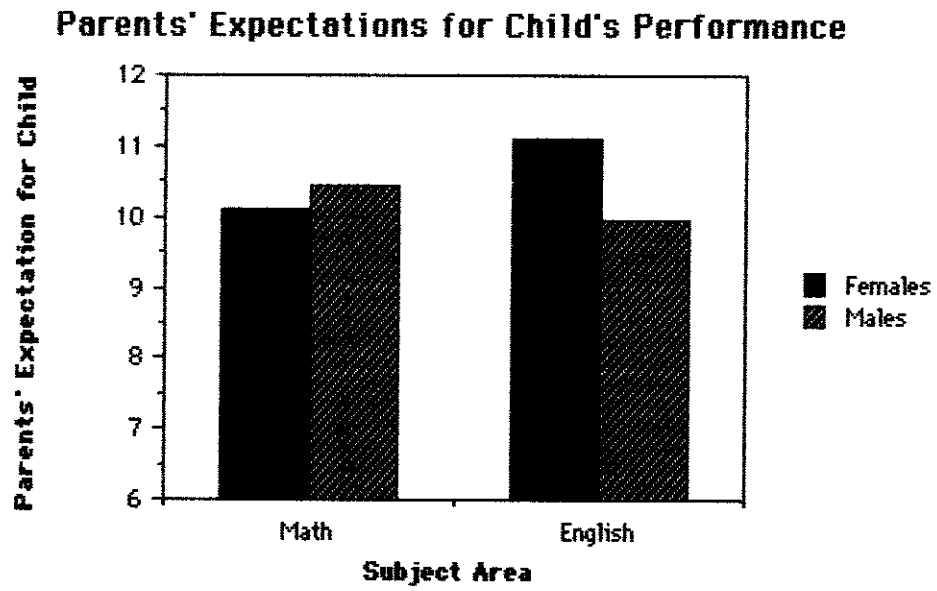
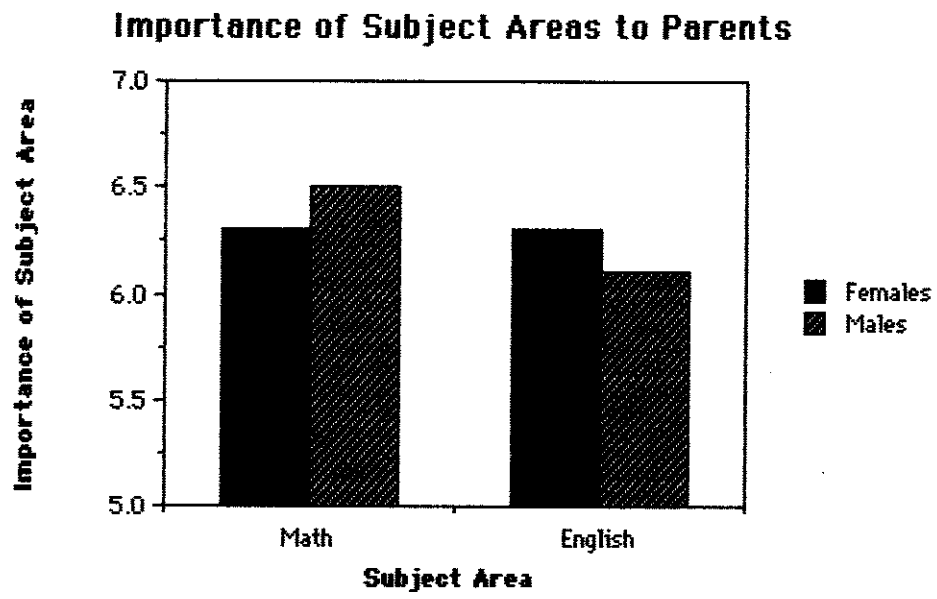
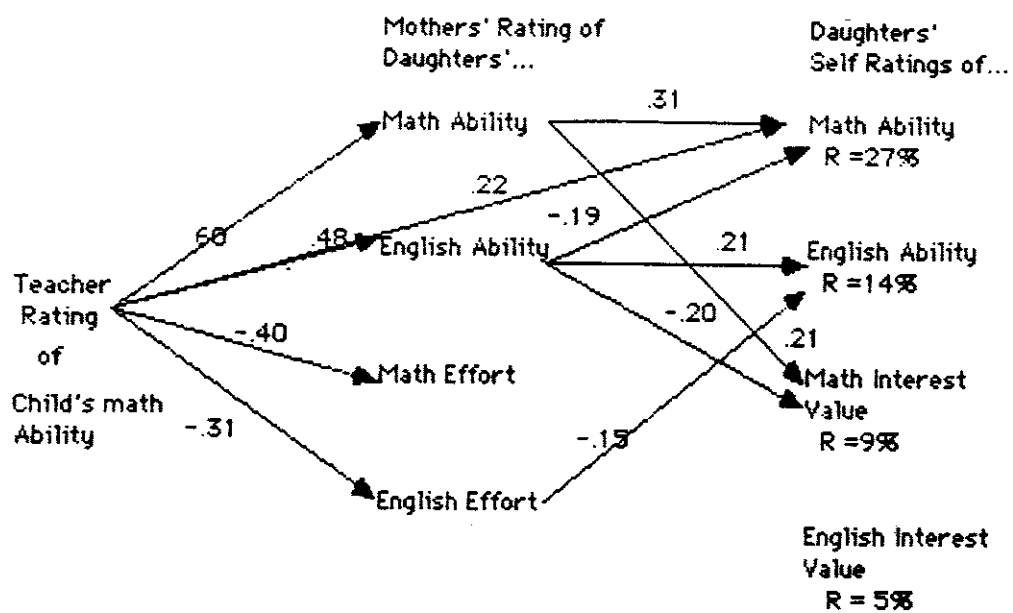


Figure 4





N=920

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

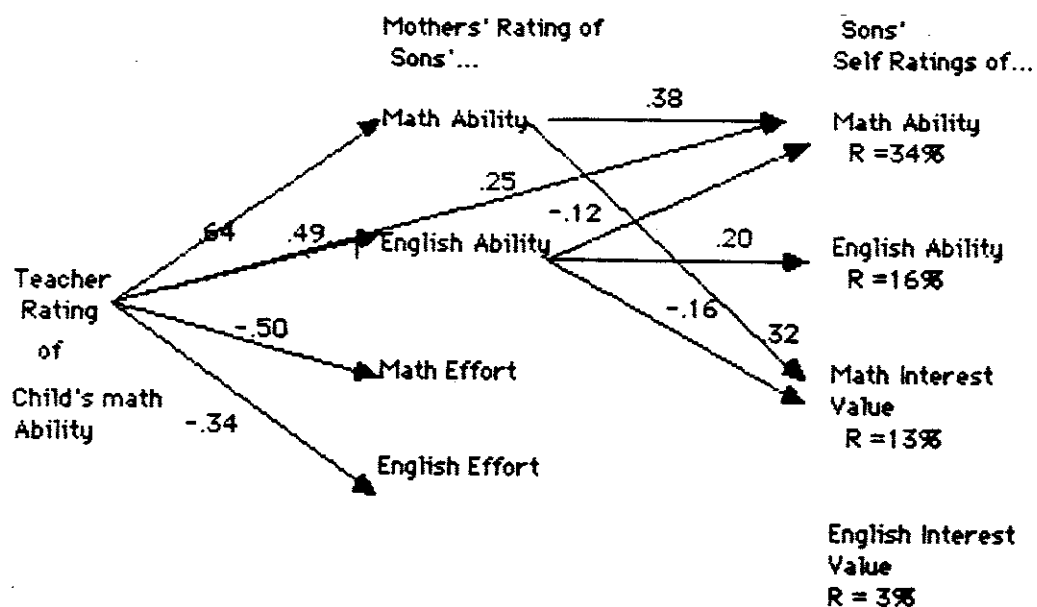


FIGURE 6. Mothers' Influence on Sons' Self-Perceptions

n=920