

Gender Role Stereotypes, Expectancy Effects, and Parents' Socialization of Gender Differences

Jacquelynne S. Eccles

Universities of Colorado and Michigan

Janis E. Jacobs

University of Nebraska

Rena D. Harold

Michigan State University

Gender segregation continues to exist in many activity and occupational domains. This article uses the expectancy effect perspective to analyze the role parents may play in influencing their children to engage in gender role stereotyped activities. It outlines the theoretical bases for such effects, and discusses how to distinguish between accuracy and perceptual bias in parents' gender role differentiated perceptions of their children's competencies and interests. Then it summarizes the results of a series of studies, which show that parents distort their perceptions of their own children in gender role stereotypic activities such as math and sports, that the child's gender affects parents' causal attributions for their children's performance in gender role stereotypic activities, and that these perceptual biases influence the children's own self-perceptions and activity choices. Finally, the article presents a theoretical model of how these processes may occur.

Gender differences in academic and occupational choices persist despite efforts at affirmative action in schools and occupational settings (Eccles, 1987).

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Correspondence regarding this article should be addressed to Jacquelynne S. Eccles, Institute for Social Research, P.O. Box 1248, University of Michigan, Ann Arbor, MI 48106-1248.

These differences are especially marked in areas associated with mathematics, physical science, technology, sports, clerical/office work, and education (Eccles, 1989; Steinkamp & Machr, 1984). The differences are particularly dramatic among students enrolled in vocational education programs. For example, in 1978, only 12% of high school students enrolled in technical vocational training courses were female while the vast majority of the students enrolled in office training programs were female (Eccles & Hoffman, 1984).

Why is this so? Several authors have suggested that gender differences in self-perceptions play a critical role (see Eccles, 1987; Eccles & Hoffman, 1984). Specifically, gender differences in self-perceptions of their abilities may lead females and males to select different educational training programs, and to aspire to different occupations. The existence of gender differences in early adolescents' views of their own abilities in mathematics, for example, is well documented (e.g., Eccles-Parsons, 1984; Eccles, Adler, & Meece, 1984; Eccles-Parsons et al., 1983). In general, young women rate their math ability lower than young men. They also express less interest than their male peers in studying mathematics and in entering math-related professions. Less research has been done in other domains, but evidence is emerging that gender differences exist there as well. For example, females in grades 6–12 rate themselves as more competent in English than do their male peers (Eccles et al., 1989). Similarly, males rate their athletic competence higher than do females (Eccles et al., 1989; Eccles & Harold, 1988).

Many explanations have been suggested for these differences in self-perceptions (for reviews see Eccles-Parsons, 1984; Eccles, 1987; Eccles & Hoffman, 1984). This article focuses on one possible cause: parents' gender-differentiated expectations. If parents' hold gender-differentiated perceptions of, and expectations for, their children's competencies in various areas, then, through self-fulfilling prophecies, parents could play a critical role in socializing gender differences in children's self-perceptions, interests, and skill acquisition.

Two types of evidence are necessary to establish the effects of parents' gender-differentiated expectations: First, one must demonstrate that parents hold gender-differentiated perceptions of their children's competencies in various domains. Next one must show that these gender-differentiated perceptions have an impact on the children's self-perceptions that is independent of the impact of the children's actual performance levels on both the children's and the parents' perceptions of the children's competence (see Jussim, 1989, for discussion of this mode of proof). There is good evidence of both of these effects for mathematics. Parents of adolescents who are junior high school aged hold gender-differentiated views of their children's math competence. Furthermore, these gender-differentiated parental beliefs appear to mediate the association between the adolescents' gender and their confidence in their math competence even after

controlling for independent indicators of the adolescents' prior mathematical competence (Eccles-Parsons, 1984; Eccles & Jacobs, 1986; Eccles-Parsons, Adler, & Kaczala, 1982). Interestingly, the gender-differentiated perceptions of the parents in these studies exist even though their female and male children do equally well in math on both their school grades and their performance on standardized tests (Eccles-Parsons et al., 1982). Thus, the expectancy effects demonstrated in these studies are not due to perceiver accuracy, and the parents' gender-differentiated expectations for their children's competence in math do appear to facilitate the emergence of gender differences in the children's perceptions of their own competence in mathematics.

New Sources of Data

Do these results replicate and generalize to other domains? Yes! We now have evidence of similar effects for different aged children and in two new activity domains (English and sports). These findings are described in the remainder of the paper. They are drawn from two major, ongoing longitudinal studies involving approximately 2100 families, both of which were done in suburban communities in Michigan. Children were recruited through the schools in 14 different school districts, with all children in eligible classrooms being asked to participate. In each study between 80% and 95% of the children contacted agreed to participate. Family participation was solicited after the children were recruited, and all families of participating children were asked to join the study. In each study between 70% and 80% of the families solicited agreed to participate. Questionnaires, interviews, and standardized aptitude measures were used in both studies. The children and adolescents were tested at school, whereas the parent data were collected via mailed questionnaires. Actual participation rates for the children averaged 80% or better; participation rates for the parents averaged between 60% and 70% depending on the district and the wave of data collection.

Study 1 (the Michigan Study of Transitions at Adolescence) is a seven-year longitudinal study of adolescent development in the context of the family and the school. In 1983, approximately 2000 early adolescents were recruited into this study when they were in the sixth grade. About 1500 of their families agreed to participate as well, and these families have been participating in the study since then. The data reported in this paper were collected in the fall and spring of the adolescents' sixth-grade school year (1983–84).

Study 2 (the Michigan Study of Middle Childhood) is a four-year longitudinal study of the development of children who are elementary school aged, again in the context of the family and the school. In 1986, approximately 600 children and their families were recruited into this study, when the children were either in

Table 1. Gender-of-Child Effects on Parents' Perceptions

| Variables | Domains | | | | | | | | | |
|---|-------------|------------|----------|-------------|-----------------|-----------|-------------|------------|----------|--|
| | Math | | | | English/reading | | | | Sports | |
| | Girls' Mean | Boys' Mean | F | Girls' Mean | Boys' Mean | F | Girls' Mean | Boys' Mean | F | |
| Adolescent Transition Study⁽¹⁾ | | | | | | | | | | |
| Parent perception of current competence | 5.45 | 5.40 | <1.00 | 5.65 | 4.99 | 101.71*** | 4.84 | 5.22 | 25.75*** | |
| Parent perception of task difficulty | 4.10 | 3.80 | 12.10*** | 3.73 | 4.24 | 39.20*** | 3.77 | 3.47 | 13.21*** | |
| Parent perception of natural talent | 4.76 | 5.01 | 9.85* | 5.03 | 4.51 | 46.76*** | 4.22 | 4.87 | 59.76*** | |
| Parent perception of future performance | 5.36 | 5.34 | <1.00 | 5.59 | 5.02 | 74.99*** | | | | |
| Parent perception of performance in career | 5.17 | 5.42 | 11.17*** | 5.41 | 4.87 | 54.91*** | | | | |
| Parent perception of importance | 6.38 | 6.50 | 9.21** | 6.34 | 6.34 | <1.00 | 3.80 | 4.10 | 12.90*** | |
| Middle Childhood Development Study⁽²⁾ | | | | | | | | | | |
| Parent perception of current competence | 5.38 | 5.34 | <1.00 | 5.67 | 5.27 | 10.28*** | 4.50 | 4.98 | 16.41*** | |
| Parent perception of task difficulty | 2.08 | 2.02 | <1.00 | 1.64 | 2.01 | 8.33** | 2.57 | 2.15 | 11.77*** | |
| Parent perception of natural talent | 5.01 | 5.15 | 1.45 | 5.41 | 5.11 | 7.00** | 4.31 | 4.74 | 12.35*** | |
| Parent perception of future performance | 5.99 | 5.91 | <1.00 | 6.36 | 5.95 | 19.13*** | 5.02 | 5.52 | 19.91*** | |
| Parent perception of importance | 6.26 | 6.46 | 8.12** | 6.65 | 6.63 | <1.00 | 4.20 | 4.72 | 20.00*** | |

Note. (1) Mothers of 6th graders, approximate N = 900. (2) Parents of kindergarteners, 1st, and 3rd graders, approximate N = 500.

*p < .05.
 **p < .01.
 ***p < .001.

kindergarten, first, or third grade. These families have been participating annually in the study since that time. The data reported in this paper were collected in the spring and summer of the first year of the study (1987).

Parents in both studies were asked a series of questions regarding their perceptions of their children's competency, and their expectations for their children's performance, in three domains: math, English, and sports. Previous studies had indicated the importance of tapping parents' perceptions of their children's competency with several different constructs. Consequently study 1 used 7-point Likert scales to assess the following parent perceptions: (a) child's current competence (2 items: perceived current level of ability and perceived current level of performance), (b) difficulty of domain for child (2 items: perceived difficulty and amount of effort necessary to do well), (c) child's natural talent (1 item), (d) future performance expectations in math and English courses (1 item in each domain), and (e) future career performance expectations in careers requiring good skills in math and English (1 item in each domain). Similar scales and items were used in Study 2. These scales have been used in other studies, and their reliability and validity are reported in several articles (e.g., Eccles-Parsons et al., 1983; Eccles et al., 1984; Eccles et al., 1989). To test for gender differentiation in these perceptions, ANOVAs were run on each dependent measure using the child's gender as the independent variable. The results are summarized in Table 1.

Gender role stereotyped differences were clear in both studies in English and sports. Parents of daughters rated their child as more competent in English than parents of sons and vice versa for sports. The pattern for mathematics depended on the age of the child being judged. There was no gender of child effect on the parent's perceptions of younger children's mathematical competence (study 2); in contrast, a gender of child effect was beginning to emerge in the reports of the mothers of sixth graders. We know from our previous studies that the gender of child effect in the math domain is stronger and more consistent among parents of junior and senior high school students.

Possible Origins of Gender Role Stereotyping in Parents' Perceptions

Many explanations have been offered to account for the gender role stereotyping of ratings of males' and females' competencies in various domains. The most critical issue for this paper is the extent to which parents' stereotyped perceptions of their children are either accurate, or are a reflection, at least in part, of perceptual bias. This is a very difficult issue to settle because no consensus has been reached on what criteria should be used to assess the accuracy of gender role stereotypes. It is clear that parents' perceptions of their children's competence in academic subjects are highly correlated with teachers' ratings of the children's competence, and with various indicators of the children's perfor-

mance and achievement, such as school grades and standardized test scores (Alexander & Entwisle, 1988; Eccles-Parsons et al., 1982). But are their gender role stereotyped perceptions an accurate reflection of true gender differences in either talent or competence? This question is difficult to answer because females and males are treated so differently by their parents and peers from very early in their lives. Consequently, it is impossible to get a good indicator of natural talent that is uninfluenced by the processes associated with gender role socialization—the very processes being described in this article.

For example, can it be concluded that parents' gender role stereotyped perceptions of their six-year-old children's talent in sports are accurate if the male children perform better than the female children on a standardized test of athletic skill at this age? Not really, because it is quite likely that the female and male children have already had different opportunities to develop their athletic skills. The best that can be done at this point is to use the strategy proposed by Jussim (1989). This strategy involves assessing the extent to which the perceiver's judgments are related to the variables of interest (in this case the child's gender) after controlling more objective indicators of the children's actual performance level. If they are, then efforts should be made to identify possible mediating cognitive processes to account for the biased portion of these perceptions (i.e., the portion not due to actual differences in the performance levels of girls and boys).

The mathematics domain provides the most fully developed example of this logic at present. In both our own work (see Eccles-Parson et al., 1982; Eccles & Jacobs, 1986) and the work of Entwisle and her colleagues (see Alexander & Entwisle, 1988), parents' perceptions of their children's competence in mathematics have been found to be influenced by their children's gender, independent of the children's actual performance in mathematics. Comparable patterns of results are emerging for the domains of English and sports (e.g., Jacobs & Eccles, 1990). Thus it appears that something other than overt performance is influencing the formation of parents' perceptions of their children's competence in both math and sports. What might these factors be, and do they generalize to domains other than mathematics? Three possible explanations seem especially relevant to the expectancy-effects perspective being outlined in this paper. First, there may be a true sex difference in the children's aptitude, but girls may compensate by working harder than boys in order to do just as well. Second, aptitude differences may be minor or nonexistent, but parents may attribute their children's performance to different causes, leading them to different conclusions regarding their female children's vs. their male children's "talent." Third, parents may generalize their category-based gender role stereotypes to their target-based judgments of their own children's competence. Evidence for each of these three possible explanations is discussed below.

Real Gender Differences in Children's Aptitude and Effort

Attributional theorists have studied how people make inferences regarding a target person's talent. According to these theorists (e.g., Weiner, 1974), adults believe that performance is a joint function of aptitude and effort. Consequently, adults take into consideration indicators of both objective performance and effort in forming an impression of a particular target's "aptitude." To the extent that perceivers believe that one target worked harder than another to achieve the same level of performance, they will conclude that the first target has less true "aptitude" for the activity than the second target, even though the two targets are performing at the same level.

This analysis has possible implications for understanding parents' gender-differentiated perceptions of their children's talent in various activities. For instance, some people have argued that there is a true gender difference in children's aptitude for mathematics and that females compensate for their lower levels of aptitude by working harder than boys to master mathematics. How can one evaluate the validity of this suggestion? One way is to compare the performance of females and males on a specific task that is considered to be more closely related to aptitude, and less closely related to effort, than are school grades. If gender differences appear on this task in a population in which there are no gender differences in math course grades, then one might conclude that there is a true aptitudinal difference that is being overcome by a gender difference in effort. Evidence reported by Benbow and Stanley (1980) is consistent with this interpretation. They found that gifted boys scored higher than gifted girls on standardized tests, and they concluded that the boys had more natural aptitude for math than the girls. Unfortunately, they did not measure effort or prior exposure to mathematics, and thus we cannot rule out the possibility that the gender differences on these "aptitude" tests were due to gender differences in experience (see Eccles & Jacobs, 1986). In addition, although there is a reliable gender difference on standardized tests of math "aptitude" among the gifted, the evidence of such differences among more normally distributed samples is much less reliable, and the differences are much smaller whenever they are obtained (Eccles, 1984; Hyde, Fennema, & Lamon, 1990).

Furthermore, several findings from our previous work (e.g., Eccles-Parsons et al., 1982; Eccles & Jacobs, 1986) cast doubt on the notion that girls compensate for lower levels of aptitude with hard work. First and foremost, we found no gender differences on either standardized tests of math aptitude or on school math grades in this sample. Second, the boys and girls reported spending equal amounts of time on their math homework and schoolwork (Eccles & Jacobs, 1986). Finally, the teachers of the boys and girls in this sample did not report any gender differences in these children's talent for mathematics (Eccles-Parsons,

1984). Nonetheless, there was a significant gender of child effect on the parents' ratings of how difficult math was for their child (Eccles-Parsons et al., 1982). This pattern of findings makes it unlikely that the gender of child effect found for these parents' confidence in their children's competence was due primarily to a "real" gender difference either in math talent or in the amount of work the children had invested in mastering mathematics. Although these explanations may be true in some populations, the Eccles-Parsons et al. (1982) study suggests that a child's gender can affect parents' confidence in their child's math competence even when effort and ability are controlled. Since comparable studies have not been done in the domains of English and sports, the validity of the effort/compensation argument cannot be assessed at this point in these domains.

Parents' Causal Attributions

A second plausible explanation for the effect of child's gender on parents' ratings grows out of attribution theory. According to Weiner (1974), perceptions of another's competence depend on the causal attributions made for the person's performance. If parents of boys make different attributions for their children's math performance than do 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 study 1 provide a direct test of this conclusion.

Mothers in study 1 were asked to imagine a time when their child did very well in mathematics and then to rate, on a 7-point Likert scale, the importance of the following six possible causes in determining the success experience: natural talent, effort, task ease, teacher help, parent help, and current skill level. Consistent with the findings of Yee and Eccles (1988), significant gender of child effects were obtained on two of the attributions: natural talent and effort. To test the mediation hypothesis, a series of regression analyses was conducted on those mothers' perceptions that yielded a significant gender of child effect in mathematics (see Table 1). 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 Fig. 1. Consistent with the mediational hypothesis, the significant relationship of child's gender to the relevant parent perception 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) disappeared once the relationship between the child's gender and the parents' attributions for the child's math success to either talent or effort were controlled. Furthermore, either one or both of these two causal attributions were significantly related to all five parent perceptions.

Comparable results for the talent attribution emerged in both the English and sport domains. The English results are illustrated in Fig. 2. As predicted, children's gender influenced their mothers' causal attributions, which in turn influenced the mothers' perceptions of, and expectations of, their children.

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 suggests that the relationships are reliable, but the causal direction of the relationships is still at issue. The longitudinal analyses necessary to pin down the predominant causal directions of influence among these various beliefs are

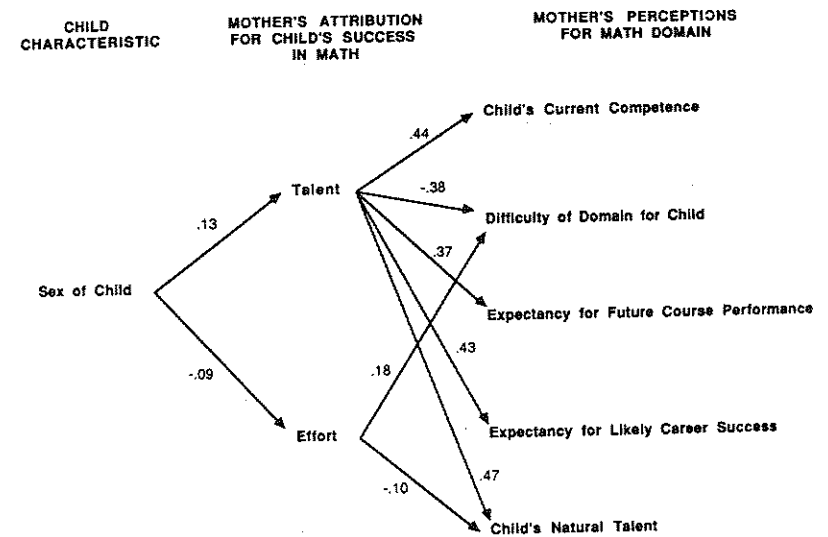


Fig. 1. Mediational effects of mothers' attributions for their children's success in mathematics. Standardized regression coefficients for the significant paths ($p < .01$) appear on each path.

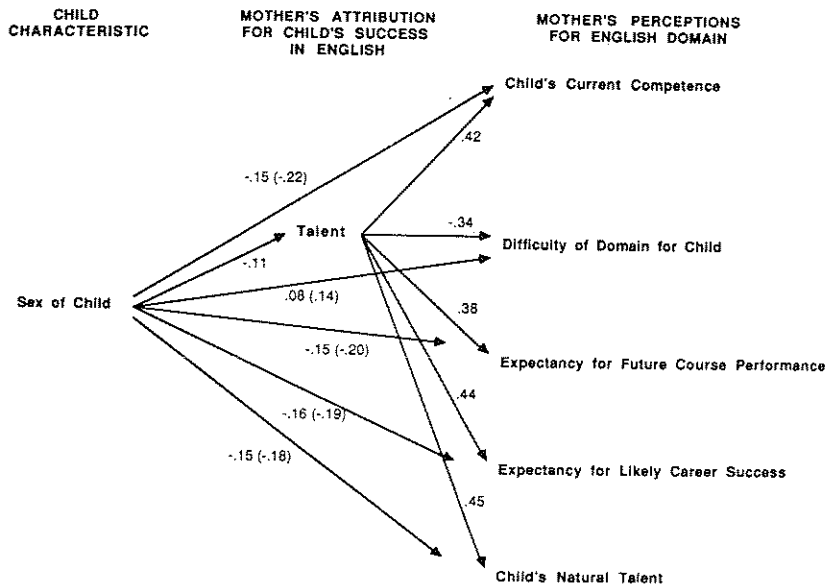


Fig. 2. Mediational effects of mothers' attributions for their children's success in English. Standardized regression coefficients for the significant paths ($p < .01$) appear on each path. Zero-order correlations are included in parentheses after the coefficients for those gender-of-child effects that remained significant after mothers' attributions were entered into the regression equations.

just beginning. Preliminary analyses suggest that parents' perceptions of their children's competence at time 1 influence causal attributions 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 parents' perceptions of their children's competence at time 1 and by parents' causal attributions of their children's 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.

Parents' Gender Role Stereotypes

But why do parents make different causal attributions for boys' and girls' successes in math, English, and sports? This question brings us to the next

explanation for parents' gender-differentiated confidence in their children's competence. Both Eccles-Parsons (1984) and Jacobs and Eccles (1985) suggest that this difference in causal attributions, as well as the gender of child differences in parents' confidence in their children's competencies in various domains, may be due, in part, to the impact of category-based gender role stereotypes on parents' perceptions of their own children's competence. In particular, this hypothesis states that parents' gender role stereotypes regarding the extent to which males or females, in general, are likely to be more talented in a particular domain will influence their perceptions of their own child's ability in this domain, leading to a distortion in the parents' perceptions of their children's abilities in the gender role stereotyped direction. Essentially, we are predicting that parents' perceptions of their children's ability in any particular domain will depend partially on the parents' gender role stereotypes regarding ability in that domain, and that this effect will be significant even after controlling for the children's actual level of competence in the domain.

Before presenting evidence to support these hypotheses, it is important to put them in the broader context of research on the link between category-based beliefs and target-based beliefs. Although there has been very little study of this link in families, or as a developmental phenomenon, there has been quite a bit of relevant research in social psychology. Two basic views have emerged. Work in the field of stereotyping and expectancy effects has repeatedly documented the impact of the perceiver's category-based beliefs (stereotypes) on the perceiver's perceptions of specific members of the social category (e.g., Darley & Gross, 1983; Duncan, 1976). In contrast, work in the area of social judgment has pointed to the power of individuating information to override the impact of stereotypical beliefs on perceptions of specific individuals (e.g., Locksley, Borgida, Brekke, & Hepburn, 1980). Numerous studies have attempted to resolve the discrepancy between these two perspectives. These studies have documented a variety of factors that influence the extent to which social perceptions are influenced by the perceiver's stereotypic beliefs or by individuating information the perceiver has received about the target (e.g., Higgins & Bargh, 1987; Hilton & Fein, 1989; Rasinski, Crocker, & Hastie, 1985). Hilton and Fein (1989) concluded:

Social judgment is not uniformly dominated by either categorical information or by individuating information. Perceivers do not always ignore individuating information nor do they always suspend their stereotypes when individuating information is available. Instead, the results indicate that social judgment involves a dynamic interplay between the category-based expectations of the perceiver and the information that is available from the target. (p. 208)

What do these conclusions indicate about the probability that parents' gender role stereotypes will affect their perceptions of their own children's abilities? This is a complicated question. On one hand, parents have ample opportunity to

get individuating information about their children's abilities in specific subject areas. And evidence suggests that when individuating information about an individual is both readily available and clearly diagnostic about the characteristic being evaluated, perceivers are likely to attend primarily to this individuating information and to ignore their stereotypic beliefs (Hilton & Fein, 1989). This suggests that parents' gender role stereotypes should have little or no impact on their perceptions of their children's abilities.

On the other hand, the strongest support for expectancy effects typically occurs in naturalistic settings with naturally occurring beliefs and perceptions (Jussim, 1986). In addition, categorical beliefs or stereotypes have their largest effect "when categorical information can disambiguate the diagnostic meaning of individuating information" (Hilton & Fein, 1989, p. 210). Families are clearly naturalistic settings; and parents' gender role beliefs and perceptions of their children's abilities are naturally occurring social cognitions. In addition, work in attribution theory (e.g., Weiner, 1974) suggests that achievement-related outcomes are ambiguous as to their cause, and earlier in this article we have documented that parents' causal attributions for their children's competencies in gender role stereotyped domains are affected by their children's gender. These facts suggest that parents' category-based gender role stereotypes might affect their perceptions of their own children's competencies.

We know of no previous studies that have tested this hypothesis. As reported earlier, parents do hold gender-differentiated views of their children's academic and nonacademic abilities. These beliefs are also more gender differentiated than are objective indicators of the children's actual performance in these domains (e.g., Alexander & Entwisle, 1988; Eccles et al., 1989; Eccles & Harold, 1988; Jacobs & Eccles, 1985). These studies, however, did not examine the actual relationship between parents' gender role stereotypes and their perceptions of their own child's ability. The critical issue is not whether parents, on the average, give gender-differentiated estimates of their children's abilities. Instead, the issue is whether parents who endorse the culturally dominant gender role stereotype regarding the distribution of talent between males and females distort their perception of *their own children's* abilities in a direction that is consistent with the gender role stereotype *to a greater extent* than parents who do not endorse the cultural stereotype. Evidence from both studies 1 and 2 supports this hypothesis for mothers. (The data from the fathers have not yet been analyzed.)

In study 2, the mothers were asked at time 1 who they thought were naturally better at mathematics, English, and sports—boys, girls, or neither. In a separate questionnaire they also rated on a 7-point Likert scale how much natural talent their child had in each of these three domains, and how difficult (or easy) each of these domains was for their child. In each domain, we tested the significance of the interaction of the child's gender with the parents' category-based

gender role stereotypes in predicting the parents' ratings of their own child's competency. All six interactions were significant (Eccles et al., 1989).

The results for mathematics were particularly interesting (see Fig. 3). As Table 1 demonstrated, on the average, the gender of their child did not affect these mothers' perceptions of their child's math talent. However, the gender of their child did affect their ratings of the child's natural talent in math when it was considered in interaction with their category-based gender role stereotype of mathematical competence. As predicted, mothers who believed that males are naturally more talented in mathematics displayed a significant gender of child

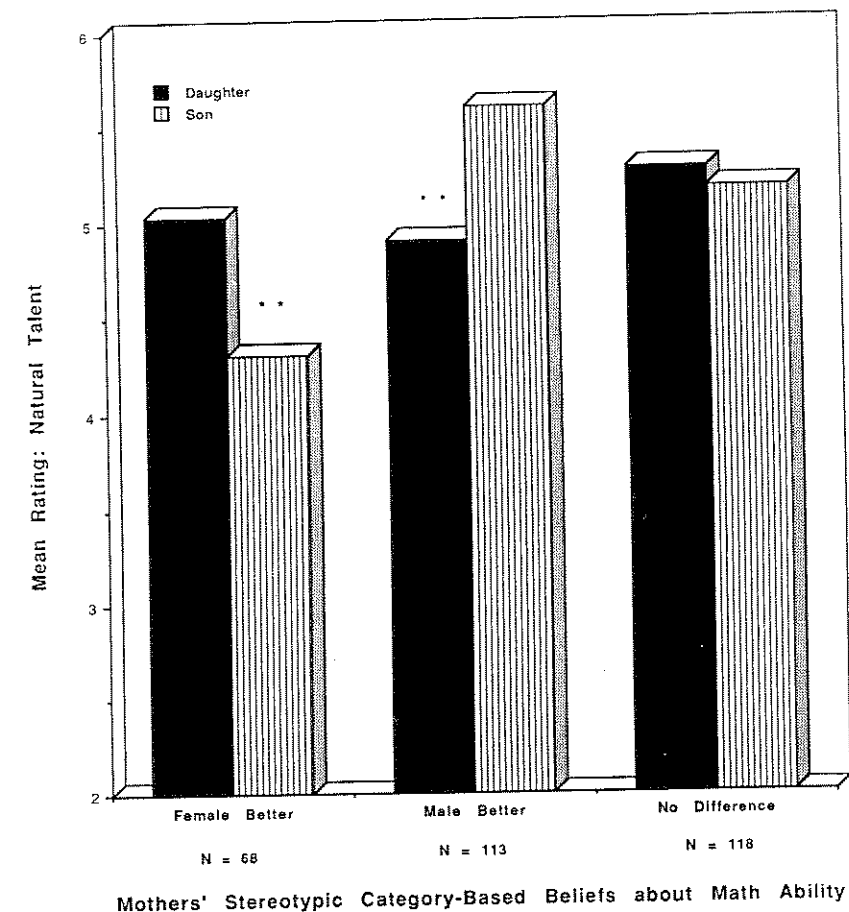


Fig. 3. Interactive effects of mothers' gender role stereotypes and child's gender in predicting mothers' rating of own child's natural talent in math (** $p < .01$).

effect in their ratings of their children's math ability: Their ratings of their children were consistent with their category-based stereotype. In contrast, the gender of child effect was not significant for mothers who believed that males and females are equally likely to be naturally talented at mathematics. Similar gender role stereotypic effects characterized the mothers' reports for both sports and English. Although it is possible that these effects are due to the impact of target-based information on the mothers' category-based gender role stereotypes, the extreme stability of gender role stereotypes across time in a variety of populations makes this an unlikely alternative interpretation (Rothbart, 1989).

Jacobs (1987) explored these effects in the domains of math and sports more fully in the data from study 1. Using path-analytic techniques, she tested the significance of the interaction between the child's gender and the mother's category-based gender role stereotypes in predicting mothers' perceptions of their children's ability, controlling for the effect of an independent indicator of the children's actual ability level (the teacher's rating of the children's ability). The interaction term was scored such that a positive coefficient indicated that the

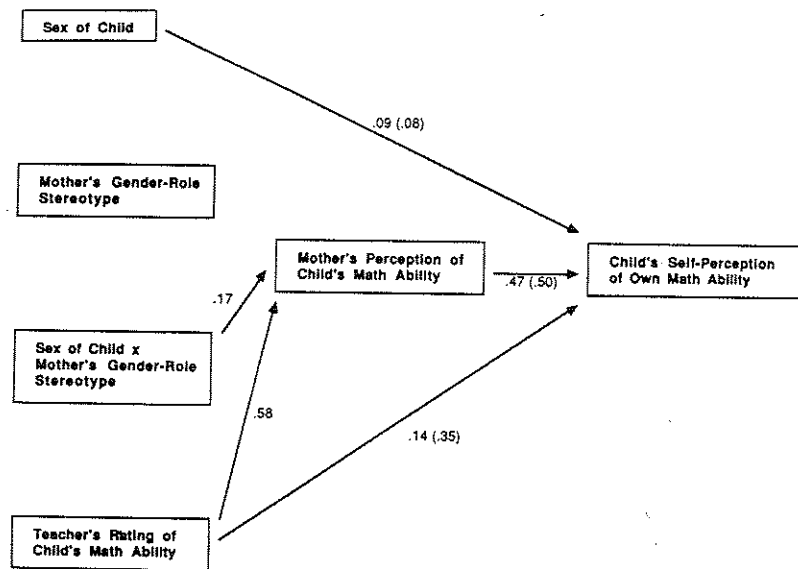


Fig. 4. Moderating effect of mothers' gender role stereotypes on the impact of child's gender in predicting mothers' rating of own child's competence in math and child's self-perception of own math ability. Standardized regression coefficients for the significant paths ($p < .01$) appear on each path. Zero-order correlations are included in parentheses after the coefficients for those gender-of-child effects that remained significant after mothers' ratings were entered into the regression equations.

mother was distorting her impression of her child in the gender role appropriate direction. For instance, if she was talking about a boy child, her rating of her child's ability was higher than what would have been predicted using only the teacher's rating; it was the opposite for a girl child.

Jacobs' results for math are illustrated in Fig. 4, and rather comparable findings emerged for the sports domain. Once again the data were consistent with our hypothesis, for the interaction term was significant and the coefficient was positive for both math and sports. Thus, to the extent that these mothers endorsed the traditional gender role stereotypic belief that males are naturally better in math and sports than are girls, they distorted their perception of their children's competence in these domains in the gender role stereotypic direction. In addition, consistent with the findings of Eccles-Parsons et al. (1982), the mothers' perceptions of their children's competence in each domain had a significant impact on the children's own self-perceptions, even after the children's actual performance in each domain (i.e., the teacher's rating) was controlled.

These data provide clear evidence of the processes associated with expectancy effects. Given the power of individuating information and the large amount of such information that parents are exposed to as their children grow up, we would not expect the biasing effects to be large—and they are not. Nevertheless, although the effects are not large, they are both reliable and consistent across different activity domains. Finally, they do appear to influence the development of the children's own self-perceptions in a manner consistent with the self-fulfilling prophecy hypothesis.

Conclusions

We have argued that gender differentiation in parents' perceptions of their children's abilities in various domains results, in part, from processes associated with perceptual bias and expectancy effects. In particular, we hypothesized that both parents' causal attributions for their children's successes, and parents' category-based gender role stereotypes, would lead to perceptual bias in their impressions of their children's competencies in gender role stereotyped activity domains. Current findings from two ongoing longitudinal studies, as well as results from our previous work, support these hypotheses. As one would expect, parents' perceptions of their children's competencies in math, English, and sports are strongly related to independent indicators of their children's actual competence in these domains. Nevertheless, the evidence clearly indicates that parents' perceptions of their children's competencies in math, English, and sports are also influenced by their children's gender, and by the parents' gender role stereotypic beliefs about which gender is naturally more talented in these domains. Furthermore, the evidence supports the conclusion that these influences are independent of any actual differences that might exist in the children's competencies. Thus, it

appears that perceptual bias is operating in the formation of parents' impressions of their children's competencies in gender role stereotyped activity domains.

Let us consider this from a self-fulfilling prophecy view concerning the socialization of gender differences in children's competencies in various activity domains. Proponents of such a view would argue that these differences in parents' perceptions of their children's competencies set in motion a train of events that ultimately create the very differences the parents originally believed to exist (see Eccles & Hoffman, 1984). Elsewhere, we have identified one mechanism through which such a process might be mediated: the children's self-perceptions. We have argued that children's self-perceptions and task-perceptions influence the choices children make about their involvement in various activities (see Eccles-Parsons et al., 1983). In particular, children should spend more time engaged in activities that they think they are good at, and that they value and enjoy.

We have now documented these relations in the domains of math and sports, with a variety of findings not reported in this article. In math, we have demonstrated that decisions regarding course enrollment in high school are directly, and powerfully, influenced by adolescents' confidence in their math ability and by the value they attach to developing math skill (Eccles et al., 1984). In sports, we have demonstrated that the gender difference in the amount of free time sixth graders spend engaged in athletic activities is mediated by gender differences in the adolescents' confidence in their athletic ability and in the value they attach to participating in athletic activities (Eccles & Harold, 1988). We have also shown that gender differences in adolescents' self-perceptions are mediated, at least in part, by the gender role stereotyped bias in their parents' perceptions of their competencies in various activities. Together, these results support the conclusion that processes involving self-fulfilling prophecies contribute to the socialization of gender differences in the domains of mathematics and sports.

But, specifically, how do parents' gender role stereotyped perceptions of their children's competencies influence the children's self- and task-perceptions? We are just beginning to study this issue. Figure 5 illustrates the theoretical model we are testing. Essentially, we believe that parents' gender role stereotypes, in interaction with their children's gender, affect the following mediators: (a) parents' causal attributions for the children's performance, (b) parents' emotional reactions to their children's performance in various activities, (c) the importance parents attach to their children acquiring various skills, (d) the advice parents provide their children regarding involvement in various skills, and (e) the activities and toys parents provide for their children. In turn, we predict that these subtle and explicit mediators influence development of the following child outcomes across various gender role stereotyped activity domains: (a) children's confidence in their abilities, (b) children's interest in mastering various skills, (c)

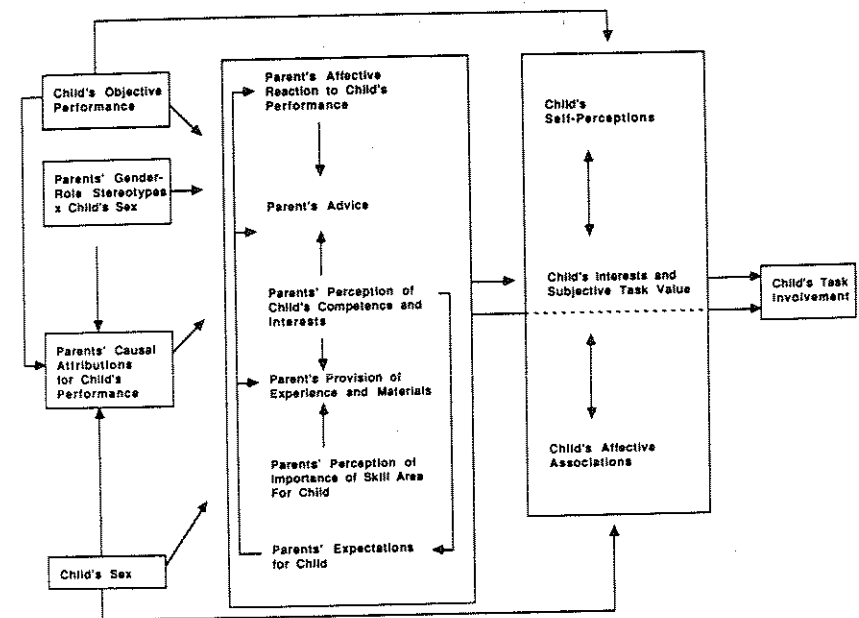


Fig. 5. Theoretical model of self-fulfilling prophecy effects in the family.

children's affective reactions to participating in various activities, and (d) as a consequence of these self- and task-perceptions, the amount of time and type of effort that children end up devoting to mastering and demonstrating various skills. Empirical work assessing these various causal links is now under way.

In the end, these differences in self-perceptions and skills influence the type of jobs and activities that females and males seek out and qualify for. If our society rewarded female-typed and male-typed activities and job choices equally, this consequence might not be as problematic as it now is. But this is not the case in this society, particularly with regard to job salaries and status. As a consequence of making female-typed occupational choices, females reduce their earnings potential significantly (see Eccles, 1987), and this fact puts them at substantially greater risk than males for all of the negative social consequences associated with low income and poverty.

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JACQUELYNNE S. ECCLES is currently Professor of Psychology at the University of Colorado, Boulder, and Research Scientist at the Institute for Social Research, University of Michigan. She has authored or co-authored over 50 articles and book chapters on topics ranging from gender role socialization, teacher expectancies, and classroom influences on student motivation, to adolescent development in the family and school context. She is a member of the MacArthur Foundation Network on Successful Adolescent Development.

JANIS E. JACOBS is Assistant Professor of Psychology at the University of Nebraska, having received her Ph.D. at the University of Michigan. Her research on gender has focused on the relation between parents' sex-typed achievement beliefs and children's achievement beliefs and behavior. Her other research interests concern the use of base-rates and judgment heuristics in everyday decision making.

RENA D. HAROLD received her Ph.D. in Social Work and Psychology from the University of Michigan. She is currently Assistant Professor of Social Work at Michigan State University, and Adjunct Assistant Research Scientist at the University of Michigan's Institute for Social Research. Her research interests include social development processes and gender differences, and the impact of macrosocial issues on individuals and families, as well as examination of factors that can mediate these effects.