Development of Gender Attitude Traditionality Across Middle Childhood and Adolescence

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The development of gender attitudes in 402 youth (201 firstborn and 201 secondborn siblings) in 201 European American families was examined using data collected on seven occasions across 9 years. Pooling across siblings and using multilevel modeling, we examined gender attitude development from ages 7 to 19. Consistent with an ecological perspective, the combined effects of individual (i.e., sex, age, birth order) and contextual (i.e., parents’ gender attitudes, sibling sex) characteristics predicted patterns of change. Although most youth declined in traditionality, the attitudes of firstborn boys with brothers and traditional parents became more traditional over time. No one longitudinal pattern captured the development of gender attitudes; trajectories varied as a function of contextual and personal characteristics.

The course of gender development has long been of interest to child and adolescent development researchers (see reviews by Bussey & Bandura, 1999; Huston, 1983; Leaper, 2002; Ruble & Martin, 1998; Ruble, Martin, & Berenbaum, 2006). Scholars who have reviewed this body of work have concluded that gender development is a complex, multidimensional phenomenon and that the dimensions of gender development are not tightly related (e.g., Huston, 1983; Ruble et al., 2006; Tenenbaum & Leaper, 2002). In this research, we focused on the developmental course of one important aspect of gender development—attitudes about gender—across middle childhood and adolescence. Gender researchers make the distinction between flexible thinking about gender with regard to one’s self versus tolerance of flexibility in others (Katz & Ksansnak, 1994), and, reflecting the multifaceted nature of gender, these two domains of attitude flexibility behave somewhat differently. Our study focused on how traditional or flexible youth are in their attitudes about others’ behavior.

Understanding how gender attitudes develop requires designs that follow youth over substantial periods of time, but to date research on gender development has typically relied on cross-sectional or short-term longitudinal designs. In this research, we examined the developmental course of gender development across middle childhood and adolescence. We were able to broaden the age range of study by paying equal attention to the two eldest siblings in each family. In our sample, siblings were, on average, 10.9 and 8.3 years old when the study began. Studying siblings’ developmental trajectories not only allowed us to expand the age span of interest but also to examine the possibility that children’s attitudes may develop differently depending on their position in the family.

A growing body of evidence suggests that families are important contexts for gender socialization (Crouter, Manke, & McHale, 1995; Hill & Lynch, 1983; Katz & Ksansnak, 1994; Leaper, 2002; Leaper & Friedman, 2006; Maccoby, 1998; McHale, Crouter, & Tucker, 1999; McHale, Crouter, & Whiteman, 2003; Serbin, Powlishta, & Gulko, 1993), but little is known about how family circumstances are linked to gender development. Extant research has focused primarily on parents and their role as agents of gender socialization (Tenenbaum & Leaper, 2002). We maintained this focus but broadened it in several important ways.
Taking an ecological perspective that directs attention to the interplay of person characteristics and ecological conditions (Bronfenbrenner & Morris, 1998), and using multilevel modeling (MLM) techniques that allowed us to take advantage of longitudinal data from siblings, we examined the interplay of three individual characteristics of youth—age, sex, and birth order—and two features of their family contexts—sibling sex and parents’ attitudes about gender—for the development of youth’s gender attitudes. Our data provided information about children’s gender attitudes from ages 7 to 19. In thinking about development, we conceptualized middle childhood as the elementary school years, roughly ages 6–10; early adolescence as the junior high school years, roughly ages 11–13; middle adolescence as the high school years, ages 14–17; and late adolescence as ages 18 and beyond.

We begin by reviewing four patterns of gender development proposed by Katz and Ksansnak (1994), and then consider the empirical literature on the development of youth’s gender attitudes, with an emphasis on the family circumstances that may explain individual differences in change patterns.

The Course of Gender Development

Katz and Ksansnak (1994) outlined four “theoretical possibilities” for the developmental course of the traditionality versus flexibility of gender role orientations across middle childhood and adolescence. Two possibilities suggested linear patterns of change. The first, rooted in social learning theory, is that children’s gender orientations become increasingly traditional over time as youth are exposed to gender-typed reinforcement and modeling processes not only at home, but at school, in peer groups, and via the media. According to Katz and Ksansnak (1994), gender intensification (Hill & Lynch, 1983) could also account for a pattern of linear increased traditionality. According to this perspective, socialization agents, such as parents, respond to the dramatic physical changes that accompany pubertal development by clamping down on behavior not in line with traditional gender roles. The second linear pattern, compatible with a gender schema perspective (Martin & Halverson, 1981) and the notion that children’s processing of environment cues about gender depends on their cognitive skills in such areas as classification (Bigler, 1995), is that gender attitudes become more flexible over this developmental period as youth acquire more sophisticated reasoning abilities. Like the first, this pattern also has a universalistic flavor, but the assumption is that youth become increasingly aware of instances that do not conform to stereotypes and their cognitive schemas accordingly become more nuanced.

The third and fourth patterns are curvilinear. One pattern is that youth become less traditional from middle childhood into early adolescence, reflecting greater cognitive flexibility and presumably exposure to diverse instances of gender roles in society, but that traditionality climbs again in middle and later adolescence “as a concomitant of both the courtship process and societal occupational expectations” (Katz & Ksansnak, 1994, p. 273). The second curvilinear pattern implies that youth decline in traditionality during childhood, that traditionality flattens out or even increases in early adolescence, and that the decline resumes again in later adolescence. The flattening out could reflect a “retreat to stereotypes” in early adolescence (Katz and Ksansnak, p. 273 cited in Hall et al., 1982, p. 494), or possibly another way to think about gender intensification if the period of intensification is temporary. Using this logic, after the intense pressures to fit in have passed, youth may again think more flexibly about gender. Like patterns 1 and 2, both curvilinear patterns have a universalistic flavor. In contrast, working from an ecological perspective (Bronfenbrenner, 1979), we take the perspective that gender development is not a universal process and that, indeed, all four of these patterns may exist, but that we are likely to find them in distinctly different sets of individual and family circumstances.

What empirical evidence supports these developmental patterns? In one of the few studies to directly examine this issue, Katz and Ksansnak (1994) sampled 479 public school students in three age groups: middle childhood (3rd–5th grade), early adolescence (7th–9th grade), and middle adolescence (10th–12th grade). Using two measures of gender flexibility—youth flexibility about their own qualities and tolerance toward nontraditional behavior in others, they found age differences that suggested a linear increase from middle childhood through adolescence in flexibility with regard to gender, a pattern consistent with the cognitive developmental pattern. Katz and Ksansnak (1994) used a cross-sectional design, however; age differences may not reflect patterns of intraindividual change. Similarly, Serbin et al. (1993) collected cross-sectional data on a sample of about 500 children ages 5–12 years. Their data on children’s stereotypes regarding activities and occupations of other people suggested increasing flexibility with age. Serbin et al. (1993) also analyzed follow-up data collected a year later on a sub-sample. They found high levels of stability, especially for boys, but they did not report changes in mean levels of flexibility over this period.
Liben and Bigler (2002) examined short-term stability and change in young adolescents’ gender-related attitudes, using a measure that focused on the occupations, activities, and traits of others and a longitudinal design that included four waves of longitudinal data collected in the fall and spring of the 6th and 7th grades. They found that youth’s gender-related attitudes became less traditional over time, with the most pronounced decline occurring between the end of 6th grade and the beginning of 7th grade.

In laying out the four theoretical possibilities for the developmental course of children’s and adolescents’ gender development, Katz and Ksansnak (1994) implied that the challenge for researchers is to identify the pattern that most accurately reflects the phenomenon. In contrast, an ecological perspective underscores the possibility that development is shaped both by personal characteristics of youth and by the contexts in which they are growing up (Bronfenbrenner & Morris, 1998; Crouter et al., 1995). From this perspective, one would expect to find different developmental trajectories depending upon children’s own characteristics and the nature of their family environments. These ideas are also compatible with the social cognitive theory of gender development (Bussey & Bandura, 1999), which underscores the interplay of environmental influences and the individual’s own active role in acquiring an understanding of gender.

In terms of children’s personal characteristics, studies have consistently pointed to sex differences in gender role attitudes or gender flexibility: Girls generally hold less traditional attitudes than boys (Galambos, Almeida, & Petersen, 1990; Katz & Ksansnak, 1994; McHale et al., 1999). Less is known, however, about how children’s sex is related to longitudinal trajectories of gender development. In one of the few longitudinal studies in this area, Galambos et al. (1990) analyzed longitudinal data collected in the 6th, 7th, and 8th grades from a sample of 200 young adolescents and found a widening gap over time in girls’ and boys’ attitudes, with girls becoming less traditional and boys more so, a pattern suggestive of gender intensification during early adolescence for boys but not for girls (Hill & Lynch, 1983). This pattern may reflect gender inequalities: Females stand to gain by pushing for equal status while males, the high-status group, do not (Ferree, 1990).

Families as Contexts for Gender Development

A limitation of the Galambos et al. (1990) study is that it did not situate girls and boys in a family context. What features of family might be important shapers of children’s developing attitudes about gender? The most commonly studied family socialization agents are parents (Ruble & Martin, 1998). Frequently grounded in a social learning theory perspective, these studies take the approach that parents’ own gender schemas are important because they underlie mothers’ and fathers’ behavior as role models, the advice and instruction they provide to their children about gender, and parents’ gendered reactions to and channelization of their children’s behavior, interests, and competencies. In a meta-analysis of 43 studies, Tenenbaum and Leaper (2002) concluded that there is a small but consistent association between parents’ gender schemas and their children’s gender-related cognitions about the self and about others.

Several studies have examined other gendered aspects of parents’ family roles and linked them to children’s gender-typed attitudes or preferences. For example, Serbin et al. (1993) found that children whose mothers frequently performed nontraditional gender-typed household and child care tasks were less gender-typed in terms of preferences. Katz and Ksansnak (1994), using a measure of the social environment that looked broadly at the extent to which the key people in the child’s life (e.g., parents, teachers, siblings) held flexible views of gender roles, found that youth who reported more flexible social environments endorsed more flexible attitudes about gender for themselves and greater tolerance of nontraditional activities for others. This study relied on self-report data, however, which may have led to inflated associations.

Siblings are also agents of gender socialization (McHale et al., 1999; McHale, Updegraff, Helms-Erikson, & Crouter, 2001), but they have received very little attention in the literature on gender development (but see reviews by Huston & Alvarez, 1990; McHale et al., 2003). Given that boys often hold more traditional attitudes than girls do, and that, in traditional households, males may hold a high status and receive preferential treatment, one possibility is that having a brother is associated with greater traditionality, especially when parents espouse traditional attitudes. Huston and Alvarez (1990) cited Hertsgaard and Light (1984), who found that girls in early adolescence who had either no brother or only one brother held less traditional attitudes than girls with more than one brother. It is also plausible, however, that in some family contexts girls might react to having a brother by becoming attuned to male preferential treatment and as a result be less likely to endorse traditional notions of gender roles than they would have been had they grown up with a sister.
Crouter et al. (1995) explored the potential importance of having a same- versus opposite-sex sibling in a short-term longitudinal study of the family context of gender socialization in early adolescence that focused on children’s everyday activities. Operationalizing the traditionality of the family context with the parents’ division of household tasks, they found that, in families characterized by a traditional division of household labor, girls with younger brothers maintained a greater level of involvement in female-typed tasks over a year in early adolescence. In addition, over that year, girls increased their time with mothers and boys spent more time with fathers, a pattern that was more pronounced when they had a younger sibling of the opposite sex. One possibility is that having both a son and a daughter enables traditional parents to put their gender-typed attitudes into practice. Unfortunately, Crouter et al.’s data set did not include data from the younger sibling and hence they were not able to make within-family comparisons of brothers and sisters, a powerful design with which to examine family gender socialization.

McHale et al. (1999) put the contextual pieces together in a cross-sectional study of the correlates of children’s gender-typed attitudes, personal characteristics, and activity patterns, using the first wave of data from the study on which the present research is based. Capitalizing on a research design that gathered data from two siblings, they compared older and younger siblings when, on average, the firstborns were about 10.5 years of age and their secondborn siblings were about 2.5 years younger. Firstborns were less traditional than secondborns, and girls were less traditional than boys. Older brothers growing up in traditional households (defined in terms of fathers’ attitudes about women’s roles) stood out in terms of high traditionality, but especially when they had a younger sister. Being a firstborn male, potentially a position of privilege in a traditional household, may confer status on firstborn boys that is accentuated by the presence of a younger sister; this combination of influences may exacerbate traditional attitudes in firstborn males. A limitation of the study was that, because it was based on one occasion of measurement, birth order and age were confounded. In the present study, by centering the data at age 10, we were able to compare brothers and sisters when they were at the same chronological age, a more rigorous test of birth order differences.

Using the first three waves of data examined here, McHale et al. (2001) used regression analyses to examine whether and how siblings’ gender attitudes predicted relative change in their sisters’ and brothers’ attitudes over a 2-year period. One finding related to the work reported here was that firstborn girls’ traditionality declined more over time if they had a younger brother. The current study expands on that study by focusing on developmental trajectories of gender attitudes over middle childhood and adolescence.

**Study Goals**

In sum, the goals of this research were to examine changes in youth’s gender attitudes from middle childhood into late adolescence using a sample of firstborn and secondborn offspring from 201 European American families. Guided by the ecological perspective, we asked whether patterns of change from middle childhood through adolescence varied as a function of youth’s personal qualities (i.e., sex, birth order) and family circumstances (i.e., sibling sex, parents’ gender attitudes).

**Method**

**Participants**

The analyses were based on seven waves of data collected over a 9-year period as part of a longitudinal study that explored the interconnections between family dynamics and gender development across middle childhood and adolescence. Families were recruited via letters sent home to the families of 4th- and 5th-grade students in 16 school districts. The letter described the research as a study of family life, listed the criteria for participation, and asked interested families to return a self-addressed, stamped postcard to the project if they met three criteria: (a) a mother and father were present and the biological or adoptive parents of the children; (b) the eldest child was in the 4th or 5th grade; and (c) there was at least one sibling 1–4 years younger. Of the eligible families who returned postcards, over 90% agreed to participate after discussing the study with project staff. Subsequent comparisons of the sample with U.S. Census data on families from the same counties suggested that participating parents were slightly older and considerably better educated than their dual-earner Census counterparts.

Of the 203 families who originally agreed to participate in the study, we omitted two from the analyses reported here because they dropped out of the study after Wave 1. Notably, the study experienced low attrition. In Wave 8 (the final wave in which all youth were scheduled to participate), 95% of the original sample was still participating. Reflecting the demographic characteristics of the area, the sample...
included working and middle-class families from small cities, towns, and rural areas. All families were European American, with the exception of two adopted Asian American children. At Wave 1, average family size was 4.54 people (SD = 0.75), and mothers and fathers had completed 14.57 (SD = 2.15) and 14.67 (SD = 2.43) years of education, respectively. On average, at Wave 1 mothers were employed 29.73 hr/week (SD = 15.25) and earned $17,801 per year (SD = 15,066), whereas fathers worked 47.82 hr/week (SD = 10.99) and earned $40,151 per year (SD = 23,362). At Wave 1, firstborn children (103 girls and 98 boys) averaged 10.87 years of age (SD = 0.54), and their secondborn siblings (100 sisters and 101 brothers) averaged 8.26 years (SD = 0.94).

### Procedures

Data were collected annually. At Waves 1, 2, 3, 6, 7, 8, and 9, the occasions of measurement used here, a team of interviewers conducted separate home interviews with fathers, mothers, and the two offspring. After introductions and a review of informed consent guidelines, families received a $100 (Waves 1, 2, and 3) or $200 honorarium (Waves 6, 7, 8 and 9). Interviews lasted 2–3 hr and covered a variety of topics including parents’ and children’s gender attitudes. (At Waves 4 and 5, respondents completed mailed surveys; data from these phases were not included here because they were collected in such a different way).

### Measures

**Youth’s gender attitudes.** At each wave, youth completed an adapted version of the Children’s Attitudes toward Women Scale (Antill, Russell, Goodnow, & Cotton, 1994), which was adapted from the Attitudes toward Women Scale (Spence & Helmreich, 1972) by rating, on a 4-point scale, 15 statements about women’s roles (e.g., “In general, the father should have greater authority than the mother in making decisions about raising children”). Higher scores reflected more traditional attitudes. At Wave 1, mothers’ scores (α = .82) ranged from 15 to 57 (M = 25.51, SD = 6.57; median = 25.00), and fathers’ scores (α = .73) ranged from 15 to 46 (M = 27.71, SD = 5.81; median = 27.00). Like their children, on average parents held attitudes on the nontraditional side. Ideally, we wanted one measure of attitudes because our model was complex and involved many interaction terms. Although mothers’ attitudes were significantly less traditional than fathers’ were, t = 5.94, p < .001, parents’ attitudes were significantly correlated at Waves 1, r = .42, p < .001, and 6, r = .42, p < .001. We collected data on parents’ attitudes only at Waves 1 and 6 because we expected them to be stable, as, indeed, they were (r = .67, p < .001; r = .70, p < .001, for mothers and fathers, respectively). We explored whether parents’ attitudes changed over time as a function of the sex of their offspring and found no differences in this regard. We then tested models in which we included mothers’ attitudes alone, fathers’ attitudes alone, mothers’ attitudes controlling for fathers’, fathers’ attitudes controlling for mothers’, and the mean of mothers’ and fathers’ attitudes. In general, the models were remarkably similar no matter which route we took, although the findings for fathers were slightly stronger than those for mothers. Given the high intraindividual stability in parents’ attitudes, the reasonably high correlation between mothers’ and fathers’ scores, the fact that we did not have annual data on parents’ attitudes, and the fact that the results were very similar no matter how we operationalized parents’ traditionality, we measured it as the average of both parents’ scores at Waves 1 and 6 and treated that variable as an unchanging family characteristic in our models.

### Results

**Overview of Analyses**

We conducted multilevel modeling analyses using the hierarchical linear modeling (HLM; Bryk & Raudenbush, 1987; Raudenbush & Bryk, 2002) program, an analytic approach that extends multiple regression to nested, or repeated-measures, data.
Our design included three levels: (a) the level 1 unit of analysis was time; (b) the level 2 unit of analysis was sibling (i.e., firstborns, secondborns); and (c) the level 3 unit of analysis was family. In other words, occasions were nested within individual siblings, and siblings, in turn, were nested within families. The level 1, or within-person, model captured intrapersonal change over time in youths’ gender attitudes. We centered the data at age 10, which had the effect of defining the intercept as age 10 for all children (hence, all effects on the intercept are specific to this age). This provided a common frame of reference (i.e., firstborns and secondborns were compared at the same ages) and effectively controlled for age differences between siblings. Consistent with Katz and Ksansnak (1994), our models examined both linear and quadratic patterns of change over time. The level 2, or within-family, model provided information about the characteristics and circumstances of individual children, specifically sex (effect coded as −.5 for girls and .5 for boys), birth order (effect coded as −.5 for firstborns and .5 for secondborns), and sibling sex (effect coded as −.5 for having a sister and .5 for having a brother), and the interaction terms involving those variables. The level 3, or between-family, model included parents’ gender attitudes (shared by firstborns and secondborns) and cross-level interaction terms involving parents’ gender attitudes and level 2 variables.

We constructed a series of models of increasing complexity, beginning with a main effects model, progressing to a model that included all possible two-way interactions, and culminating in a model that included all possible interactions including the four-way interactions of sex, birth order, sex of sibling, and parents’ attitudes for both the level 1 intercept, and the linear and quadratic slopes. Using deviance tests, we tested whether each model provided a significantly better fit to the data than its simpler predecessor. These tests indicated that the best-fitting model included a significant four-way interaction at the intercept and the linear slope and a significant two-way interaction for the quadratic function. Below we summarize the results of that model (see Appendix A for the model notation).

Development of Gender Attitudes

Correlates of attitudes at age 10. Coefficients relating the explanatory variables to the level 1 intercept reflect individual differences in attitudes at age 10. Because these differences shift considerably over time, they are best interpreted in terms of the larger patterns that emerge across this age span. Three strong “main effect” relations are notable, however, because they are large enough to hold across the age span and across combinations of other variables, despite the more complex elements of the model (see Table 1). As the literature suggests, boys’ attitudes were more traditional than girls’, $\gamma = 3.03, SE = .69$, $p < .001$, and youth whose parents held more traditional attitudes reported more traditional attitudes themselves, $\gamma = 0.42, SE = .08, p < .001$. Furthermore, reflecting a significant effect for birth order, secondborns held more traditional attitudes than their older siblings had reported at the same age, $\gamma = 2.43, SE = .65, p < .001$. As can be seen in Table 1, several interactions were also significant at the level of the intercept, but, because they indicated differences that would be qualified by the correlates of the linear and quadratic slopes, we save our discussion of them for below.

Overall pattern of change over time. As can be seen in Table 1 and Figure 1, the overall pattern of change was characterized by a negative, linear effect of age, $\gamma = -1.19, SE = .13, p < .001$, and a significant, positive quadratic effect of age, $\gamma = 0.15, SE = .02, p < .001$. Together, these effects indicate a u-shaped pattern: The average trajectory of youth’s gender attitudes was characterized by a decline in traditionality from age 7 to about age 13, a flattening out between about ages 13 and 15, followed by an increase in traditionality thereafter. Consistent with an ecological perspective, however, this average pattern did not characterize the pattern of change for all youth; as anticipated, patterns of change depended on youth’s personal characteristics and family circumstances.

Correlates of change. The correlates of youth’s trajectories highlight the importance of combinations of individual and family circumstances. There were significant linear, $\gamma = -0.79, SE = .25, p < .01$, and quadratic, $\gamma = 0.11, SE = .03, p = .001$, effects for birth order. As will be evident in the more detailed findings described below, at age 10 secondborn youth experienced sharper initial declines in traditionality over time than did their older siblings, as well as a more pronounced increase in traditionality following early adolescence, giving their trajectories a distinct u-shape. In contrast, firstborns tended to experience a modest, linear decline in traditionality.

Significant Sex × Parents’ Attitudes effects for the linear, $\gamma = 0.21, SE = .05, p < .001$, and quadratic age terms, $\gamma = -0.03, SE = .01, p < .001$, revealed different longitudinal patterns for boys and girls as a function of their parents’ traditionality. As can be seen in Figure 2, boys with more traditional parents maintained quite traditional attitudes across middle
childhood and well into adolescence until about age 15 at which point their attitudes gradually became even more traditional. In contrast, boys with less traditional parents demonstrated a pronounced curvilinear pattern. Like the other boys, their traditionality was initially quite high, but they declined in traditionality until about age 13, demonstrated no change from ages 13 to 14, and then moved in a markedly more traditional direction thereafter. Girls with less traditional parents had less traditional

Table 1
Gamma Coefficients, Standard Errors, and t-ratios for Multilevel Models Predicting Youth’s Gender Attitudes Over Time (n = 402 Youth in 201 Families)

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Intercept (age 10)</th>
<th>Linear slope</th>
<th>Quadratic slope</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>γ</td>
<td>SE</td>
<td>t-ratio</td>
</tr>
<tr>
<td>Intercept</td>
<td>31.08</td>
<td>0.36</td>
<td>85.38***</td>
</tr>
<tr>
<td>Parents’ attitudes</td>
<td>0.42</td>
<td>0.08</td>
<td>5.52***</td>
</tr>
<tr>
<td>Birth order</td>
<td>2.43</td>
<td>0.65</td>
<td>3.76***</td>
</tr>
<tr>
<td>Sex</td>
<td>3.03</td>
<td>0.69</td>
<td>4.39***</td>
</tr>
<tr>
<td>Sex of sibling</td>
<td>-1.24</td>
<td>0.69</td>
<td>-1.79</td>
</tr>
<tr>
<td>Birth Order × Attitudes</td>
<td>-0.17</td>
<td>0.14</td>
<td>-1.22</td>
</tr>
<tr>
<td>Sex of Sibling × Attitudes</td>
<td>0.08</td>
<td>0.13</td>
<td>0.58</td>
</tr>
<tr>
<td>Birth Order × Sex</td>
<td>-0.20</td>
<td>0.13</td>
<td>-1.51</td>
</tr>
<tr>
<td>Birth Order × Sex of Sibling</td>
<td>-0.90</td>
<td>1.38</td>
<td>-0.66</td>
</tr>
<tr>
<td>Sex × Sex of Sibling</td>
<td>2.84</td>
<td>1.38</td>
<td>2.07*</td>
</tr>
<tr>
<td>Birth Order × Sex × Attitudes</td>
<td>0.45</td>
<td>1.31</td>
<td>-0.35</td>
</tr>
<tr>
<td>Birth Order × Sex of Sibling × Attitudes</td>
<td>0.65</td>
<td>0.28</td>
<td>2.35*</td>
</tr>
<tr>
<td>Sex × Sex of Sibling × Attitudes</td>
<td>0.14</td>
<td>0.28</td>
<td>0.49</td>
</tr>
<tr>
<td>Birth Order × Sex of Sibling</td>
<td>-0.22</td>
<td>0.27</td>
<td>-0.82</td>
</tr>
<tr>
<td>Birth Order × Sex × Sex of Sibling</td>
<td>5.26</td>
<td>2.46</td>
<td>2.13*</td>
</tr>
<tr>
<td>Birth Order × Sex × Sex of Sibling × Attitudes</td>
<td>-0.98</td>
<td>0.46</td>
<td>-2.11*</td>
</tr>
</tbody>
</table>

Note. *p < .05; **p < .01; ***p < .001.

Figure 1. Overall pattern of change in youth’s attitudes toward women’s roles over time.
attitudes to begin with, and their traditionality declined steadily until about age 14 and changed little thereafter. The trajectory of the girls with more traditional parents generally paralleled that of the girls with less traditional parents although the girls with more traditional parents consistently held more traditional attitudes than those with less traditional parents.

We followed up this two-way interaction by conducting a series of multiple parameter tests to determine whether there were significant differences in the overall trajectories of youth’s attitudes as a function of sex and parents’ traditionality. These tests compared the change over time (but not average level) for pairs of groups. We accomplished this through an HLM multiple parameter Wald test (Raudenbush & Bryk, 2002) with 2 degrees of freedom: one for the linear component of the model and one for the quadratic. The weight for each coefficient equaled the difference between the two groups on that term. More traditional parents were defined as 1 standard deviation above the mean and less traditional as 1 standard deviation below the mean. All four trajectories depicted in Figure 2 were significantly different from one another ($p < .01$), except the two girl trajectories, which differed from the boy trajectories but not from each other.

We also found significant interactions involving Sex of Sibling $\times$ Parents’ Attitudes, $\gamma = 0.11$, $SE = .05$, $p < .02$, Birth Order $\times$ Sex $\times$ Parents’ Attitudes, $\gamma = -0.15$ $SE = .04$, $p < .001$, and Birth Order $\times$ Sex $\times$ Sex of Sibling, $\gamma = -1.34$, $SE = .41$, $p = .001$, which were qualified by the four-way Birth Order $\times$ Sex $\times$ Sex of Sibling $\times$ Parents’ Attitudes interaction, $\gamma = 0.16$, $SE = .06$, $p < .01$. Figures 3–6 portray attitude trajectories for firstborn boys, secondborn boys, firstborn girls, and secondborn girls, respectively. Note that, whereas Figures 1 and 2 summarize the data across all youth and thus span the full age spectrum from ages 7 to 19, Figures 3 and 5 depict trajectories for firstborn girls and boys (roughly from ages 10 to 19), and Figures 4 and 6 show the trajectories for secondborn girls and boys (roughly from ages 7 to 17). Interpreting a four-way interaction in an MLM framework is challenging. Conceivably any 1 of the 16 trajectories could be different from any other. Rather than conducting all possible between trajectory comparisons, we decided to test differences only within figures. Our logic was that Figure 2 helps us understand the big picture and that comparisons within, for example, firstborn boys or secondborn girls, would help us understand the nuances.

Beginning with firstborn boys (Figure 3), the most striking pattern is that of firstborn boys who had both more traditional parents and younger brothers because they were the only group to defy the norm and demonstrate a positive linear increase in traditionality over time. Although at age 10 they had less traditional attitudes than their counterparts with sisters, their traditionality steadily increased with age, and by age 19 they held the most traditional attitudes. Their trajectories of change differed signifi-

![Figure 2](image-url). Youth’s attitudes toward women’s roles as a function of time, sex, and parents’ traditionality.
cantly from those of firstborns boys with brothers and less traditional parents ($p < .01$) and those of firstborn boys with sisters and less traditional parents ($p < .05$), but not those of firstborn boys with sisters and more traditional parents. Other firstborn boy trajectories were not significantly different from one another.

The trajectories of the secondborn boys can be found in Figure 4. Follow-up tests revealed that all of the trajectories of secondborn boys were significantly different from one another ($p < .01$), except that of the secondborn boys with older brothers and more traditional parents compared with their counterparts with older sisters and more traditional parents. In other words, whereas having an older brother versus an older sister differentiated the trajectories of secondborn boys with less traditional parents, it did not do so for their counterparts with more traditional parents. Like their older brothers, the younger boys

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**Figure 3.** Firstborn boys’ attitudes toward women’s roles as a function of time, sex of sibling, and parents’ traditionality.

**Figure 4.** Secondborn boys’ attitudes toward women’s roles as a function of time, sex of sibling, and parents’ traditionality.
with brothers and traditional parents failed to decline in traditionality; during middle childhood and adolescence, when other secondborn boys were reporting decreasingly traditional attitudes, this group remained quite static. By age 17, they were the most traditional group of secondborn offspring. In contrast, secondborn boys with older brothers whose parents were less traditional declined steeply in traditionality from age 7 to about age 13, changed little from ages 13 to 15, and then increased slightly in traditionality in middle adolescence. They form a striking contrast with secondborn boys with older sisters and less traditional parents. The latter group was initially the least traditional. Like their peers with brothers, they declined in traditionality across middle childhood. Their scores flattened out in early adolescence, about ages 11–13, and then headed in a more traditional direction. By age 17, these two groups,
whose trajectories had crossed at age 13, were quite divergent, with the secondborns with older sisters and less traditional parents becoming almost as traditional as they were to begin with and the secondborns with older brothers and less traditional parents having moved from the most traditional stance at age 7 to the least traditional 10 years later.

In contrast to the boys’ trajectories, the trajectories for firstborn girls (see Figure 5) were less dramatic and distinct from one another. The dominant tendency was a modest linear decline. Follow-up tests revealed only one significant difference: Firstborn girls with sisters and less traditional parents differed from firstborn girls with sisters and more traditional parents (\( p < .01 \)). Firstborn girls with sisters and less traditional parents changed very little from ages 10 to 13 and then moved in a slightly traditional direction thereafter. Firstborn girls with sisters and more traditional parents were the most traditional to begin with, declined until about age 15, and then changed little thereafter.

The trajectories of the secondborn girls fanned out over time (see Figure 6); they held similar and quite traditional attitudes at age 7, but over time their trajectories became more different. As was the case for the boys, the trajectory of the secondborn girls with brothers and more traditional parents was the most distinctive; it was significantly different (\( p < .05 \)) from all of the other groups, which did not differ among themselves. In contrast to the other groups, for which a linear decline was the tendency, secondborn girls with older brothers and more traditional parents declined in traditionality from ages 7 to 12, remained unchanged from ages 12 to 14, and then curved upward in a more traditional direction in middle adolescence. By age 17, they were the most traditional group of secondborn girls. Interestingly, the consistently least traditional secondborn girls were those with older brothers and less traditional parents.

**Discussion**

This study tells a straightforward story: The trajectory of youth’s unfolding ideas about gender from middle childhood through adolescence depends upon the confluence of youth’s personal characteristics and their family circumstances. Although complex at first glance, the interactions we uncovered revealed systematic patterns in gender development from middle childhood through adolescence. In our concluding remarks, we identify those patterns and suggest new research directions to build upon this work.

**Developmental Patterns**

What light do our findings shed on Katz and Ksansnak’s (1994) four developmental patterns? The overall trend, depicted in Figure 1, is reminiscent of their third pattern: A decline in traditionality across middle childhood and early adolescence, followed by an increase in middle and later adolescence described the attitude trajectories of some youth in our study. There was considerable variation in the routes youth took through middle childhood and adolescence, however. Note that, although we found sex differences at age 10, we did not find different developmental patterns on the basis of sex alone. Rather, the effect of being a boy or a girl on gender attitude trajectories depended on other circumstances.

Figure 2 illustrates the trajectories for boys and girls whose parents held more versus less traditional attitudes. Three types of trajectories were apparent. First, the boys with traditional parents exhibited very little change. Early in middle childhood they held relatively traditional attitudes, their attitudes remained traditional throughout middle childhood and early adolescence, and then they became even more traditional in middle and late adolescence. The overall pattern was flat, as if little had happened in their lives to shake these boys’ relatively conservative views of women’s roles. This pattern does not resemble any of Katz and Ksansnak’s developmental scenarios. In contrast, the trajectory for boys whose parents held less traditional attitudes was markedly curvilinear. They declined in traditionality from age 7 to about age 12, changed little between ages 12 and 15, and then increased markedly from age 15 on. One interpretation is that their less traditional parents were influential during the middle childhood and early adolescence years, but that by age 15 the ground had shifted and new influences pushed them in a more traditional direction. As Katz and Ksansnak suggested, perhaps the peer dynamics surrounding dating, courtship, and other high school activities resulted in this reversal, but it is startling that, by age 19, sons of more and less traditional parents looked quite similar to one another, even though they had diverged considerably by early adolescence. This is a powerful reminder of the value of longitudinal designs that follow children and youth over significant periods of time.

In contrast to the boys’ patterns of change, the girls’ trajectories generally conformed to Katz and Ksansnak’s (1994) second pattern: a linear decline in traditionality. The decline persisted throughout middle childhood and early adolescence and was followed by little change thereafter. Girls with parents who
reported more traditional attitudes maintained consistently more traditional attitudes over time compared with their counterparts whose parents held less traditional attitudes. Girls’ linear decline is consistent with a cognitive developmental interpretation. Their growing ability to integrate complex information may make them more flexible about how they think about gender. In addition, as the group accorded less social status, girls have more to gain than boys do by adhering to less traditional views (Ferree, 1990).

Comparing the patterns depicted in Figure 2 for boys versus girls to Galambos et al.’s (1990) findings, there are some key differences. Recall that Galambos et al. (1990) analyzed longitudinal data on young adolescents in 6th, 7th, and 8th grades, roughly from ages 11 to 13, the period of early adolescence. Using three waves of data, they found that girls’ attitudes moved in a less traditional direction and boys’ in a more traditional direction. Had our study been restricted to those ages, however, we would have detected little change, although the sons of traditional parents would have stood out as quite traditional throughout. In our data, the turning point happened, if it happened at all, in middle adolescence.

Firstborns and Secondborns

Our findings also revealed differences as a function of birth order. Recall that the trajectories of secondborns conformed to a u-shape, with a decline in traditionality in middle childhood, followed by a leveling off in early adolescence and a marked increase in traditionality thereafter. The patterns for firstborn girls, in contrast, were flatter, demonstrating a modest decline and then little change. Similarly, the firstborn boys did not demonstrate a dramatic change, with the exception of the firstborn boys who had brothers and more traditional parents: Their attitudes became more traditional over time. Our multilevel models aligned firstborns’ and secondborns’ data by age; thus, the differences in their trajectories were not a function of age. Indeed, if one examines the secondborn trajectories from age 10 on (the age at which we first have data on firstborns), they bear little resemblance to the firstborn patterns. For example, the secondborn girls’ fanning out pattern happened well after age 10 and was not apparent for firstborn girls.

The finding that firstborns and secondborns exhibited different patterns of gender attitude development is intriguing and warrants replication and theory development. No theory that we know of offers a fully satisfying explanation for our findings, but we suggest two avenues for future investigation. A theme of the sibling literature is that we should not necessarily expect firstborns and laterborns to be similar because several family dynamics operate to make them different. First, parents treat their children differently (e.g., Brody, Stoneman, & McCoy, 1992; Kowal & Kramer, 1997; Tucker, McHale, & Crouter, 2003). Parental differential treatment may occur in response to what children are like (e.g., sex, sex-typed interests, behavioral styles), and it may also reflect parents’ own development as they apply lessons learned from raising their first child to rearing subsequent children (Whiteman, McHale, & Crouter, 2003). A second family dynamic has to do with siblings’ effects on one another. These tend to be markedly asymmetrical, with some younger siblings looking up to and modeling firstborns and firstborns rarely reciprocating (Tucker, Updegraff, McHale, & Crouter, 1999; Whiteman, McHale, & Crouter, in press). Finally, in some families, deidentification—the tendency for some siblings to minimize competition by consciously or unconsciously choosing to be different than their sibling, is apparent (Feinberg & Hetherington, 2000; Schacter, Gilutz, Shore, & Adler, 1978; Sulloway, 1996). An analysis of the roles that these dynamics play in gender development is beyond the scope of this article, but we would urge researchers to take advantage of sibling comparative designs and to pay attention to the full range of potentially relevant family dynamics that may differentiate firstborns and laterborns.

A second avenue to pursue is whether or not firstborns and laterborns are differentially oriented toward the world outside the family. Sulloway (1996) has argued from an evolutionary psychology perspective that laterborns look for ways to differentiate themselves from their siblings and, in so doing, to increase their ability to compete for parental resources while minimizing competition with siblings. One way in which secondborns may do this is to look to the extrafamilial environment for role models. If this is so, we might expect to see greater effects of peers, the media, and other extrafamilial sources of gender socialization on laterborn offspring. Secondborns may look to extrafamilial models in adolescence because gender is especially salient at this point in the life course (Maccoby, 1998). This notion that firstborns and laterborns may be differentially oriented to the extrafamilial environment is highly speculative and requires designs that enable within-family comparisons.

Having a Brother or Sister

Our findings underscore that having a brother or a sister is an important feature of family context. In
some cases, the sex of the sibling appeared to work in concert with parents’ traditionality to shift the development of children’s attitudes in a more or less traditional direction. One striking finding, for example, was that firstborn boys increased their traditionality when they had a brother and grew up with parents with traditional attitudes. This is a case in which the combination of traditional parental attitudes and growing up with a boy seems a potent combination. The same combination stood out for secondborn girls: The trajectories of secondborn girls with older brothers and traditional parents conformed to a distinctly curvilinear pattern suggesting increased traditionality after early adolescence; by age 17, they held the most traditional attitudes of secondborn girls.

For secondborns, the data also suggested that the combination of having an older brother and parents with less traditional attitudes may send youth in a less traditional direction. Secondborn sons with older brothers and less traditional parents held quite traditional attitudes at age 7 but 10 years later had declined in traditionality more than any other group of secondborn boys. Similarly, secondborn girls with older brothers and less traditional parents ended up with the least traditional attitudes of all secondborn girls.

What are some possible explanations for this interesting pattern? Parents with traditional attitudes may provide more gender-typed family environments for their children than do parents with less traditional attitudes. Specifically, parents may enact more traditional roles in terms of the division of household chores and parenting and paid work, and children may spend more time in gender-typed activities and in the company of the same-sex parent (Crouter et al., 1995). Moreover, boys in such families may enjoy the privileges and status that come with being male (Ferree, 1990). Thus, the combination of traditional parents and a brother who enjoys a high status may be a powerful environment for the cultivation of traditional attitudes. In contrast, less traditional parents may structure family life quite differently. Fathers may be more involved in housework, and parents may take pains to see that both sons and daughters are exposed to a wide range of activities and responsibilities. It is possible, in fact, that the presence of a son makes less traditional parents redouble their efforts to create a less gender-typed environment. If so, we may see the results of that process not only in the trajectories of the secondborn boys and girls with older brothers and less traditional parents, but (in more muted form) in the trajectories of the firstborn boys and girls with younger brothers and less traditional parents; in all cases, youth with a brother and less traditional parents ended up being the least traditional group of their set. One direction for future research is to examine whether parents’ modeling of gender (e.g., division of labor; breadwinning behavior), children’s enactment of gender-typed behavior at home (e.g., relative involvement with mothers vs. fathers, in male- vs. female-typed household chores), and other behavioral indicators of gender-typed childrearing, such as granting privileged status to sons over daughters, mediate the effects of parents’ attitudes on the development of children’s attitudes.

**Directions for Future Research**

Our findings speak to the importance of conducting longitudinal research over sufficient lengths of time that one has a chance of seeing development unfold. One of the strengths of this study was that it spanned middle childhood and much of adolescence. Our sibling design not only enabled us to lengthen the developmental period under study (i.e., the youngest secondborns and the oldest firstborns provided the “bookends” for the age distribution) but also revealed birth order effects. We urge future researchers to make creative use of sibling designs. Thanks to the flexibility of MLM techniques that adapt gracefully to clustered data, capitalizing on longitudinal data from two siblings not only extends a study’s developmental range, but increases statistical power, and, importantly, reveals whether the phenomena of interest operate differently for children growing up in the same family.

We also hope that future research will unravel the processes that give rise to the trajectories charted here. Although we found distinctly different trajectories for youth with different personal characteristics and family environments, our data did not allow us to identify the contextual and intrapsychic processes responsible for the different trajectories. In laying out a social cognitive theory of gender development, Bussey and Bandura (1999) underscored the complex, reciprocal linkages between developing individuals and the contextual forces they encounter in everyday life. Youth are not simply passive recipients of environmental inputs. Rather, they play an active role in their development by, for example, being differentially attentive to models of gender roles or differentially sensitive to the sanctions that occur when gender-typed norms are violated. For example, our firstborn boys with younger brothers and parents with traditional attitudes may have lived in a very male world that posed few challenges...
to their traditional thinking about gender. Without the corrective influence of having a sister around, or witnessing less traditional parents live out their more egalitarian attitudes, it may have been easy to be inattentive to issues of gender and not to change.

Another limitation of this study was its focus on a homogeneous sample of European American, two-parent families from one geographic region. The field needs long-term, longitudinal studies of samples that are diverse in terms of race, ethnicity, social class, family structure, and geography and that pay equal attention to more than one child per family. More heterogeneous samples will enable the field to ask new questions. Does having a brother, for example, make even more difference in single mother-headed households because there is no adult male present, or does it depend on the mother’s gender attitudes?

We focused on only one dimension of gender development—children’s gender attitudes about the behavior of others. While this could be seen as a limitation, we saw it as a necessity, given the complexity of our findings. Gender researchers have long argued that gender is multidimensional and that the various facets of gender do not necessarily cohere. Thus, our findings probably would not apply to other dimensions of gender including gender-typed personality qualities, interests, skills, achievements, aspirations, peer associations, and time use. We suspect that the general principles would hold and that the personal and family characteristics examined here would matter in these domains as well, although perhaps in different ways.

Similarly, we examined only a small set of possible predictors of the longitudinal course of youth’s gendered attitudes, and each is deserving of greater scrutiny. For example, parents’ gender attitudes may be a marker for other important—and presumably more visible—phenomena, such as mothers’ and fathers’ relative involvement in paid employment and parents’ division of household labor, that deserve attention in their own right. In addition, although we made a deliberate choice to average parents’ attitudes, discrepancies between mothers and fathers may be at least as important as consensus (Bussey & Bandura, 1999). Our findings pointed to the importance, in some instances, of the sex of the sibling, making it a logical step next time to move beyond the marker variable of sibling sex to consider the sibling’s own attitudes as part of the web of influences on children’s attitude development (McHale et al., 2001). Characteristics of young themselves that are worth pursuing in future research include pubertal timing (i.e., parents may clamp down on early-maturing girls in ways that impact gender development; see Hill & Lynch, 1983) and temperament (i.e., even parents with less traditional gender attitudes may fall into more gendered patterns of interaction when faced with an active son with a shy sister).

Finally, it would be fascinating to track these youth’s gender attitudes through early adulthood. How malleable are gender attitudes beyond age 19, and what sorts of experiences are powerful enough to create turning points in young adults’ thinking? As youth leave home and enter college or the workforce, do parents cease being important influences on gender attitudes, and, if so, what new models become salient—charismatic teachers, job supervisors, romantic partners, friends, siblings? And, in the long run, what does the trajectory of attitudes mean for other domains of life such as educational and occupational attainment and the quality of adult romantic relationships?

We were able to bring the ecology of human development (Bronfenbrenner, 1979) to life by studying a handful of personal and contextual characteristics that, collectively, help to shape the development of gender attitudes across middle childhood and much of adolescence. These characteristics appear to be important not so much in terms of their individual effects but in terms of how they operate in combination with one another, exemplifying Bronfenbrenner’s (1979, p. 38) assertion that, “In ecological research, the principal main effects are likely to be interactions.”

**References**


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**Appendix A**

**Level 1 Model**

\[ y = \pi_0 + \pi_1(youth\ age) + \pi_2(youth\ age)^2 + \epsilon \]
Level 2 Model

\[ \pi_0 = \beta_{00} + \beta_{01}(\text{birth order}) + \beta_{02}(\text{sex}) + \beta_{03}(\text{sex of their sibling}) + \beta_{04}(\text{birth order} \times \text{sex}) + \beta_{05}(\text{birth order} \times \text{sex of their sibling}) \]

\[ \pi_1 = \beta_{10} + \beta_{11}(\text{birth order}) + \beta_{12}(\text{sex}) + \beta_{13}(\text{sex of their sibling}) + \beta_{14}(\text{birth order} \times \text{sex}) + \beta_{15}(\text{birth order} \times \text{sex of their sibling}) \]

\[ \pi_2 = \beta_{20} + \beta_{21}(\text{birth order}) + \beta_{22}(\text{sex}) + \beta_{23}(\text{sex of their sibling}) + \beta_{24}(\text{birth order} \times \text{sex}) + \beta_{25}(\text{birth order} \times \text{sex of their sibling}) \]

Level 3 Model

\[ \beta_{00} = \gamma_{000} + \gamma_{001}(\text{parents’ attitudes}) + u_{00} \]
\[ \beta_{01} = \gamma_{010} + \gamma_{011}(\text{parents’ attitudes}) \]
\[ \beta_{02} = \gamma_{020} + \gamma_{021}(\text{parents’ attitudes}) \]
\[ \beta_{03} = \gamma_{030} + \gamma_{031}(\text{parents’ attitudes}) \]
\[ \beta_{04} = \gamma_{040} + \gamma_{041}(\text{parents’ attitudes}) \]
\[ \beta_{05} = \gamma_{050} + \gamma_{051}(\text{parents’ attitudes}) \]
\[ \beta_{06} = \gamma_{060} + \gamma_{061}(\text{parents’ attitudes}) \]
\[ \beta_{07} = \gamma_{070} + \gamma_{071}(\text{parents’ attitudes}) \]
\[ \beta_{08} = \gamma_{080} + \gamma_{081}(\text{parents’ attitudes}) \]

Note. Birth order (firstborn, secondborn), sex (female, male), and sex of the sibling (female, male) were each effect coded with values of \(-.5\) and \(.5\), respectively.