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Family Socialization, Gender, and Sport Motivation and Involvement

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This study uses analytic techniques to test the hypothesis that role modeling, parents' beliefs, and the provision of experiences for the child are related to children's perceptions of sport competence, value, and participation. Mothers and fathers and their 2nd-, 3rd-, and 5th-grade children responded to questionnaires. These 3 cohorts of children were followed for 1 year. Mothers and fathers were gender stereotyped in their beliefs and practices. Regression analyses revealed that parents' perceptions of their children's ability had the strongest unique relationship with children's beliefs and participation both concurrently and over time. The results of the pattern-centered analyses demonstrated that the full set of parent socialization factors had an additive positive association with children's outcomes.

Key Words: parents, competence, value

Although there has been an increase in girls' involvement in athletics since Title IX (National Federation, 2003), girls continue to participate at lower rates than do boys. Why? Eccles and colleagues have proposed a comprehensive expectancy-value model to address such questions (see Eccles et al., 1983; Eccles, Wigfield, & Schiefele, 1998, for full model). According to this model, gender differences in participation rates are linked most directly to gender differences in competence and value beliefs, which in turn are assumed to derive from experiences in the home and elsewhere. In this paper we apply the expectancy-value model to the sport domain. Specifically, we examine the relationship of gender differences in parents' beliefs and practices to gender differences in the perceived sport competence, value, and participation of children in elementary school.

Even during the elementary school years, girls are less likely than boys to participate in organized competitive sport (Branta, Painter, & Kiger, 1987; Cohen, 1993). In addition, boys already have higher perceptions of their sport competence; they like sport more and place higher importance on participating in sport than do girls (Eccles, Wigfield, Harold, & Blumenfeld, 1993; Wigfield et al., 1997). A variety of socializers—the media, the peer group, and the family—are likely to contribute to these gender differences (e.g., Eccles, 1993; Kane & Greendorfer, 1994; Ruble & Martin, 1998). In this paper we focus on the family. Eccles (1993) hypothesized that families contribute to gender differences in children's perceptions of competence and value through role modeling, their beliefs, and the provision of experiences in the home.

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Background

Theoretical Model

Our analysis is based on the Eccles expectancy-value model (Eccles, 1993; Eccles et al., 1983; 1998), which was developed to explain individual differences in motivation and choice behaviors with gender being a major focus. According to this model, the two most important predictors of choice behaviors are individuals' expectations for success and subjective task value (see Eccles et al., 1983). Research by Eccles and her colleagues has shown that expectations for success and one's self-concept of ability form a single factor (Eccles & Wigfield, 1995). Task value is defined in terms of four components: (a) intrinsic value (enjoyment of the activity); (b) utility value (usefulness of the task in terms of current and future goals); (c) attainment value (personal importance of doing well at the task); and (d) cost (perceived negative aspects of engaging in the task) (Eccles et al., 1983; Wigfield & Eccles, 1992).

Empirical studies conducted by Eccles and colleagues focus on the first three of these characteristics. These studies have shown that interest and importance, operationalized in terms of attainment value and utility value, predict current and future activity choice across a variety of domains including taking math classes, engaging in sport activities, and choosing a college major (Eccles, 1984; Eccles & Harold, 1991; Feather, 1988). In this study we examined the relationship between parental socialization and the two components of task value most commonly assessed in the literature: interest and importance. The relative cost of participating in sport has emerged as a strong predictor of motivation in other research (see Raedeke, 1997; Weiss & Weiss, 2003), but has not been tested in the Eccles model.

The proposed links are a subset of a theoretical model of socialization developed by Eccles and colleagues to explain parents' influence on choice behaviors across a variety of domains (see Eccles et al., 1998; Fredricks & Eccles, 2004). In this paper we apply this model to the sport domain. Parents influence children's beliefs and participation in a variety of ways: (a) by being a role model either as a coach or by participating in athletics themselves; (b) by interpreting their children's experience and giving them messages about their athletic ability and the value of participating in sport; and (c) by providing emotional support and positive athletic experiences for their children's involvement in sport. In this paper we test two relationships: the link between child gender and the three aspects of parent socialization, and the link between the three aspects of parent socialization and children's outcomes (i.e., perceived competence, value, and participation).

Related Research: Parent as Role Models

According to social learning theory (e.g., Bandura, 1986), parents exhibit behaviors that children may later imitate. In the sport literature, role modeling has usually been operationalized as being physically active or involved in sport. Evidence of the link between parent sport participation and children's sport participation has been documented in the epidemiological research (see Sallis, Prochaska, & Taylor, 2000). Studies using electronic monitoring devices to track physical activity have shown a strong relationship between the activity levels of parents and children (Freedson & Evenson, 1991; Moore et al., 1991). Research using self-report measures of role modeling in the sport domain has been less conclusive; some scholars

document positive associations while others find no relationship between parent participation and child outcomes.

Babkes and Weiss (1999) found that athletes who reported that their mothers and fathers were good athletic role models had higher perceptions of their own competence, enjoyment, and intrinsic motivation; however, parents' self-reports of physical activity did not directly relate to children's psychosocial responses. Similarly, Dempsey, Kimiecik, and Horn (1993) found that parents' self-reported moderate-to-vigorous physical activity (MVPA) was not related to children's self-reported MVPA. In sum, the research in the sport domain supports the hypothesis that parents' participation and children's participation are linked. However, more research is needed in order to draw conclusions about the effects of mothers' and fathers' participation on children's perceived competence and value beliefs. Filling this gap is one of the goals of our research.

Related Research: Parent Beliefs

There is a growing interest in how parents' beliefs may contribute to individual differences in children's athletic outcomes. Much of this research has focused on parents' assessments of children's ability. In both cross-sectional and longitudinal studies, researchers have documented a positive link between parents' perceptions of their children's ability and children's own ratings of their athletic ability (Eccles, 1993; Fredricks & Eccles, 2002; Jacobs & Eccles, 1992; McCullagh, Matzkanin, Shaw, & Maldonado, 1993). Research on the association between parents' perceptions of children's ability and children's beliefs about the value of sport is limited. In one of the few studies to explore this question, Fredricks and Eccles (2002) found that fathers' ratings of sport ability in the early elementary school years predicted changes in children's value beliefs in Grades 1 through 12, independent of actual initial-ability differences. Other studies have shown that parents' perceptions of children's ability are related to children's physical activity participation (Dempsey et al., 1993; Kimiecik & Horn, 1998; Kimiecik, Horn, & Shurin, 1996).

Another way parents may influence children's beliefs and participation is through their beliefs about the value of participating in different activities (Jacobs & Eccles, 2000). The research testing this hypothesis in the athletic domain is limited. Eccles and Harold (1991) found that children's perceptions of the value of sport involvement to their parents were related to children's competence beliefs. Kimiecik and Horn (1998) did not find a significant relationship between parents' perceptions of the perceived utility and cost of moderate-to-vigorous physical activity and children's MVPA.

Parents' beliefs can play an important role in the creation of gender differences in the competence and value beliefs of both children and adolescents (e.g., Eccles, 1993; Fredricks & Eccles, 2002). In both childhood and adolescence, parents of sons report that their children have more athletic ability and that sport is more important than do parents of daughters (Eccles, 1993; Eccles, Jacobs, & Harold, 1990; Jacobs & Eccles, 1992). Furthermore, these gendered beliefs of parents account for a significant portion of the variance in the gender difference in children's beliefs (Jacobs & Eccles, 1992).

Together these studies support the hypothesis that parents' beliefs influence children's/adolescents' sport-related beliefs. The majority of studies of parents' beliefs have been based on samples with mothers; we know very little about how

fathers contribute to individual differences in children's athletic motivation. In addition, most of the studies have examined the link between parents' ratings of children's ability and children's ratings of their competence. The impact of parents' perceptions of the value of athletics on children's beliefs and participation merits further inquiry. This study addresses these limitations.

Related Research: Provision of Emotional Support

Parents' behavior can influence children's beliefs and athletic participation in a variety of ways. One way is through the pattern of reinforcement and encouragement that parents give to children for participating in sport (Eccles, 1993). Parental encouragement is positively associated with continued participation in athletic activities (Brustad, 1993, 1996). Parents also influence children's beliefs by what they do with their children and the types of experiences they provide in and outside the home (Eccles, 1993). Several studies have found that parent time involvement is a positive predictor of children's motivation in academic and nonacademic contexts (e.g., Eccles et al., 1998).

There are various ways in which parents can afford positive athletic experiences, including enrolling their children in athletic programs, purchasing equipment and services to help them develop their skills, and volunteering labor to maintain children's sport programs (e.g., Eccles et al., 1990; Green & Chalip, 1998). In fact it is typically mothers who enroll their children in their first sport program (Howard & Madrigal, 1990). There is evidence that parents are gender-typed in their provision of these opportunities. In both childhood and adolescence, parents report providing less encouragement of athletic activities and fewer sport-related opportunities for their daughters than for their sons (Eccles et al., 1990; Greendorfer, Lewko, & Rosengren, 1996). Few studies have tested the relationship between these parental behaviors and children's perceived competence, value, and athletic participation, after controlling for differences in actual ability. In addition, most studies have assessed parents' behaviors by children's self-report rather than by asking the parents directly about their socialization techniques. This study fills these gaps.

Purpose

In this paper we examine four research questions:

1. Are there gender differences in children's perceived competence, value, and athletic participation in elementary school?
2. Do mothers and fathers provide different sport-related socialization experiences to their sons than to their daughters?
3. Are mothers' and fathers' sport-related role modeling, beliefs, and provision of emotional support and positive athletic experiences related to children's sport-related perceived competence, value, and participation concurrently and over time?
4. What do we gain by using cumulative models vs. individual, unique-effects regression models?

We use two different analytic techniques (i.e., unique-effects regression models and pattern-centered models) with both cross-sectional and longitudinal data to address the relationship between parent socialization and children's motiva-

tion. Our regression analyses will provide an estimate of the unique contribution of each of these aspects of parent socialization. Our pattern-centered analyses will tell us about the conjoint contribution of this aggregated structure of support.

Most of the research on family context has been based on unique-effects models; we believe that supplementing these analyses with pattern-centered approaches holds promise for assessing holistic synergistic contexts. One advantage of regression techniques is that we can test for the unique impact of each predictor on the outcome variables, after adjusting for the other predictors in the model. However, one concern is that including moderately to highly correlated predictors in regression models can obscure meaningful associations of individual predictors and the outcome variable due to deflated parameter estimates (Mosteller & Tukey, 1977). Pattern-centered approaches assume that individual factors should be examined in conjunction with other factors rather than comparing the relative importance of each variable.

We modeled our pattern-centered analyses on the risk and resiliency research, which has used cut points on various risk and promotive factors to examine the impact of cumulative risk and promotive/protective factors on children's functioning (Rutter, 1988; Sameroff, Bartko, Baldwin, Baldwin, & Seifer, 1998). Similarly, we created promotive factors in the home by using cutoff points on the socialization variables. We compared the motivational profiles of children in the top 25% of the distribution (promotive factor) with children whose parents were in the bottom 75% of the distribution on that variable (nonpromotive factor). We then examined the relationship between the cumulative promotive score in the home and children's outcomes.

This article contributes to the literature on gender differences and parent socialization of children's athletic motivation and participation in several ways. First, we include both mothers and fathers in our sample. Researchers have speculated that gender-role socialization processes differ for mothers and fathers (e.g., Fagot, 1995; Johnson, 1975). Meta-analyses of the literature on differential socialization suggest that fathers are more likely to encourage gender-typed behavior, though the strength of this effect decreases with the age of the child (Lytton & Romney, 1991; Siegel, 1987). Second, we test both a unique-effects regression model and a pattern-centered model of socialization because it is likely that parents' beliefs and behaviors operate together as part of a synergistic whole. Individual families use different combinations of socialization practices to provide messages to their children about their ability and the value of participating in athletics.

Finally, we run both cross-sectional and longitudinal analyses. Cross-sectional analyses provide a maximum estimate of the relationship between parent socialization and children's outcomes because these analyses do not adjust for children's prior levels on the dependent variable and the impact of the child on the parent. In the longitudinal analyses, we control for children's initial level of perceived competence, value, and participation and examine the impact of parent socialization on changes in children's outcomes. However, given the cumulative and reciprocal nature of this phenomenon, the longitudinal analyses are likely to underestimate the importance of parent socialization. That is, parenting practices will already have had an influence on the prior-status child characteristics and these analyses only tell us about the association of parenting practices with change over a specified period of time. Since it is likely that the estimate of the impact of parent socialization on children's outcomes is somewhere between the estimates from the

cross-sectional and longitudinal results, we do both sets of analyses to provide as complete a picture as possible of the link between parental beliefs and practices and children's outcomes.

Method

Sample

We use data from the Childhood and Beyond Study (CAB), a longitudinal study of the development and socialization of children's achievement-related behavior being conducted by Eccles and her colleagues at the University of Michigan (Eccles, Wigfield, & Blumenfeld, 1984). This study began in 1987 with three cohorts of children in kindergarten, 1st, and 3rd grades. Children and parents were recruited through their public school districts in four middle- and working-class communities near Detroit; all children in each classroom were asked to participate. In all, 75% of the children agreed to participate and obtained parental permission. Initially these three cohorts of children were followed for 4 years.¹

We selected children from the larger study whose mothers or fathers completed questionnaires at Wave 3 because this data point had the most extensive information on parent socialization ($n = 443$ mothers and 297 fathers). Since we controlled for children's aptitude and this information was not collected on all children ($n = 364$), the sample size was reduced in all analyses ($n = 344$ mothers and 245 fathers). At Wave 3 there were 121 children in the 2nd grade ($n = 60$ girls and 61 boys), 117 in the 3rd grade ($n = 59$ girls and 58 boys), and 126 in the 5th grade ($n = 61$ girls and 65 boys). In the longitudinal analyses, Wave 4, we include information collected from children one year later when they were in the 3rd ($n = 122$), 4th ($n = 116$), and 6th ($n = 126$) grades. The sample size varies slightly across the analyses due to missing data on some variables.

The sample was primarily European-American (95%). The remaining 5% included African American, Asian, and Hispanic families, reflecting their presence in these school districts. At Wave 3 in 1990, the family income ranged from \$10,000 to \$80,000, with the average income between \$50,000 and \$59,000. Most families were two-parent intact families (91%). Overall, the parents were well educated (78% of mothers and 88% of fathers had completed at least some college). We purposely chose middle-class families for this study in order to examine the association of parents' socialization practices independent of variations in parents' financial ability to provide out-of-school developmental opportunities for their children.

Procedure

Each spring the children completed self-administered questionnaires in class measuring their competence and value beliefs in sport, math, reading, and instrumental music, as well as other constructs. Questions were read aloud to the children. Because this sample included children younger than in previous studies using these measures, great care was taken to make sure that they understood the questions. Most items were answered on a 1- to 7-point Likert response scale. The items were pilot tested on 100 children to check for comprehension. The Likert-style scales were illustrated with stars, bars, and other graphical representations of increasing quantity to help children understand the scales (see Eccles et al., 1993, for a more detailed discussion). At Wave 3 the parents completed self-administered

questionnaires at home. The surveys were mailed separately to mothers and fathers, who were instructed to complete these questionnaires individually. As is common in family research, mothers participated at a higher rate than fathers.

Measures

Child Measures. A list of the child scales is presented in the Appendix (see Appendix, Part 1). Based on factor analysis and theoretical considerations, we created separate scales for children's competence and value beliefs. The perceived competence and value scales are highly reliable ($\alpha = .81-.92$). The perceived competence scale includes items about the child's perceptions of athletic ability and expectations for future success in this domain (e.g., how good at sports are you?). The value scale includes items about how much the child likes sport and how important sport is to his or her future (e.g., compared to most of your other activities, how important is what you learn in sports?). Although interest and importance are theoretically distinct components of value (see Wigfield & Eccles, 1992), these items factored differently at Wave 3 for Grades 2, 3, and 5, and at Wave 4 for Grades 3, 4, and 6. The items factored into a separate interest and importance scale at Wave 3. In contrast, the value items factored together as one scale at Wave 4. Because of the developmental differences in the factorial structure, the value items were combined into a single scale for all analyses.

To measure time use, we asked children how often they played competitive sport with their friends around the neighborhood and how often they played competitive sport on organized teams. The survey items were on a 6-point Likert scale (1 = never, 6 = almost every day for a long time). To assess convergent validity, we examined the correlation between children's own reports of time use and parents' reports of their children's time spent in sports. The two measures of time use were significantly correlated ($r = .44$), and the strength of this association increased with age.

Parent Measures. A list of parent items used in the analyses is presented in the Appendix (see Part 2). We assessed *role modeling* by asking mothers and fathers to report on their own time involvement in athletics. For this item we summed time spent in the last week on organized competitive sport, playing sport with friends, and doing athletic activities alone. In addition, fathers' report of coaching their children's sport team was included as a measure of role modeling. Mothers' report of coaching a sport team was not included in the regression analyses because the frequency on this variable was too low. Less than 4% of mothers reported coaching their children's sport team, compared with 27.5% of fathers.

To assess *parents' beliefs*, we asked mothers and fathers a series of 7-point Likert-style questions about their perceptions of their children's athletic ability and the value of sport participation. The scale assessing parents' perceptions of their children's ability includes 5 items about how good they think their child is at sport and their expectations for their child's success in future athletic endeavors. The value scale included 2 items about their perceptions of the importance and usefulness of sport participation for their child. These two scales have strong psychometric properties ($\alpha = .74-.95$). Previous research has shown excellent predictive validity of the parents'-perception-of-children's-ability scale (see Eccles, 1993; Eccles et al., 1990). Furthermore, the perception-of-value scale has strong face validity and is related to other parent and child constructs in the expected direction.

To measure parents' emotional support and provision of positive athletic experiences, we asked mothers and fathers a series of questions about their level of encouragement, the activities they do with their child, and the types of experiences they provide. The encouragement scale includes two 7-point Likert questions about how much they encouraged playing competitive and noncompetitive sport. This scale has adequate internal consistency ($\alpha = .73$) and strong face validity.

We assessed time use with one item about how much time the parent reported spending with the child on sport activities over the past week. Although some scholars have suggested that self-report methods can be less reliable than other methods of gathering data on time use (see Robinson & Godbey, 1997), we have no reason to suspect that parents' reports of co-participation on sport activities would be systematically biased. To assess the provision of sport experiences, we asked parents three questions about their equipment purchases including buying or renting athletic equipment in the past year, buying or renting sport books or magazines, and having sport books or magazines in the home. Although there is limited information on the validity of the equipment items, there is general evidence in the survey literature on individuals' ability to recall discrete events (Tourangeau, Rips, & Rasinski, 2000).

Control Measures. In order to obtain an independent estimate of the relationship of gender and parents' socialization to children's sport-related beliefs and participation, we included measures of children's athletic aptitude in all analyses. The Bruininks-Oseretsky Test of Motor Proficiency (1978) was used as an estimate of physical aptitude. It was administered during the first wave of data collection when children were in the kindergarten, 1st, and 3rd grades. This test has been widely used to assess the proficiency of individuals' motor performance (Hattie & Edwards, 1987). Children were tested on their large motor skills including running, jumping and clapping, broad jumping, catching a ball, and throwing a ball. They were tested on their fine motor skills including tapping feet, drawing lines, and copying circles.

Since we wanted a global measure of physical aptitude, we created a total score by adding children's scores on the large and fine motor skills.² Boys had significantly higher total mean scores than did girls (boys = 51.72, girls = 48.63; $t = 2.87$, $p < .01$). In addition to using this physical aptitude measure as a continuous variable, we divided children into three ability groups. The bottom third of this measure was recoded as low ability ($n = 114$), the middle third was recoded as medium ability ($n = 130$), and the top third of the distribution was recoded as high ability ($n = 120$).

Results

Plan of Analysis

We used a variety of analytic strategies to test the four research questions. First we ran a $3 \times 2 \times 3$ MANOVA (Child grade \times Child gender \times Child sport ability group) to test for gender differences in children's perceived competence, value, and participation (Question 1). We tested for interactions between gender and age and between gender and child sport ability group. In the event of a significant multivariate effect, follow-up ANOVAs were employed to determine which groups differed on the dependent variables.

We used two different analytic strategies to test for gender differences in mothers' and fathers' beliefs and behaviors. In the first set of analyses we ran two $3 \times 2 \times 3$ MANOVAs (Child grade \times Child gender \times Child sport ability group). Mothers' and fathers' data were analyzed separately. In these analyses we included interaction terms for gender \times age and gender \times sport ability group. In the second set of analyses we matched boys and girls with similar scores on the Bruininks-Oseretsky test (B-O). We ran a series of *t*-tests to compare mothers' and fathers' beliefs and behaviors in this matched gender sample.

A series of hierarchical regressions were run to test the relationship between mothers' and fathers' socialization (role modeling, beliefs, and emotional support and provision of athletic experiences) and children's outcomes both concurrently and over time (Question 3). Separate regressions were run using mothers' and fathers' variables as predictors because of the high correlation between mothers' and fathers' beliefs ($r = .72$), which creates problems of multicollinearity and leads to difficulties in estimating regression statistics (Pedhazur, 1982). In the first step of all regression models we entered gender, grade level, and physical aptitude as controls.

In the cross-sectional models, measures of the three aspects of family context (role modeling, beliefs, and emotional support and provision of athletic experiences) were entered in the second step so as to examine the relationship of parent socialization to children's beliefs, after taking into account characteristics of the child. In the longitudinal models, children's prior level on the dependent variable (w3) was also included as a predictor. We ran separate regressions with parents' perceptions of children's ability and parents' perception of value as predictors because of the high correlation between these two variables. In this paper we present the findings with parents' perceptions of children's ability as a predictor.³

To address the final research question, we modeled our pattern-centered analysis on the risk and resiliency literature. We created a cumulative family score by summing the number of promotive socialization factors in the home. The promotive factors included all aspects of parent socialization tested in the hierarchical models. We tested for gender, grade, and ability differences in the number of promotive factors in the home. Analysis of covariance (ANCOVA) was used to examine the relationships between the number of promotive factors and children's perceived competence, value, and sport participation, at Wave 3 and a year later at Wave 4. In the cross-sectional analyses, we included gender, grade level, and sport ability group as covariates; in the longitudinal analyses we included gender, grade level, sport ability group, and the outcome variable measured at Wave 3 as controls.

Gender Differences

Child Gender. A $3 \times 2 \times 3$ (Child grade \times Child gender \times Child sport ability) MANOVA with the three dependent variables revealed a gender main effect at Wave 3, Wilks' $\lambda = .80$, $F(9, 349) = 30.85$, $p < .001$. Similarly, we documented a gender main effect at Wave 4, Wilks' $\lambda = .82$, $F(9, 351) = 26.01$, $p < .001$. The means, standard deviations, *F*-values, and partial eta squared (η_p^2) by gender at Wave 3 and Wave 4 are listed in Table 1. Girls reported significantly lower perceptions of their sport competence, lower ratings of the value of sport, and lower sport participation than boys did at both waves. At both waves the interaction terms were not significant, indicating that the gender differences in children's beliefs and participation did not differ by age or ability group.

Table 1 Gender Differences in Children's Perceived Competence, Value, and Participation Rates

Variable	Boys		Girls		ANCOVA <i>F</i>	η_p^2
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Perceived competence (w3)	6.09	0.91	5.14	1.05	69.08 ***	.167
Value (w3)	5.77	0.97	5.02	1.33	33.32 ***	.087
Sport participation (w3)	3.70	1.77	2.25	1.64	53.05 ***	.132
Perceived competence (w4)	5.97	1.10	4.98	1.31	49.49 ***	.124
Value (w4)	5.56	1.27	4.57	1.48	40.63 ***	.104
Sport participation (w4)	4.42	1.62	2.99	1.51	67.23 ***	.161

Note: $n = 359$; w3 (Grades 2, 3, and 5), w4 (Grades 3, 4, and 6). Perceived competence and value scales ranged from 1 to 7; sport participation scale ranged from 1 to 6.

*** $p < .001$

Parent Socialization. First we ran a $3 \times 2 \times 3$ (Child grade \times Child gender \times Child sport ability group) MANOVA with mothers' perceptions of children's sport ability, perceptions of value, encouragement, time use, and equipment purchases as dependent variables. The gender main effect was significant, Wilks' $\lambda = .82$, $F(9, 343) = 14.34$, $p < .001$. A comparable MANOVA was run with the fathers' data as dependent variables. The gender main effect was also significant, Wilks' $\lambda = .88$, $F(9, 237) = 6.26$, $p < .001$. The means, standard deviations, F -values, and η_p^2 by child gender are listed in Table 2. The results of our analyses revealed that both mothers and fathers are gender-typed in their beliefs and practices. Parents of sons reported that their children had higher sport ability and that sport had more value than did parents of daughters. In addition, mothers and fathers of sons reported that they bought more athletic equipment, encouraged their children to participate in sport, and spent more time on sport activities than did mothers and fathers of daughters. In both models the interaction terms for gender and age and gender and sport ability group were not significant.

Another way to test whether parents are gender-typed in their beliefs and practices is to match boys and girls of relatively equal ability levels and compare parent socialization in this matched sample. We created our matched sample by selecting boys and girls in each of the three ability groups who were within one standard deviation of the mean. This resulted in 23 children in the low ability group ($n = 14$ girls, 9 boys), 42 children in the middle ability group ($n = 24$ girls, 18 boys), and 35 children in the high ability group ($n = 12$ girls, 23 boys), or a total matched sample of 100 children ($n = 50$ girls, 50 boys). We ran a series of t -tests to examine gender differences in mothers' and fathers' assessments of their children's ability, beliefs concerning the value of sport, encouragement, co-participation with the child, and equipment purchases in this smaller matched-ability sample. Mothers reported buying more athletic equipment and spending more time with their sons than with their daughters.

The gender differences in mothers' perceptions of their children's ability, beliefs about the value of sport, and level of encouragement was no longer signifi-

Table 2 Mothers' and Fathers' Beliefs and Provision of Opportunities (mean \pm SD) by Gender of Child

	Mothers		ANCOVA		Fathers		ANCOVA	
	Boys	Girls	<i>F</i>	η_p^2	Boys	Girls	<i>F</i>	η_p^2
Perception child ability	5.15 (1.40)	4.62 (1.14)	8.83**	.026	5.06 (1.29)	4.45 (1.20)	7.11**	.031
Perception value sport	4.55 (1.46)	3.98 (1.33)	15.52***	.044	4.40 (1.28)	3.80 (1.24)	8.32**	.036
Encourage- ment	4.61 (1.49)	3.82 (1.30)	21.73***	.061	4.79 (1.33)	4.00 (1.25)	14.76***	.056
Time w/child on sport	2.70 (1.42)	2.36 (1.25)	4.24*	.013	3.84 (1.44)	3.07 (1.35)	13.37***	.061
Equipment purchases	2.19 (0.86)	1.46 (0.77)	61.65***	.156	2.14 (0.86)	1.55 (0.81)	22.88***	.092

Note: $n = 344$ mothers, 238 fathers. Scales for perception of child ability, value, encouragement, and time with child on sport ranged from 1 to 7; equipment purchase scale ranged from 1 to 3.

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

cant in this smaller sample. In addition, the gender difference in fathers' beliefs about their children's ability was not significant in the matched sample. On all other measures, fathers were gender-typed in their beliefs and behaviors; fathers perceived that sport had more value for their sons and provided more encouragement, time investment, and equipment to support this involvement than they did for their daughters.

Hierarchical Regressions

Bivariate Relationships. We ran simple zero order correlations to examine whether mothers' and fathers' sport-related role modeling, beliefs, and provision of opportunities are related to children's sport-related competence and value beliefs and participation. The bivariate relationships are shown in Table 3. In general the correlations were in the expected direction. Children's perceived competence, value, and participation were highly correlated both concurrently and over time.⁴ Mothers' and fathers' perceptions of children's ability was the strongest predictor of the three outcomes. An interesting difference emerged between mothers' and fathers' co-participation with the child and children's perceived competence, value, and participation. For fathers, time use with the child was significantly correlated with all three outcomes; this did not hold true for mothers. Finally, with the exception of role modeling and mothers' co-participation with the child, all other aspects of parent socialization were correlated with children's beliefs and participation.

Competence Beliefs. The standardized and unstandardized regression results for the perceived competence, value, and participation models are listed in Table 4. The strongest socialization predictor of children's competence beliefs was par-

Table 3 Bivariate Relationships Between Parent Socialization and Children's Motivation

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Children's aptitude	—	.14	.06	.30*	.12	.05	.19*	.23*	.09	.10	.10	-.03	.15
2. Children's competence beliefs (w3)	.14	—	.67*	.50*	.67*	.53*	.52*	.38*	.29*	.05	.30*	.08	.37*
3. Children's value beliefs (w3)	.06	.67*	—	.42*	.53*	.55*	.52*	.34*	.27*	.07	.29*	.10	.33*
4. Children's participation (w3)	.30*	.50*	.42*	—	.47*	.43*	.54*	.40*	.31*	.05	.33*	.05	.24*
5. Children's competence beliefs (w4)	.12	.67*	.53*	.47*	—	.80*	.60*	.50*	.34*	.05	.32*	.04	.33*
6. Children's value beliefs (w4)	.05	.53*	.55*	.43*	.80*	—	.53*	.47*	.29*	.00	.29*	.00	.29*
7. Children's participation (w4)	.19	.52*	.35*	.54*	.60*	.53*	—	.37*	.24*	.04	.31*	.07	.25*
8. Parents' perceptions of competence	.23*	.44*	.29*	.42*	.55*	.50*	.42*	.72*	.49*	.07	.45*	.10	.29*
9. Parents' perceptions of value	.10	.31*	.22*	.31*	.38*	.35*	.31*	.65*	.40*	.12	.49*	.21*	.26*
10. Parents' own time use sport	.09	.06	-.03	.12	.13	.05	.07	.22*	.28*	.27*	.16*	.27*	.14
11. Parents' encouragement	.12	.31*	.24*	.29*	.37*	.29*	.30*	.53*	.64*	.23*	.36*	.21*	.26*
12. Parents' time use with child	.08	.29*	.22*	.23*	.33*	.31*	.29*	.39*	.39*	.29*	.44*	.21*	.13
13. Parents' equipment purchases	.12	.35*	.28*	.34*	.38*	.38*	.31*	.36*	.35*	.15	.41*	.39*	.56*
14. Parents' coaching	.22*	.33*	.25*	.30*	.29*	.29*	.23*	.26*	.25*	.27*	.30*	.39*	.31

Note: $n = 443$ mothers, 297 fathers. Correlations for mothers in top triangle, for fathers in bottom triangle; on the diagonal are the correlations between mothers and fathers. Wave 3 (Grades 2, 3, and 5); Wave 4 (Grades 3, 4, and 6); mothers' coaching was not included because of the low frequency on this variable. * $p < .001$

Table 4 Standardized (in parentheses) and Unstandardized Regression Coefficients for Children as Predicted From Parents' Socialization Factors

Variables	Competence		Value		Participation	
	Mothers	Fathers	Mothers	Fathers	Mothers	Fathers
<i>Step 1</i>						
Gender	-.88 *** (-.41)	-.88 *** (-.41)	-.70 *** (-.29)	-.70 *** (-.29)	-1.26 *** (-.35)	-1.26** (-.35)
Grade	-.12 (-.15)	-.12 (-.15)	-.11 (-.10)	-.11 (-.10)	-.06 (-.05)	-.06 (-.05)
Physical aptitude	.02** (.17)	.02 ** (.17)	.01 (.09)	.01 (.09)	.05 *** (.28)	.05*** (.28)
<i>Step 2</i>						
Gender	-.66 *** (-.31)	-.61 *** (-.29)	-.41 ** (-.17)	-.39 * (-.16)	-1.08 *** (-.29)	-.89** (-.24)
Grade	-.10 (-.12)	-.09 (-.11)	-.07 (-.08)	-.08 (-.09)	-.06 (-.05)	-.02 (-.02)
Physical aptitude	.01 (.08)	.01 (.05)	.00 (.01)	.00 (.01)	.03 * (.19)	.03* (.17)
Perception child ability	.20 *** (.24)	.26 *** (.32)	.21 *** (.22)	.18 * (.19)	.34 *** (.24)	.41*** (.29)
Encouragement	.07 (.09)	-.01 (-.01)	.10 * (.12)	.03 (.03)	.21 ** (.16)	-.01 (-.01)
Equip. purchase	.18 ** (.15)	.10 (.08)	.24 ** (.17)	.14 (.11)	-.03 (-.02)	.22 (.11)
Time child sport	-.02 (-.03)	.01 (.01)	.00 (.00)	.02 (.02)	-.06 (-.04)	-.07 (-.06)
Own time sport	.00 (.00)	-.02 (-.06)	.01 (.02)	-.06 * (-.13)	.01 (.01)	.01 (.02)
Coach team		.38 ** (.16)		.41 * (.15)		.50 (.12)
Adjusted R ²	.31	.33	.20	.16	.29	.30

Note: $n = 334$ mothers, 241 fathers. Female = 1, Male = 0. Coach team was not included in mothers' models because of the low frequency on this variable.

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

ents' ratings of their children's ability (mothers: $\beta = .24$, $p < .001$; fathers: $\beta = .32$, $p < .001$). Mothers', but not fathers', equipment purchases were associated with children's competence perceptions (mothers: $\beta = .15$, $p < .01$). In addition, fathers' coaching was a positive predictor ($\beta = .16$, $p < .01$). However, after controlling for child-level factors and other parent socialization factors, parents' time involvement with their child, parents' level of encouragement, and parents' own participation in athletics were not associated with this outcome.

Value Beliefs. Parents' perceptions of children's ability predicted children's value beliefs (mothers: $\beta = .22, p < .001$; fathers: $\beta = .19, p < .05$). In addition, mothers', but not fathers', equipment purchases was related to children's beliefs about the value of athletics (mothers: $\beta = .17, p < .01$). Similarly, mothers' encouragement was positively associated with children's beliefs about the value of sport ($\beta = .12, p < .001$); this did not hold true for fathers. Contrary to our hypothesis, fathers' time involvement with the child was a negative predictor of children's value beliefs ($\beta = -.13, p < .05$), while fathers' coaching was positively associated with this outcome ($\beta = .15, p < .05$). Finally, parents own participation in athletics was not a significant predictor of children's beliefs about the value of sport.

Sport Participation. The strongest socialization predictor of children's participation in competitive sport was parents' perceptions of children's ability (mothers: $\beta = .24, p < .001$; fathers: $\beta = .29, p < .001$). Mothers', but not fathers', level of encouragement was positively associated with children's sport participation (mothers: $\beta = .16, p < .01$). After controlling for the other factors in the model, the other aspects of parent socialization were not predictive of children's time spent in sports.

Differences Between Mothers and Fathers. We were interested in whether there were differences between parents' socialization and children's outcomes by parent's gender. In order to explore this question, we compared the strength of the unstandardized coefficients in the models with mothers' and fathers' variables as predictor. The significance of these differences was calculated by dividing the difference between the unstandardized regression coefficients by the square root of the sum of the squared standard errors for each regression coefficient (Netter, Wasserman, & Kutner, 1996; Tsutakawa & Hewett, 1978). In this sample, mothers and fathers had a similar impact on children's perceived competence, value, and participation. The only significant difference that emerged between mothers' and fathers' socialization and children's beliefs and participation was the link between the level of encouragement and children's participation ($t = 2.08, p < .05$). Mothers' encouragement was a positive predictor, but there was no association between fathers' encouragement and time use.

Hierarchical Regressions—Longitudinal Results

A series of hierarchical regressions were run in order to examine the links between mothers' and fathers' socialization practices at Wave 3 (Grades 2, 3, and 5) and children's perceptions of competence, value, and participation in sport a year later at Wave 4 (Grades 3, 4, and 6). In the first step we included gender, grade level, physical aptitude, and children's level of the dependent variable at Wave 3. Measures of the three aspects of family context (role modeling, beliefs, and provision of emotional support and athletic opportunities) were entered in the second step.

Competence and Value Beliefs. Not surprisingly, children's prior level of the dependent variable was the strongest predictor of their competence and value beliefs (see Table 5). These results highlight the stability in children's beliefs over time. After accounting for children's prior beliefs, parents' ratings of children's ability was a positive predictor of changes in children's perceived competence (mothers: $\beta = .27, p < .001$; fathers: $\beta = .29, p < .001$). After adjusting for children's initial beliefs, the other parent socialization factors were not associated with changes in children's competence beliefs.

Table 5 Standardized (in parentheses) and Unstandardized Regression Coefficients for Children as Predicted From Parents' Socialization Factors 1 Year Earlier

Variables	Competence		Value		Participation	
	Mothers	Fathers	Mothers	Fathers	Mothers	Fathers
<i>Step 1</i>						
Gender	-.29 *	-.29 *	-.57 ***	-.57 ***	-.84 ***	.84***
	(-.11)	(-.11)	(-.20)	(-.20)	(-.25)	(-.25)
Grade	-.13 *	-.13 *	-.08	-.08	-.10	-.10
	(-.13)	(-.13)	(-.07)	(-.07)	(-.07)	(-.07)
Physical aptitude	.01 *	.01 *	.01	.01	.01	.01
	(.11)	(.11)	(.03)	(.03)	(.07)	(.07)
Child prior level ^a	.72 ***	.72 ***	.58 ***	.58 ***	.41 ***	.41***
	(.60)	(.60)	(.48)	(.48)	(.44)	(.44)
<i>Step 2</i>						
Gender	-.30 *	-.23	-.55 ***	-.43 **	-.82 ***	-.67***
	(-.12)	(-.09)	(-.19)	(-.15)	(-.24)	(-.19)
Grade	-.12 *	-.13 *	-.06	-.05	-.08	-.08
	(-.12)	(-.13)	(-.05)	(-.05)	(-.06)	(-.07)
Physical aptitude	.01	.01	-.01	-.01	.01	.01
	(.04)	(.05)	(-.05)	(-.05)	(.04)	(.04)
Child prior level ^a	.59 ***	.55 ***	.46 ***	.46 ***	.34 ***	.32***
	(.49)	(.46)	(.38)	(.39)	(.36)	(.35)
Perception child ability	.28 ***	.29 ***	.37 ***	.42 ***	.19 **	.24**
	(.27)	(.29)	(.32)	(.37)	(.15)	(.18)
Encouragement	.03	.01	.03	-.08	.10	-.01
	(.03)	(.01)	(.02)	(-.07)	(.08)	(.00)
Equip. purchase	.02	.11	.02	.04	-.01	.14
	(.02)	(.07)	(.01)	(.02)	(-.01)	(.08)
Time child sport	-.06	.01	.10 *	.06	-.02	.07
	(-.06)	(.03)	(-.10)	(.06)	(-.02)	(.06)
Own time sport	.01	.03	-.02	-.01	-.01	-.03
	(.02)	(.01)	(-.03)	(-.02)	(-.01)	(-.04)
Coach team		-.06		.06		.07
		(-.02)		(-.02)		(.02)
Adjusted R ²	.53	.52	.42	.43	.37	.37

Note: $n = 344$ mothers, 241 fathers. Female = 1, Male = 0. Coach team was not included in mothers' models because of the low frequency on this variable.

^a Children's level on the dependent variable measured at Wave 3.

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

Mothers' and fathers' perceptions of children's ability was also a significant predictor of children's perceptions of the value of athletics (mothers: $\beta = .32, p < .001$; fathers: $\beta = .37, p < .001$). Contrary to our hypothesis, there was a significant negative relation between mothers', but not fathers', co-participation with the child in athletic activities and children's value over time ($\beta = -.10, p < .05$). After taking into account the other variables in the model, all other aspects of parent socialization were not predictive of children's perceptions of the value of sport participation.

Sport Participation. Similarly, children's prior participation in competitive sport was the strongest predictor of continued sport participation. Parents' ratings of children's sport ability were also associated with increases in children's participation (mothers: $\beta = .15, p < .01$; fathers: $\beta = .18, p < .01$). After controlling for prior levels of participation, parents' equipment purchases, co-participation with the child, encouragement, and own involvement in athletics were not related to children's competitive sport involvement one year later.

Family Typing: Number of Family Supports

In the next set of analyses we created a cumulative family score based on the number of promotive socialization factors in the home. Since there was little difference in the influence of parents' beliefs and participation by gender of the parent, information from mothers and fathers was averaged for these analyses.⁵ Promotive factors included: (a) parents' ratings of children's sport ability; (b) parents' beliefs about the value of sport; (c) parents' level of encouragement; (d) parents' time involvement with child; (e) parents' equipment purchases; (f) parents' own time involvement in athletics; (g) mother coaches child's team; and (h) father coaches child's team.⁶ Each continuous scale was scored as the presence of a promotive factor if the family scored in the top 25% of the distribution on that variable. The coaching item was considered a promotive factor if the parent answered yes to this item. ANOVA techniques were used to compare the motivational profiles of children in the top 25% of the distribution (promotive factor) with children whose parents were in the bottom 75% of the distribution on that variable (nonpromotive factor). For all promotive factors, children in the high support group (presence of promotive factor) had significantly higher perceptions of sport competence, value, and participation than those in the low support group.

We created a total family supportive context score for each child by summing the number of promotive factors in the home. A higher score signified that parents engaged in more behaviors that promote children's beliefs and participation. Parents' cumulative score ranged from 0 to 8 factors with a mean of 1.80 promotive factors in the home. For subsequent analyses, families with 4 or more promotive factors were combined into a single group so that there was adequate sample size for each group. The sample sizes are presented in Table 6.

Gender Differences. We examined gender differences in the number of promotive factors. Girls were overrepresented in the two low-sport support families, while boys were overrepresented in the two high-sport support families ($\chi^2 = 65.70$; $p < .001$). A full 40% of girls were in families that had no promotive factors, as compared to only 17% of the boys. In contrast, only 5% of the girls were in families with four or more promotive factors, compared to 29% of the boys.

Promotive Factors, Child Grade Level, and Physical Aptitude. We ran a $3 \times 2 \times 3$ (Child grade \times Child gender \times Child sport ability group) ANOVA to test

Table 6 Means (SD) and ANCOVA Results for Cumulative Models

Outcome	Parent Sport Promotive Factors					ANCOVA	
	0 (n=127)	1 (n=112)	2 (n=71)	3 (n=57)	4 or more (n=76)	F	η_p^2
<i>Wave 3</i>							
Perceived competence	-0.48 ^{a,c} (0.95)	-0.18 ^b (1.09)	0.21 ^{a,c} (0.97)	0.36 ^{a,b} (0.74)	0.76 ^{a,b,c} (0.63)	9.04***	.093
Value	-0.39 ^a (1.07)	-0.06 ^b (1.04)	0.14 ^a (0.90)	0.28 ^a (0.69)	0.60 ^{a,b} (0.69)	6.37***	.067
Participation	-0.54 ^a (0.84)	-0.15 ^{a,b} (1.05)	0.32 ^{a,b} (0.81)	0.38 ^{a,b} (0.98)	0.67 ^{a,b} (0.80)	10.44***	.105
<i>Wave 4</i>							
Perceived competence	-0.60 ^a (1.06)	-0.11 ^{a,b} (0.96)	0.23 ^{a,c} (0.86)	0.48 ^{a,b} (0.60)	0.75 ^{a,b,c} (0.50)	7.05***	.080
Value	-0.48 ^a (1.08)	-0.07 ^{a,b} (0.93)	0.19 ^{a,c} (0.92)	0.39 ^{a,b} (0.89)	0.65 ^{a,b,c} (0.50)	3.62**	.044
Participation	-0.52 ^a (0.87)	-0.09 ^{a,b} (0.99)	0.30 ^{a,b} (0.98)	0.22 ^a (1.98)	0.66 ^{a,b} (0.81)	2.08	.024

Note: Groups that share a subscript are significantly different from one another at $p < .05$.
* $p < .05$; ** $p < .01$; *** $p < .001$

for differences in the number of family promotive factors by characteristics of the child. We included an interaction term for child gender by child sport ability group in this model. We did not find differences in the number of promotive factors by grade level of the child. In contrast, the main effects by gender, $F(4, 363) = 59.19$, $p < .001$, and sport ability group, $F = 5.84$, $p < .01$, were significant. Boys were in families with a higher mean number of promotive factors ($M = 2.16$, $SD = 1.48$) than girls were ($M = 0.97$, $SD = 1.15$). Children in the low ability group had the lowest number of promotive factors ($M = 1.26$, $SD = 1.31$), while children in the high ability group were in families with the highest number of factors ($M = 1.98$, $SD = 1.52$). The medium ability group differed significantly from the other two groups on the number of promotive factors ($M = 1.47$, $SD = 1.52$). The interaction between gender and sport ability was not significant.

Promotive Factors and Child Outcomes. ANCOVA was used to examine the association between the number of promotive factors and the standardized scores for children's perceived competence, value, and sport participation at Wave 3 and a year later at Wave 4. In the cross-sectional analyses, children's gender, grade level, and sport ability group were included as controls. In the longitudinal analyses, children's prior level of the dependent variable, gender, grade level, and sport ability group were included as controls. Bonferroni post hoc tests were used to test for group differences.

Table 6 presents the adjusted means, standard deviations, F -values, and η_p^2 by number of promotive factors. Figures 1 and 2 show the adjusted means of children's

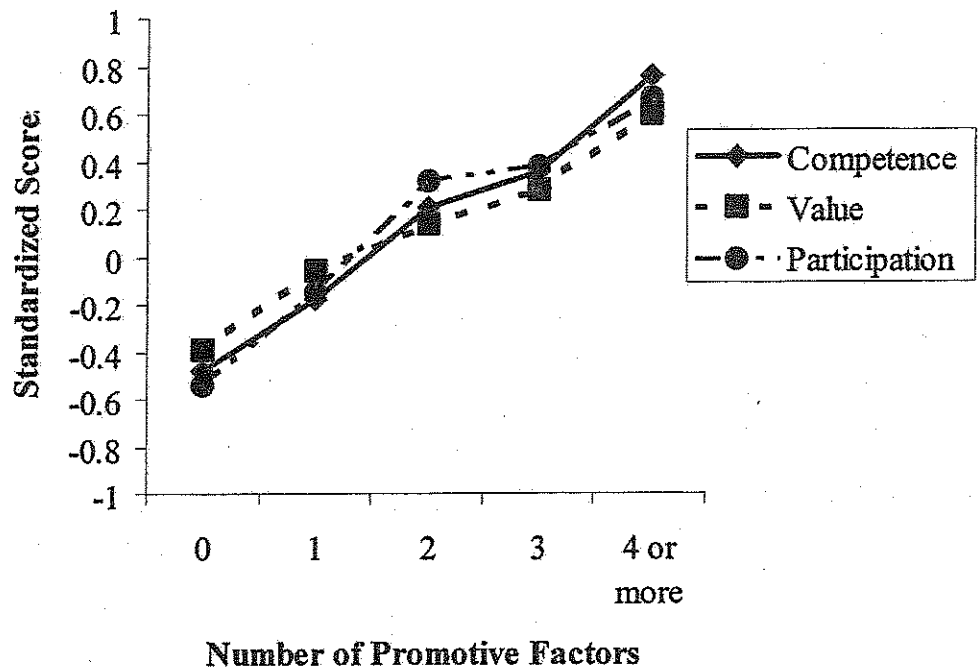


Figure 1 — Concurrent relationship of multiple promotive scores to children's outcomes.

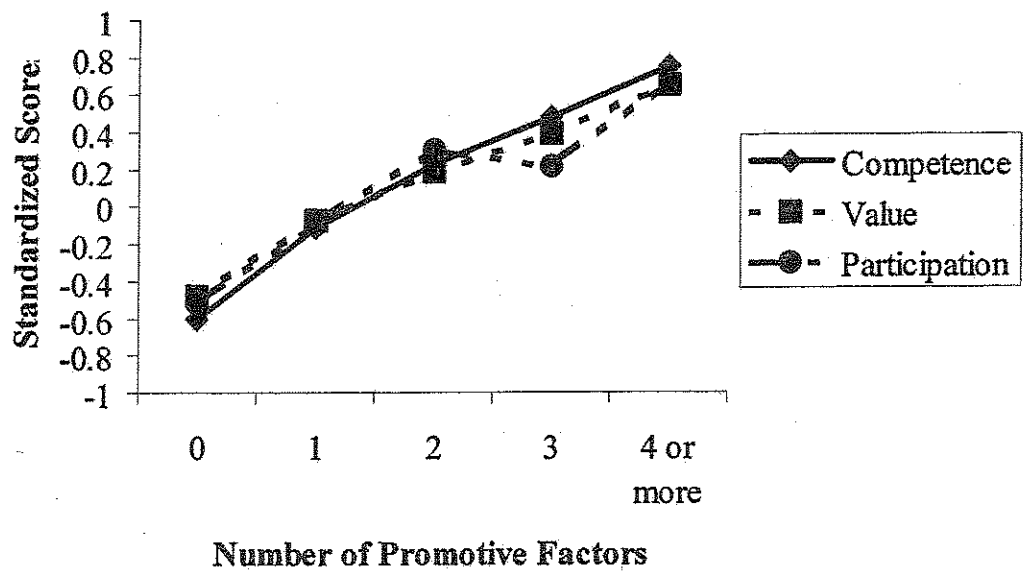


Figure 2 — Longitudinal relationship of multiple promotive scores to children's outcomes.

beliefs and participation by number of promotive factors. Children's concurrent (Wave 3) beliefs and participation were significantly predicted by parents' promotive factors. After controlling for child-level differences, the number of promotive factors also significantly predicted children's sport outcomes a year later (Wave 4). These results show a linear relationship between the number of promotive factors and children's beliefs and participation, indicating that socialization factors have a cumulative positive impact on children's motivation and participation. The more promotive features in the family, the higher the children's perceived sport competence, value, and participation in sport at both waves.

Discussion

An examination of parent socialization has been relatively neglected in the sport literature (e.g., Brustad, 1992; Fredricks & Eccles, 2004). This study expands this knowledge base by (a) including both mothers and fathers, (b) testing a unique-effects regression model and a pattern-centered model of parent socialization, and (c) including longitudinal and cross-sectional data.

Gender Differences

Our first research goal was to explore gender differences in children's beliefs and participation. Our results support previous research showing that boys have higher perceived competence, value, and participation in sport than girls do (Eccles & Harold, 1991; Fredricks & Eccles, 2002; Greendorfer et al., 1996). One explanation for why girls have lower beliefs and participation is that they have lower sport aptitude than boys. We can partly rule out this explanation because we include controls for initial physical aptitude in our analyses, as indexed by scores on the Bruininks-Oseretsky Test of Motor Proficiency (1978). Eccles and colleagues (see Eccles et al., 1983; Eccles, 1993, for full model) have argued that gender differences in perceived competence, value, and time use during the elementary school years may help explain why females are less likely to participate in athletics.

In this paper we explored how both mothers and fathers contribute to these gender differences (Research Question 2). Several scholars have suggested that fathers have a stronger impact on gender-stereotyped activity patterns because of their stricter differentiation of roles for girls and boys (Johnson, 1975; Langlois & Downs, 1980). Our results do not support this hypothesis. Instead, in the multivariate analysis, both mothers and fathers reported gender-stereotyped beliefs and behaviors. After controlling for aptitude differences, parents perceived that their sons had more athletic ability and that sport was more important for their sons than for their daughters. Additionally, in both analyses we documented that parents were stereotyped in their practices. Mothers and fathers reported providing more opportunities and encouragement to support their sons' involvement in sport than their daughters' involvement.

Parents' gender-stereotyped beliefs and practices are consistent with previous research by Eccles and colleagues (Eccles et al., 1990; Jacobs & Eccles, 1992). In contrast, more recent studies in the sport psychology literature have found that parents' beliefs do not differ as a function of child gender (Babkes & Weiss, 1999; Bois, Sarrazin, Brustad, Trouilloud, & Cury, 2002; Kimiecik & Horn, 1998; Weiss & Barber, 1995). One explanation for these discrepant findings is the external

validity of our data. We surveyed parents about their beliefs over a decade ago. It is possible that the growing importance of women in sport during the 1990s has helped to lessen parents' stereotyped perceptions. Future research should test this hypothesis. Another possible explanation for the discrepant findings is that we examine gender differences in parents' beliefs in a broad school-based sample, as compared with other studies that sampled athletes (e.g., Babkes & Weiss, 1999; Weiss & Barber, 1995).

Influence of Parent Socialization on Child Outcomes

Our third research question was to test the link between the three aspects of parent socialization (modeling, beliefs, and experiences) and children's beliefs and participation. Our results expand prior research by Eccles and colleagues (Eccles et al., 1990; Jacobs & Eccles, 1992) by studying the concurrent and longitudinal link between mothers' and fathers' perceptions of children's ability and children's competence beliefs in the sport domain during the elementary school years. In addition, we extend this work by documenting a relationship between parents' perceptions of children's ability and children's value and participation rates.

Interestingly, parents' competence and value beliefs had the strongest associations with children's outcomes, even when other indicators of parents' socialization practices were included. These findings support our hypothesis that parents act as expectancy socializers for children, resulting in a strong association between children's self-perceptions and parents' view of reality. One possible explanation is that parents convey these beliefs to their child through both subtle and more overt messages about their children's abilities and the value the parents themselves attach to their children's participation and competence in sport. Some of these messages are communicated through the kinds of overt socialization practices we assessed. Others likely come through everyday conversations as well as through parents' verbally transmitted causal attributions for their children's performance and the performance of other children and adults.

The results of our cross-sectional regression analyses provide some support for our hypothesis that parents' provision of experiences in the home shape children's athletic motivation, though these results are more equivocal. In homes where mothers bought more athletic equipment, children reported higher competence and value beliefs. Through these purchases, mothers are likely giving children messages about their ability and the importance of sport in their lives. However, it is also likely that the direction of causality goes from child to parent, as mothers respond to their child's interests and competencies by buying more equipment. It is not possible to rule out this hypothesis with our cross-sectional data. Furthermore, mothers' encouragement was a significant predictor of sport participation and children's value beliefs. The positive relationship between parent encouragement and children's participation is consistent with the reality that mothers are the ones likely to sign children up for their initial sport program (Howard & Madrigal, 1990).

After controlling for the other socialization factors in the model, our hypothesis that parents' co-participation with the child in sport would be positively related to children's motivation was not supported. Contrary to our expectations, fathers' time involvement with the child was negatively related to children's value beliefs in the cross-sectional analyses. In addition, mothers' participation with the child was a negative predictor of children's value over time. One possible explanation for

these findings is that when parents do sport with their children, independent of the children's ability and their perceptions of the children's ability, their behavior may be interpreted by the child as controlling. If this is true, according to self-determination theory, children's value beliefs should decline (Deci & Ryan, 1985).

Mothers' and fathers' role modeling, operationalized as time involvement in sport, was not a significant predictor in the regression analyses. The lack of relationship between mothers' own athletic time involvement and beliefs and participation is consistent with other studies using parents' self-report measures of time use (e.g., Babkes & Weiss, 1999; Dempsey et al., 1993), but is not consistent with studies examining children's perceptions of parents' role modeling (Babkes & Weiss, 1999) or those that have used more objective measures of activity involvement (Freedson & Evenson, 1991; Moore et al., 1991). Both behaviors and attitudes can be modeled. Our results may be a function of using one self-report item to assess time use. Another possibility that we could not test in our data is that role modeling is a more important socialization factor for children's motivation when parents also demonstrate enjoyment of athletics and provide other forms of support for their children's involvement in sport. Brustad (1993, 1996) provides support for this hypothesis.

In general, the impact of parent socialization on children's outcomes was stronger in the cross-sectional than in the longitudinal analyses. These results may reflect the 1-year gap between the two waves, which is a large lag time between when parent socialization is presumed to influence children's outcomes. In reality, the time between when a parent acts and when the parental behavior influences children's experiences, behaviors, and beliefs is likely to be much shorter than a year. In addition, there are likely to be reciprocal processes during the year between these two measurement points. Thus our longitudinal analysis likely underestimates the impact of parental socialization. The weaker longitudinal relationships may reflect the fact that our child outcome measures are quite stable by the time they are in the upper elementary grades and the fact that parent practices likely had much of their potential impact on children's outcome measures when the children were younger. This impact is already represented in the children's initial scores. As a result of both facts, there is actually relatively little room to change beliefs and participation rates over one year in these children's lives.

The null findings may also reflect our analysis choice. According to the unique-effects models, parents' behaviors are much less important in socialization than parents' beliefs. One possible explanation is that parents' behaviors are closely related to their beliefs and these constructs operate more synergistically with each other. There appears to be an overlap among the three aspects of parent socialization: role modeling, interpreting, and providing athletic experiences. Unique-effects regression models are not the best way to assess the synergistic influence of these socialization factors; a pattern-centered model may provide a better statistical model of such influences. Another reason for the differential prediction is that our measures of parents' beliefs and behaviors are differentially reliable and valid. The parent beliefs items have been validated in other studies, while many of our measures of parent behavior are new scales. In addition, our measures of role modeling and parents' co-participation with the child were assessed with single items. The strength of the association between parents' behaviors and children's motivation is likely underestimated in these analyses.

Unique-Effects vs. Cumulative Models of Parent Socialization

Our final research goal was to examine differences between unique-effects and cumulative models of parent socialization. Interestingly, the results of these two models lead to somewhat different conclusions about the effect of parent socialization on children's beliefs and participation. In the cumulative model, we found that socialization techniques had an additive positive association with child outcomes; the larger the number of promotive factors in the family, the higher perceptions of competence, value, and participation concurrently and over time. This supports the assumption that developmental outcomes can be better understood by examining factors in combination, rather than independently (Magnusson, 1995; Magnusson & Bergman, 1988). In the hierarchical regressions, parents' perceptions of children's ability was the strongest socialization predictor of children's beliefs and sport participation. In fact, many of the more behavioral socialization factors, such as time spent doing sport with one's child, were not positively related to competence and value beliefs after controlling for parents' beliefs and the children's actual competence. This lack of significance was particularly true in the longitudinal analyses, perhaps because parents' beliefs are more stable over time than their behaviors.

In contrast, when we created cumulative scores for families, the socialization factors had an additive relationship with children's beliefs and participation, suggesting that time spent doing sport with their child and other behavioral factors do matter. One explanation for the difference in findings is the high correlation between parents' beliefs, parents' behaviors, and children's outcomes. After taking these high correlations into account, there is less variance to be explained by the other socialization factors. As a consequence, some of the other aspects of socialization do not have a unique influence on children's motivation above and beyond their shared variance with parents' competence and value beliefs. Another explanation could be that pattern-centered approaches do not necessarily assume linear relationships between predictors and outcomes. By using a cut-point method, we can identify families who are providing extraordinarily high levels of support on each socialization factor. We can then assess the extent to which families are providing quite high levels of support across several socialization factors.

This study illustrates the benefits of integrating traditional regression-based unique-effects models and more pattern-centered models to study parent socialization and children's motivation. The strength of our regression analyses is the ability to identify the unique linear predictions of each socialization factor, accounting for the other constructs in the model. The strength of our pattern-centered analyses is the ability to examine the predictive synergistic power of the cumulative impact of socialization experiences and the ability to identify interesting subgroups for further study. One such group is children in high support families (i.e., four or more promotive factors in the home).

Our results should be interpreted in light of several methodological decisions. First, we purposely chose a white, middle-class sample in order to look for variations in parenting among families who could afford to implement their socialization goals. Most of the research on parent socialization of athletic motivation has used similar samples. A critical area of future work is how parents with fewer resources support children's athletic motivation and participation. Second, in contrast to much of the previous research, we chose to survey parents directly about their beliefs and behaviors rather than ask children to report on their parents' beliefs and behaviors.

Since few studies have asked parents directly about their behaviors, there is limited information on the validity and reliability of the different aspects of socialization. Further methodological work developing survey measures of parent socialization is needed.

Third, our measures of parents' provision of athletic experiences are limited and likely underestimate the extent of parents' differential treatment of boys and girls. For example, other aspects that are likely to be gender-typed include attendance at games, willingness to drive the child to practice, and assistance with team functions. Future research should also include measures of willingness to pay for sport-related expenses such as camps, personalized trainers, and private lessons.

Fourth, we asked children to report how often they participated in sport activities. Several scholars have questioned the validity of self-report measures of physical activity, especially for children (see Sallis & Saelens, 2000). Furthermore, in order to obtain an accurate measure of sport participation, it is also important to assess the intensity of involvement, which we were unable to do with our data. Inaccuracy in children's recall of their physical activity participation adds measurement error and reduces the likelihood of finding significant results. Since we documented significant findings between parent socialization and children's time use with these conservative analyses, it is likely that the strength of these associations would be even higher with other methods of assessing physical activity participation.

Fifth, the data reported here reflect a narrow slice of time in children's lives. Our study focuses on the influence parents have on children over one year, controlling for some self-selection effects. The reality is that parent socialization and children's self-perceptions are reciprocally related, as children's behaviors, beliefs, and choices impact parents. In the future we will do analyses to model the reciprocal effects between parent socialization and children's motivation. Nonetheless, prior research using cross-lagged structural equation modeling has shown that mothers' perceptions of the abilities of their children in elementary school are more strongly related to children's competence and value beliefs than vice versa, and that parents' beliefs mediate the association between objective performance information and children's ability self-perceptions and values (Eccles, Freedman-Doan, Frome, Jacobs, & Yoon, 2000).

Sixth, although parents are important socializers in the elementary school years, it is likely that the media and peer group also contribute to gender-typed athletic beliefs and participation. This point is illustrated by the *r*-squared in the cross-sectional regression models ($R^2 = .16$ to $.33$). We were unable to test how much variation in children's outcomes is explained by these other socialization factors in this study.

In summary, we used a variety of analytic techniques to test the link between mothers' and fathers' role modeling, beliefs, and provision of experiences and children's perceptions of competence, value, and participation. Parents' beliefs had the strongest unique relationship with children's beliefs and participation in both the cross-sectional and longitudinal regression analyses. In the pattern-centered analyses, we found that the full set of parent socialization factors had an additive positive association with children's outcomes. These results lend support for Eccles' model of parent socialization (see Eccles et al., 1998; Fredricks & Eccles, 2004) and illustrate the influential role that parents can play in supporting elementary school children's athletic motivation.

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Appendix

Part 1: Child Items Used in Analyses

Child's Perception of Sport Competence (5 items, $\alpha = .81$; $\alpha = .89$)⁷

1. How good at sports are you? (1 = not at all good, 7 = very good)
2. If you were to list all the students in your class from worst to best in sports, where would you put yourself? (1 = one of the worst, 7 = one of the best)
3. Compared to most of your other activities, how good are you at sports? (1 = worst, 7 = a lot better)
4. How well do you expect to do in sports this year? (1 = not at all well, 7 = very well)
5. How good would you be at learning something new in sports? (1 = not all good, 7 = very good)

Child's Perception of Sport Value (7 items, $\alpha = .85$; $\alpha = .92$)

1. In general, how useful is what you learn in sports? (1 = not at all useful, 7 = very useful)
2. Compared to most of your other activities, how useful is what you learn in sports? (1 = not at useful, 7 = a lot more useful)
3. For me, being good at sports is? (1 = not at all important, 7 = very important)
4. Compared to most of your other activities, how important is it for you to be good at sports? (1 = not at all important, 7 = very important)
5. In general, I find playing sports? (1 = very boring, 7 = very interesting)
6. How much do you like doing playing sports? (1 = a little, 7 = a lot)
7. Compared to most of your other activities, how much do you like sports? (1 = not as much, 7 = a lot)⁸

Participation in Competitive Sport (2 items, $\alpha = .64$; $\alpha = .79$)

1. How often do you play sports with friends around the neighborhood where someone keeps score? (1 = never, 2 = almost never, 3 = less than once per week, 4 = a couple times per week, 5 = almost every day for a little while, 6 = almost every day for a lot of time)
2. How often do you play sports on organized teams where someone keeps score? [Same 6 response options as #1]

Part 2: Parent Items Used in Analyses

Parent Role Modeling in Sports (sum of items)

1. How much time did you spend in the last week on organized competitive activities? (0 = 0 hrs, 1 = up to 1 hr, 2 = 1–3 hrs, 3 = 3–6 hrs, 4 = 6–10 hrs, 5 = 10–15 hrs, 6 = 15–20 hrs, 7 = more than 20 hrs)
2. How much time did you spend in the last week playing sports games with friends? [Same 8 response options as #1]
3. How much time did you spend in the last week doing athletic activities alone? [Same 8 response options as #1]

Parents' Perceptions of Child's Sport Ability (5 items, Mother's $\alpha = .95$, Father's $\alpha = .95$)

1. How good is this child at sports? (1 = not at all good, 7 = very good)
2. How well do you think this child will do in sports next year? (1 = not at all good, 7 = very good)
3. In comparison to other children, how difficult is sports for this child? (1 = very difficult, 7 = very easy)
4. Compared to other children, how much innate ability or talent does this child have in sports? (1 = much less, 7 = much more)
5. In comparison to other children, how would you evaluate this child's performance in sports? (1 = much worse, 7 = much better)

Parents' Perception of Value of Sport (2 items, Mother's $\alpha = .73$, Father's $\alpha = .75$)

1. How important is it to you that child does well in this activity? (1 = not at all important, 7 = very important)
2. How useful do you think sports will be to this child in the future? (1 = not at all useful, 7 = very useful)

Parents' Encouragement Sport (2 items, Mother's $\alpha = .73$, Fathers $\alpha = .74$)

1. How much do you encourage playing competitive sports? (1 = strongly discourage, 7 = strongly encourage)
2. How much do you encourage playing noncompetitive sports? (1 = strongly discourage, 7 = strongly encourage)

Parents' Time Involvement With Child in Sport

1. How often do you play sports with the child? (1 = never, 7 = almost every day)

Parents' Equipment Purchase Sports (sum of items)

1. Did you buy or rent sports equipment for the child in the last year? (0 = no, 1 = yes)
2. Did you buy or rent sports books or magazines for the child in the last year? (0 = no, 1 = yes)
3. Do you have sports magazines or books in the house that the child uses? (0 = no, 1 = yes)

Notes

¹ This sample has been followed for 10 waves, until members of the oldest cohort were 2 years post high school and the youngest cohort was in 12th grade. Full details on the members of the project can be found at www.rcgd.isr.umich.edu

² It was possible to sum various tests because individuals' performances were relatively homogenous ($\alpha = .73$).

³ In both models, mothers' beliefs were a significant predictor, though their perceptions of value had a less strong relationship with each outcome than did their perceptions of children's ability. In the fathers' model, fathers' perceptions of value were not significant predictors of competence and value beliefs. Also, mothers' and fathers' perceptions of value were not associated with changes in children's sport participation over time. The results of the regressions with parents' perceptions of value as a predictor are available from the first author: jfred@conncoll.edu

⁴ The correlations between the three child outcomes were run separately by grade. The correlations for the two youngest cohorts (Grades 2 and 3) were similar, but were stronger for the oldest cohort (Grade 5).

⁵ For each continuous promotive factor we created an average from mothers' and fathers' data. In order to make full use of the parent data, for two-parent families we created an average from the mothers' and fathers' information. For families where we had only data from one parent, we used that parents' information.

⁶ A separate set of analyses was run with families who had complete information from mothers and fathers. For these families we created a sum of the number of promotive factors based on the mothers' and fathers' data. There were 0 to 13 promotive factors in the home, with a mean of 3.51 factors. The relationship between the promotive score and children's outcomes using the sum promotive score followed a similar pattern as the findings for an average promotive score. These results are available from the first author.

⁷ Reliabilities for Wave 3 (Grades 2, 3, and 5) and Wave 4 (Grades 3, 4, and 6).

⁸ This question was only asked at Wave 4.

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