

**Changes in Causal Relations Between and Within Mothers' Beliefs  
About Their Children's Ability and Children's Own Ability Beliefs:  
The Impact of the Junior High School Transition**

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## INTRODUCTION

We posit that parents' beliefs about their children's abilities influence children's self-concept of ability, which in turn influence children's motivation and achievement. In addition, we also expect that major life events occurring during adolescence (e.g., pubertal changes and the junior high school transition) would affect children's self-concept of ability. In this study we test these hypotheses by examining developmental changes in the causal relations between mothers' beliefs about their children's ability in math, English, and sports and children's beliefs about their own ability in those domains. We focus on the possible impact that the transition between elementary and junior high school might have on children's self-concept of ability.

## RESEARCH QUESTIONS

We address the following research questions in this study:

- How stable are the parent's beliefs about their children's abilities over time?
- How stable are the children's own ability beliefs over time?
- Do parents' beliefs about their children's abilities influence their children's own ability beliefs?
- Do children's own ability beliefs, in turn, affect their parents' beliefs about their abilities?
- Does children's pubertal development affect the stability of children's self-concept of ability and the causal relations between parents' and children's ability beliefs?
- Does children's transition to junior high school affect the stability of children's self-concept of ability and the causal relations between parents' and children's ability beliefs?
- Does the stability or change in the causal relations regarding ability beliefs vary across domains (academic and physical)?

## MEATHODS

In the present study, we build on earlier work on the socialization of ability beliefs in several important ways.

- Longitudinal design:
  - Four-wave repeated measurement of two latent constructs (i.e., mothers' beliefs about their children's ability, and children's beliefs about their own ability) with multiple indicators
- Data collection design suitable to examine the possible impact of the junior high school transition:
  - Sixth grade elementary school children and their mothers completed the questionnaires over two years at semester intervals. Such a data collection design allows the investigation of any possible changes taking place before, during and after the transition to junior high school.

<u>Wave 1</u>	<u>Wave 2</u>	<u>Wave 3</u>	<u>Wave 4</u>
Fall,1983	Spring,1983	Fall,1984	Spring, 1984
Grade 6	Grade 6	Grade 7	Grade 7
Before ... Transition ...		During ... Transition ...	After ... Transition ....

- Structural equation modeling (SEM) using the LISREL program:
  - Auto-regression coefficients obtained from SEM provide information about the stability of ability beliefs over time. Cross-lagged regression coefficients provide information about the direction and magnitude of the socialization of ability beliefs. (See Figure 1)
- Comparisons across three different domains:
  - The same structural equation modeling technique was replicated across three different domains to see if there is any difference between domains in terms of changes in ability beliefs. Two academic domains (i.e., math & English) and one non-academic domain (i.e., sports) were examined.

#### SAMPLE

Sample includes approximately 700 elementary school children in 6th grade experiencing the junior high school transition and their mothers. §

§ The actual sample size varies depending on cases with complete data: N=701 in math, N=670 in English, N=620 in sports.

## MEASURES

### Latent Constructs( $\eta$ s) and Their Manifest Variables( $y$ s)

#### $\eta_1$ Mothers' Beliefs about Their Children's Ability in (Math, English, Sports)

y1 In general, I believe that my child is  
1. not at all good at \_\_\_\_\_ ... 7. very good at \_\_\_\_\_

y2 My child finds \_\_\_\_\_  
1. very easy ... 7. very hard

y3 How well is your child doing in \_\_\_\_\_ this year?  
1. not at all well ... 7. very well

#### $\eta_2$ Children's Beliefs about Their Own Ability in (Math, English, Sports)

y4 How good at \_\_\_\_\_ are you?  
1. not at all good at \_\_\_\_\_ ... 7. very good at \_\_\_\_\_

y5 If you were to order all the students in your \_\_\_\_\_ class from the worst to the best in \_\_\_\_\_, where would you put yourself?  
1. one of the worst ... 4. in the middle ... 7. the best

y6 Compared to most of your other school subjects, how good are you at \_\_\_\_\_?  
1. much worse ... 7. much better

## FINDINGS

- The stability of mothers' beliefs about their children's ability (See Figure 2 and Table 1)

Despite some trace of declining stability, mothers' beliefs about their children's ability were quite firm over two years. Their ability beliefs were firmer in physical domain than in academic domains. In general, the stability of mothers' ability beliefs was always higher than that of children's.

- The disturbing effect of the junior high transition on children's self-concept of ability (See Figure 2 and Table 1)

Children's self-concept of ability was fairly stable across all three domains before the transition to junior high school. With the exception of physical domain, however, the move to a new school environment created quite a

disturbance in children's self-concept of ability. During the transition, for example, the stability of children's self-concept of ability dropped substantially in math and dropped even more in English. But after children settled themselves in the new environment, the drop in self-concept of ability in math recovered fully to their previous state of stability, but the drop in English did not.

In contrast, though, children's self-concept of ability in physical domain continued to increase throughout the 6th and 7th grades. As far as athletic competence goes, children's ability perception does not seem to be affected by environmental change nor by their own pubertal change.

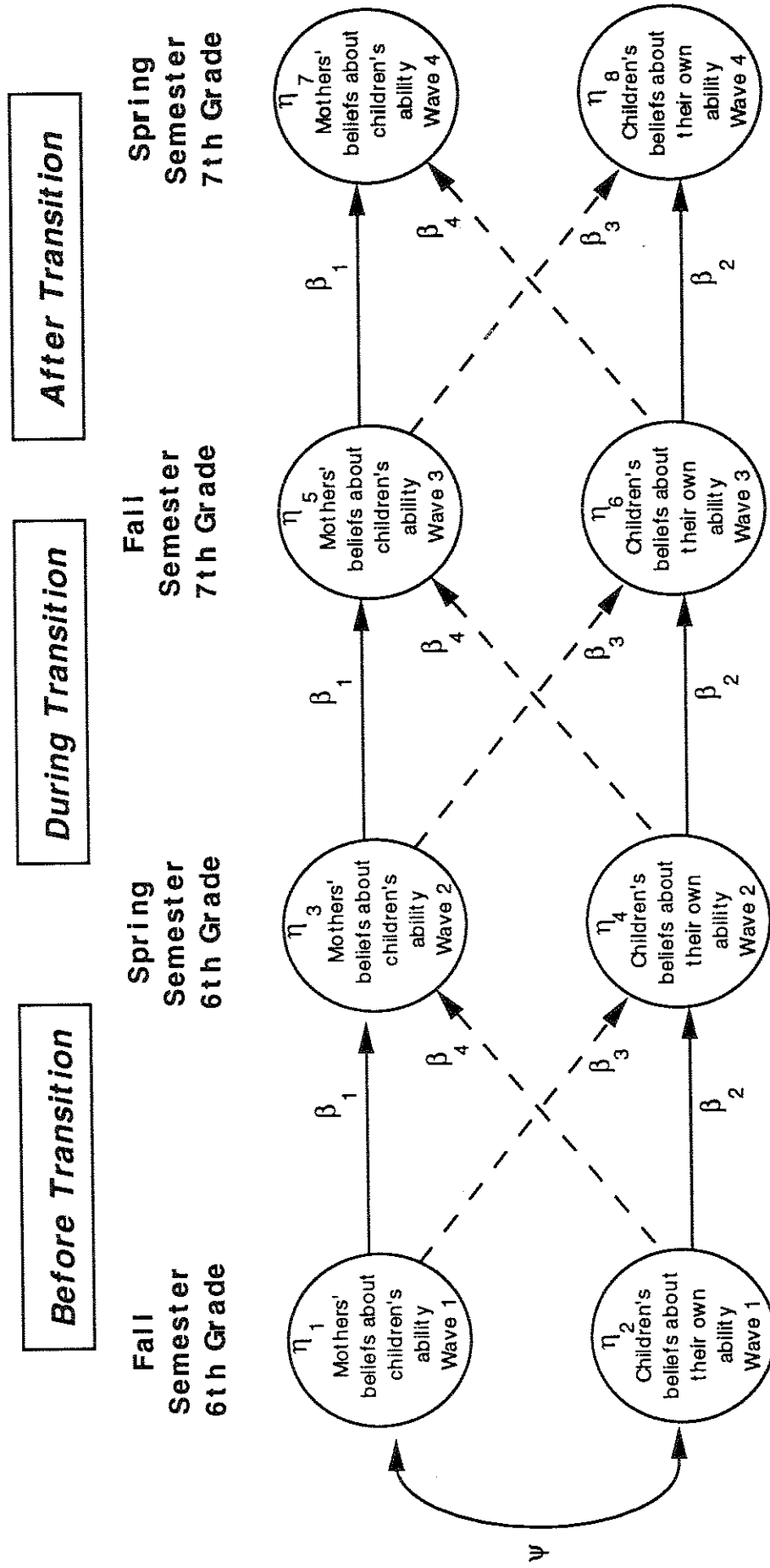
- The bi-directional socialization of ability beliefs between mothers and children (See Figure 3 and Table 1)

Mothers' beliefs about their children's ability managed to exert a weak but significantly positive influence on children's self-concept of ability across all three domains and at all times, even after the transition. However, this mother-to-child influence decreased slightly over time in math and sports domains.

Only after the transition into junior high did children's ability beliefs have a significant influence on their mothers' beliefs in all three domains. This emergence of child-to-mother influence following the transition is particularly visible in math when its influence increased threefold. At this same time, the mother-to-child influence in math was reduced substantially. As a result of these simultaneous changes, the influence of children's beliefs on mothers' surpassed that of mothers' beliefs on children's for the first time.

Hence, we concluded that there was a weak but significant bi-directional socialization between mothers' beliefs about their children's ability and children's beliefs about their own ability.

Figure 1 A Basic Structural Equation Model



Note: For the sake of simplicity, not all the measurement model and other parameters are shown here.

$\beta_1$  : the stability of mothers' beliefs about children's ability

$\beta_2$  : the stability of children's beliefs about their own ability

$\beta_3$  : the influence of mothers' beliefs on children's

$\beta_4$  : the influence of children's beliefs on mothers'

Table 1: LISREL Estimates of the Stability and Causal Effects of Mothers' and Children's Ability Beliefs in Three Domains at Three Points in Time †

<i>Math</i>	Stability		Causal Effects	
	Mothers	Children	Mother to Child	Child to Mother
	$\beta_1$	$\beta_2$	$\beta_3$	$\beta_4$
Before Transition	.80	.63	.21	.07 ns
During Transition	.74	.57	.18	.06 ns
After Transition	.72	.65	.12	.18

$\chi^2 = 613.63$  (df=212), AGFI = .907

<i>English</i>	Stability		Causal Effects	
	Mothers	Children	Mother to Child	Child to Mother
	$\beta_1$	$\beta_2$	$\beta_3$	$\beta_4$
Before Transition	.82	.64	.19	.06 ns
During Transition	.79	.48	.18	.06 ns
After Transition	.79	.58	.16	.09

$\chi^2 = 344.46$  (df=133), AGFI = .925

<i>Sports</i>	Stability		Causal Effects	
	Mothers	Children	Mother to Child	Child to Mother
	$\beta_1$	$\beta_2$	$\beta_3$	$\beta_4$
Before Transition	.87	.68	.17	.04 ns
During Transition	.84	.78	.18	.10
After Transition	.85	.82	.09	.09

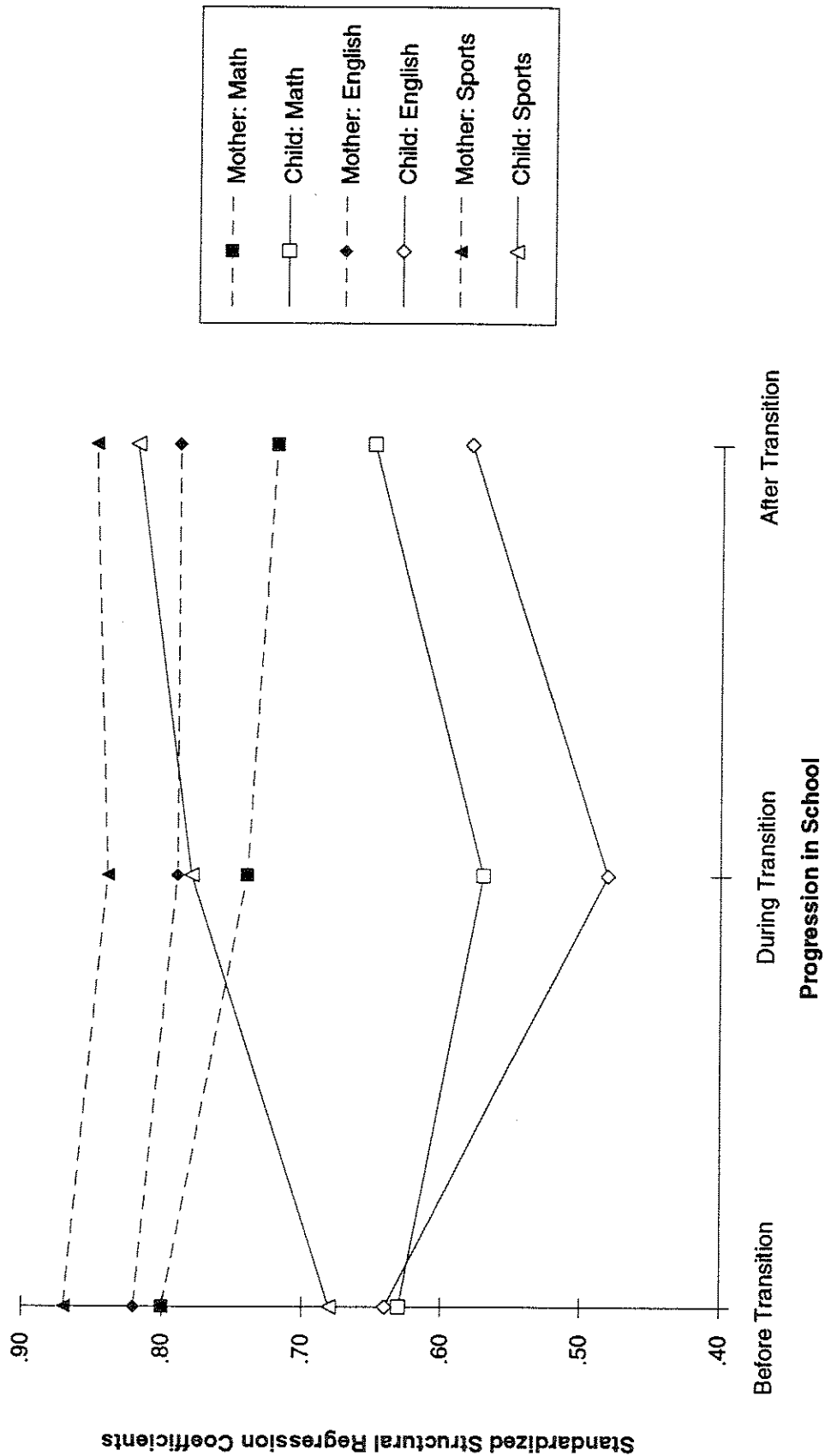
$\chi^2 = 187.31$  (df=101), AGFI = .944

Note:

ns means statistical non-significance. All others are significant at least at  $p < .05$  level.

† The LISREL estimates shown here represent standardized structural regression coefficients.

**Figure 2: Changes in the Stability of Ability Beliefs of Mothers and Children in Three Domains**





**Figure 3: Changes in Causal Effects of Mothers' and Children's Ability Beliefs in Three Domains**

