Ability Mindsets Influence the Quality of Mothers’ Involvement in Children’s Learning: An Experimental Investigation

Elizabeth A. Moorman
University of Nebraska–Lincoln

Eva M. Pomerantz
University of Illinois, Urbana-Champaign

This research examined the role of mothers’ mindsets about the malleability of children’s ability in the quality of their involvement in children’s learning. Mothers (N = 79) of early elementary school children (mean age = 7.65 years) were induced to hold either an entity mindset, in which children’s ability is seen as unchangeable, or an incremental mindset, in which children’s ability is seen as changeable. Mothers and children were then observed as they worked on a set of challenging problems for 15 min. Unconstructive involvement (i.e., performance-oriented teaching, control, and negative affect) was more frequent among mothers induced to hold an entity mindset than those induced to hold an incremental mindset. Mothers with an entity (vs. incremental) mindset also responded to children’s helplessness more unconstructively.

Keywords: parenting, involvement, motivation, learning, mindset

There is a wealth of evidence that parents’ involvement in children’s learning (e.g., discussing with children what they are doing at school and assisting children with their homework) plays a role in children’s motivation and ultimately their achievement in school (for reviews, see Pomerantz, Grolnick, & Price, 2005; Pomerantz, Moorman, & Litwack, 2007). Critical to the success of parents’ involvement is the quality of their involvement. When parents’ involvement is constructive—for example, supportive of autonomy or focused on mastery—children benefit in terms of their motivation as well as achievement; but when parents’ involvement is unconstructive—for example, controlling or focused on performance—children suffer (e.g., Gottfried, Fleming, & Gottfried, 1994; Gottfried, Marcoulides, Gottfried, & Oliver, 2009; Grolnick, Gurland, DeCourcey, & Jacob, 2002; Ng, Kenney-Benson, & Pomerantz, 2004; Nolen-Hoeksema, Wolfson, Mumme, & Guskin, 1995; Pomerantz, Wang, & Ng, 2005a).

Although the importance of the quality of parents’ involvement is clear, relatively little is known as to what contributes to it (for some exceptions, see Grolnick et al., 2002; Moorman & Pomerantz, 2008a). This is a serious lacuna, given that the success of attempts to change the quality of parents’ involvement may hinge on understanding what motivates it. If, for example, parents are likely to become constructively involved only when they view children’s ability as changeable, attempts to teach parents constructive practices may fail until they view children’s ability as changeable. Drawing on theory and research indicating that mindsets about the malleability of ability are powerful influences on affect, cognition, and behavior (for reviews, see Dweck, 1999; Dweck & Leggett, 1988), the aim of the current research was to identify the influence of such mindsets on the quality of parents’ involvement in children’s learning.

Dweck and colleagues (e.g., Dweck & Bempechat, 1983; Dweck & Leggett, 1988) distinguish between two types of ability mindsets. The essence of an entity mindset is that ability is relatively fixed, such that it is resistant to change. Performance is viewed as reflecting innate competence; challenge is threatening because failure indicates a permanent deficit. Indeed, in the face of challenge, an entity mindset is associated with helplessness—that is, dampened persistence, ineffective strategy use, and heightened negative affect (e.g., Blackwell, Trzesniewski, & Dweck, 2007; Hong, Chiu, Dweck, Lin, & Wan, 1999). In contrast, key to an incremental mindset is the idea that ability is malleable. Given that ability is viewed as something that can be changed with effort, challenge is not seen as threatening but rather as an opportunity to develop competence. Indeed, an incremental mindset is associated with mastery-oriented responses to challenge, such as heightened persistence, effective strategy use, and positive affect (e.g., Blackwell et al., 2007; Hong et al., 1999).

Such mindsets have the potential to contribute to parents’ socialization of children (see Hoover-Dempsey & Sandler, 1997; Pomerantz & Dong, 2006). An entity mindset is likely to lead parents to believe that children’s ability is relatively fixed, with little room for change. Consequently, parents may view children’s performance as reflecting children’s innate competence. This may...
cause distress among parents when children perform poorly, as it may be viewed as indicative of a permanent deficit in children’s competence with lasting implications for children’s future success. A key goal for parents when they hold an entity mindset may be to ensure that children demonstrate their competence by performing well. In the face of challenge, when children often experience difficulty, this may lead to unconstructive involvement in children’s learning, including a performance orientation (e.g., focusing on children on the end product), control (e.g., directing how children solve problems), and negative affect (e.g., frustration with children).

In contrast, when parents hold an incremental mindset, they are likely to believe that children’s abilities are malleable, such that they can be developed. Hence, children’s performance may be seen as reflecting their learning; an incremental mindset allows parents to see children’s poor performance as something that can be turned around with effort oriented toward promoting learning. An incremental mindset may thus lead parents to be constructively involved in children’s learning, regardless of whether children experience difficulty. When parents hold an incremental mindset, their involvement in children’s learning may be aimed at developing children’s competence so that they are mastery oriented (e.g., teaching children basic principles), autonomy supportive (e.g., encouraging children to generate their own strategies), and maintain positive affect (e.g., offering encouragement to children) even when children are faced with challenge.

Although there has been speculation about the role of parents’ ability mindsets in the quality of their involvement in children’s learning (e.g., Hoover-Dempsey & Sandler, 1997), such mindsets have received limited empirical attention. The one direct examination yielded findings in line with the idea that children’s performance is more meaningful for parents with entity (vs. incremental) mindsets. Specifically, Pomerantz and Dong (2006) found that the more mothers endorsed an entity mindset, the more their perceptions of children’s competence, which are based in part on children’s performance (e.g., Frome & Eccles, 1998), were predictive of children’s subsequent academic (e.g., motivation and grades) and emotional (i.e., self-esteem and depressive symptoms) functioning. Notably, children whom mothers saw as lacking competence consistently had the poorest functioning when mothers possessed an entity (vs. incremental) mindset. Unfortunately, Pomerantz and Dong did not examine how mothers’ ability mindsets shaped their interactions with children. Hence, it is unclear why the functioning of such children suffered.

There is, however, some suggestion in the extant research that mothers’ ability mindsets may have done so by shaping the quality of their involvement in children’s learning. Indeed, parents’ concern with children demonstrating (i.e., a performance goal) rather than developing (i.e., a mastery goal) competence, which is associated with an entity (vs. incremental) mindset (e.g., Blackwell et al., 2007), has been linked to such quality. Ames and Archer (1987) showed that mothers who view children’s performance as more important than their learning choose activities for their children that are easy and on which children will do well more often than do mothers who view learning as more important (see also Stipek, Milburn, Clements, & Daniels, 1992). Parents’ concern with their children demonstrating rather than developing competence is also associated with their unconstructive involvement in children’s learning, as manifest, for example, in their heightened control (e.g., Aunola, Nurmi, Onatsu-Arvalommi, & Pulkkinen, 1999; Renshaw & Gardiner, 1990; Stipek et al., 1992). In a particularly impressive demonstration employing experimental methods, Grofnick et al. (2002) showed that mothers put under pressure to ensure that children performed well were more controlling with children than were mothers not put under such pressure.

### Overview of the Current Research

The goal of this research was to determine whether mindsets about the malleability of ability influence the quality of parents’ involvement in children’s learning. We capitalized on the fact that ability mindsets can be shaped by situational cues (e.g., Chiu, Hong, & Dweck, 1997; Hong et al., 1999) to show that such mindsets play a causal role in the quality of parents’ involvement. Mothers’ entity and incremental mindsets were experimentally induced before they worked with children on a set of challenging problems. Mothers’ unconstructive (i.e., performance-oriented teaching, control, and negative affect) and constructive (i.e., mastery-oriented teaching, autonomy support, and positive affect) involvement was coded. The problems were designed to be challenging because ability mindsets may be most powerful in the face of challenge, as this is when entity (vs. incremental) mindsets cause the most distress (Dweck, 1999; Dweck & Leggett, 1988). The challenging nature of the problems also allowed a window into why mothers’ entity mindsets are problematic for children’s functioning when mothers view children as lacking competence, as found by Pomerantz and Dong (2006). We focused on mothers of children in the early elementary school years, given that this is when parents’ involvement in children’s learning in the context of school often begins (e.g., homework and quizzes frequently start during the first and second grades). As such, parents’ involvement may be particularly pliable, with heightened sensitivity to situational cues.

We anticipated that while working on challenging problems with children, mothers who had been induced to hold an entity mindset would be more unconstructively involved in children’s learning than would mothers induced to hold an incremental mindset, whereas mothers induced to hold an incremental (vs. entity) mindset would be more constructively involved. Mothers with an entity mindset may become more distressed than mothers with an incremental mindset when children have difficulty, as evidenced by their helplessness (i.e., frustration and disengagement); thus, mothers in the entity mindset condition were expected to heighten their unconstructive involvement when children became helpless, thereby intensifying their already unconstructive involvement. Mothers in the incremental mindset condition were expected to maintain their constructive involvement.

### Method

#### Participants

Participants were 79 mothers and their young elementary school children (6 to 9 years old; $M = 7.65$, $SD = 0.67$) in the first and second grades. Mothers ranged in age from 26 to 50 years ($M = 38.06$, $SD = 5.09$) and were predominantly European American (86%); 8% were Asian American, 2% were Hispanic, and 4% were...
of other ethnicities. Mothers were also generally highly educated: 18% held a high school degree, 38% held a bachelor’s degree, and 44% held a more advanced degree. Twenty-seven percent of mothers reported household incomes of less than $60,000; 40% reported incomes between $60,000 and $100,000; and 33% reported higher incomes. The majority of mothers (70%) worked outside the home at least part time. Mothers and children were recruited through letters sent home by elementary schools in a small urban area in the Midwest; letters were also disseminated through booths at school registrations and open houses. Mothers received $20 for participating; children were given a small gift (e.g., a bookmark).

Procedure

Upon arriving at the laboratory, mothers were told that they and their children would work on a set of problems. The problems were taken from the Raven’s Coloured Progressive Matrices (Raven, 1976) and Raven’s Progressive Matrices (Raven, Court, & Raven, 1977). In these problems, children are presented with a grid of pictures that progressively vary. One of the pictures is missing, and children must determine which picture completes the series from among several possible choices. These matrices have been used as a measure of cognitive abilities among children (Raven, 1976) and employed in previous research on how children’s environment, such as the quality of parents’ involvement in children’s learning, influences their motivation and achievement (e.g., Mueller & Dweck, 1998; Ng, Pomerantz, & Lam, 2007).

Children worked on the problems with a research assistant for 5 min in a room without their mothers (pretest). Regardless of age, children were given the same set of 10 problems on which to work. This pretest served the purpose of familiarizing children with the problems, which was important, given that parents’ involvement in children’s learning often occurs around problems with which children are already familiar because they have worked on something similar—if not identical—at school. Meanwhile, in an adjoining room, mothers were informed by a second research assistant that the problems had been used for years to assess children’s cognitive competence. They were told that the problems were designed for children in their child’s grade as well as the grade below (i.e., mothers of children in first grade were told that the problems were for children in kindergarten and first grade, whereas mothers of children in second grade were told that the problems were for children in first and second grade); this was to ensure that mothers did not think that the problems were difficult because they were for older children.

Mothers were then orally given one of the two mindset inductions (for a comparison of mothers and children in the two conditions, see Table 1). The 41 mothers randomly assigned to the entity mindset condition were told:

Taylor’s Progressive Matrices assess children’s innate—that is, in-born—intelligence. Across over 30 studies, children’s scores on this test have been shown to be quite stable. If the child completes the test once and then does so again a year later, in more than 95% of cases, the results are within 5 points of his or her original score. This seems to be the case regardless of how much time children spend studying for the test. The abilities assessed by this test are clearly not something that can be changed.

The 41 mothers randomly assigned to the incremental mindset condition were told:

Taylor’s Progressive Matrices assess children’s intellectual potential. Across over 30 studies, children’s scores on this test have been shown to be quite changeable. In more than 95% of cases, studying helps children do better, such that from one assessment to the next their score can go up as much as 20 points. Generally speaking, the more studying children do, the more they learn. The abilities assessed by this test are clearly something that can be changed.

Mothers were given a brochure reiterating this information, which they could look at while children continued with the pretest. Thus, the verbal induction was reinforced with written materials.

Mothers then joined children to work with them on the problems, which consisted of moderately difficult problems interspersed with very difficult problems based on pilot testing with children in the first and second grades. A research assistant, who was blind to mothers’ mindset induction condition, stressed to mothers that children should get through the 40 problems in the next 15 min. Mothers were told that they could help children as much or as little as they liked. It was emphasized that children’s answers should be written clearly so that they could be scored by the research assistant later. Regardless of children’s age, dyads were given the same set of problems to complete. On average, 18 problems (range = 8 to 32) were correctly completed. Mothers subsequently completed a set of questionnaires.

In the debriefing in which mothers were informed about the goals of the project, it was made clear that the problems on which

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Entity mindset condition</th>
<th>Incremental mindset condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child age in years</td>
<td>M or %</td>
<td>M or %</td>
</tr>
<tr>
<td>Child is in first grade</td>
<td>7.71</td>
<td>7.59</td>
</tr>
<tr>
<td>Child is female</td>
<td>43.9%</td>
<td>52.6%</td>
</tr>
<tr>
<td>Child is female</td>
<td>53.7%</td>
<td>55.3%</td>
</tr>
<tr>
<td>Child is European American</td>
<td>78.0%</td>
<td>81.6%</td>
</tr>
<tr>
<td>Child pretest performance</td>
<td>6.05</td>
<td>5.68</td>
</tr>
<tr>
<td>Maternal age</td>
<td>38.35</td>
<td>37.70</td>
</tr>
<tr>
<td>Maternal education</td>
<td>4.17</td>
<td>4.39</td>
</tr>
<tr>
<td>Mother works outside the home</td>
<td>63.4%</td>
<td>76.3%</td>
</tr>
<tr>
<td>Mother is European American</td>
<td>82.9%</td>
<td>89.5%</td>
</tr>
<tr>
<td>Annual household income</td>
<td>5.40</td>
<td>6.61</td>
</tr>
</tbody>
</table>

*a For results reported as percentages, chi-squares were computed; t tests were computed for all others. *1 = less than high school diploma; 2 = high school diploma; 3 = associate’s degree; 4 = bachelor’s degree; 5 = master’s degree; 6 = advanced degree. *2 = $0–9,999; 2 = $10,000–19,999; 3 = $20,000–39,999; 4 = $40,000–59,999; 5 = $60,000–79,999; 6 = $80,000–99,999; 7 = $100,000–119,999; 8 = $120,000–139,999; 9 = $140,000–159,999; 10 = $160,000 and above. *d One mother with an advanced degree in the entity mindset condition did not provide annual household income information.
they and children worked were designed to be challenging, with many problems for older children and even adults. Before leaving the laboratory, children worked on a set of problems that pilot testing indicated children could complete with ease. Children were praised for their excellent performance; it was also conveyed to them that the problems on which they had worked earlier were quite challenging as they were for older children and even adults. The procedures employed were approved by the Institutional Review Board at the University of Illinois at Urbana-Champaign.

Measures

Maternal mindset. To assess whether the entity and incremental mindset inductions influenced mothers’ mindsets, we asked mothers after working on the problems with children to rate how true (1 = not at all true; 7 = very true) six statements were regarding the malleability of the abilities assessed by the problems (e.g., “the Taylor’s Progressive Matrices assess children’s innate intelligence” and “scores on the Taylor’s Progressive Matrices can change over time”). After reverse scoring the three incremental items, the mean was taken; higher numbers reflect a more entity (vs. incremental) mindset about the problems (α = .89). Although it might have been ideal to ask mothers about their mindsets prior to their working with children on the problems, we waited until after they did so because we did not want to bring their attention to their mindsets.

Behavioral coding of mother–child interactions. Mothers’ and children’s behavior during the 15-min interaction was coded every 30 s by four trained coders—two for mothers’ behavior and two for children’s behavior—who were blind to the mindset condition. Mothers’ and children’s behavior was rated on a scale (1 = extremely low intensity or never occurs; 5 = extremely high intensity or very frequently occurs) reflecting both intensity and frequency of behavior during each 30-s segment (1 = extremely low intensity or never occurs; 5 = extremely high intensity or very frequently occurs). Coders met weekly to discuss disagreements beyond one scale value. Gamma (γ) was used as a measure of intercoder reliability, as is appropriate for ordinal data (e.g., Goodman & Kruskal, 1972; Liebetrau, 1983). The two coders’ ratings were averaged across each segment.

Three dimensions of mothers’ unconstructive involvement were coded (γs = .98 to .99). Performance-oriented teaching was coded as the extent to which mothers told children how to get the right answer, regardless of whether children learned how to do the task; this included such practices as demonstrating how to solve the problems but not teaching children how to do so (e.g., “Look at this pattern. I think it’s this one”) or telling children an answer was incorrect without providing a rationale (e.g., “It’s not that one”). As in prior research (e.g., Moorman & Pomerantz, 2008b; Ng et al., 2004), control was coded as the extent to which mothers pressured children in an intrusive manner, including attempts to regulate children’s behavior through such practices as directives, commands, orders (e.g., “Put a 5”), or taking over (e.g., taking paper or pencil away from children). Negative affect was coded following prior research (e.g., Moorman & Pomerantz, 2008a; Nolen-Hoeksema et al., 1995) as the extent to which mothers directed frustration, annoyance, hostility, or negative feedback (e.g., “We didn’t even get halfway done”) toward children.

Three dimensions of mothers’ constructive involvement were coded (γs = .85 to .94). Mastery-oriented teaching was coded as the extent to which mothers encouraged children to master the core principles of the task regardless of how they performed at it; this included such practices as teaching children steps to solve the problems or asking guiding questions (e.g., “Do you see this is a part of that?”); for similar conceptualizations, see Gottfried et al., 1994; Hokoda & Fincham, 1995; Nolen-Hoeksema et al., 1995; Pianta, Smith, & Reeve, 1991; Pomerantz, Ng, & Wang, 2006). As in prior research, (e.g., Kelley, Brownell, & Campbell, 2000; Moorman & Pomerantz, 2008b; Ng et al., 2004), autonomy support was coded as the extent to which mothers encouraged or allowed children’s initiative or choice, such as permitting children to complete the task on their own (e.g., “Pick the one you think is best”) or waiting for children to correct their own mistakes. Positive affect was coded as displays of warmth and approval toward children, including encouragement (e.g., “You can do it!”) and positive feedback (e.g., “Great! You got it before I did!”); for similar coding, see Moorman & Pomerantz, 2008a; Nolen-Hoeksema et al., 1995).

For data reduction purposes, the six dimensions of mothers’ behavior were submitted to a factor analysis with a promax rotation. Two factors with eigenvalues greater than one (2.47 and 1.37) emerged, accounting for a total of 64% of the variance. Mothers’ performance-oriented teaching, control, and negative affect loaded on one factor, which we labeled unconstructive involvement; mothers’ mastery-oriented teaching, autonomy support, and positive affect loaded on another, which we labeled constructive involvement (for similar factors of parenting in other contexts, see Belsky, Domitrovich, & Cnnc, 1997; Frosch & Mangelsdorf, 2001). Loadings ranged from .48 to .94 on the primary factor, with cross-loadings of –.08 to .15. Means of the three variables making up each type (i.e., unconstructive or constructive) of involvement were taken with higher numbers indicating more of that type of involvement. The two factors were inversely associated, r(77) = –.27, p < .05.

On the basis of prior coding of children’s responses to challenge (see Moorman & Pomerantz, 2008a, 2008b; Ng et al., 2007; Nolen-Hoeksema et al., 1995), two dimensions of children’s helplessness (vs. mastery) were coded (γs = .78 and .80). Frustration was coded as the extent to which children were upset, annoyed, or angered by the difficulty of the task—for example, slamming down their pencil on the table or making statements such as, “Man, there are a lot of problems.” Engagement was coded as the extent to which children were involved and interested in the task as well as concerned with mastering it, regardless of success or failure, as reflected in excitement about the task, (e.g., “I think I know what it is!”) or continuing to look for the correct answer after finding an incorrect one. Because the two dimensions were substantially inversely associated, r(77) = –.59, p < .001, engagement was reverse scored and a mean of the two was taken, with higher numbers indicating more helplessness.

Results

Does the Mindset Induction Influence Mothers’ Mindsets?

To determine the success of the mindset induction, we conducted an independent samples t test examining the effect of condition (entity vs. incremental) on mothers’ mindsets in regards
to the problems on which they worked with children. As anticipated, mothers in the entity condition endorsed an entity (vs. incremental) mindset about the problems \((M = 4.52, SD = 1.46)\) to a greater extent than did mothers in the incremental condition \((M = 2.25, SD = 0.42)\), \(\eta^2(77) = 9.26, d = 1.44, p < .001\).

**Do Mindsets Influence the Quality of Mothers’ Involvement in Children’s Learning?**

To determine if the mindset induction influenced the quality of mothers’ involvement in children’s learning, we submitted the quality of their involvement to a mixed model multivariate analysis of variance (MANOVA) with condition (entity vs. incremental) as the between-person factor. To ensure that the effects of the condition lasted over the entire 15-min interaction, we took the mean of each dimension of the quality of mothers’ involvement over the first fifteen 30-s segments (i.e., the first half of the interaction) and over the second fifteen 30-s segments (i.e., the second half of the interaction). Thus, time (first vs. second half of the interaction) was included as a within-person factor. The Condition \(\times\) Time MANOVA on mothers’ unconstructive involvement yielded an effect of condition, \(F(1, 77) = 4.66, \eta^2_p = .06, p < .05\), which was not moderated by time, \(F(1, 77) < 1, \eta^2_p = .00, ns\). As shown in Figure 1 (see also Table 2), mothers induced to hold an entity mindset used more unconstructive involvement than did mothers induced to hold an incremental mindset, and this effect did not wane over time. The MANOVA on mothers’ constructive involvement did not yield an effect of condition on its own or in interaction with time, \(F(1, 77) < 1.99, \eta^2_p < .04, ns\).

**Do Mindsets Influence Mothers’ Responses to Children’s Helplessness?**

We used hierarchical linear modeling to examine whether the difference in the quality of involvement between entity and incremental mindset mothers may be intensified when children have difficulty, as manifest in helplessness. In these analyses, over the thirty 30-s segments of the 15-min interaction between mothers and children, the quality of mothers’ involvement (i.e., unconstructive or constructive) in one 30-s segment was predicted from children’s helplessness in the prior 30-s segment, adjusting for the quality of mothers’ involvement in that prior segment (for a similar data analytic approach, see Moorman & Pomerantz, 2008a, 2008b; Ng et al., 2004). The following within-dyad equation was used:

\[
\text{Maternal involvement}_{ij} = \beta_{0ij} + \beta_{1ij}(\text{Maternal involvement}_{i,j-1}) + \beta_{2ij}(\text{Child helplessness}_{i,j-1}) + e_{ij},
\]

where maternal involvement quality (i.e., unconstructive or constructive) in a particular segment \((i)\) for an individual mother \((j)\) was modeled as a function of the average quality of involvement of the mother (\(\beta_{0ij}\)) and the child’s helplessness the segment prior to the quality of mothers’ involvement (\(\beta_{2ij}\)) while adjusting for the quality of mothers’ involvement in that prior segment (\(\beta_{1ij}\)), with \(e_{ij}\) representing the error term. All predictors were mean centered. This Level 1 (within-dyad) equation allowed for the examination of children’s helplessness as a predictor of the quality of mothers’ involvement from one segment to the next. Adjusting for the quality of mothers’ involvement in the prior segment permitted a window into the direction of effects by ruling out the possibility that the effects were due to concurrent associations between the quality of mothers’ involvement and children’s helplessness.

When there was variability in the extent to which children’s helplessness in one segment predicted the quality of mothers’ involvement in the next segment (\(\beta_{1ij}\)), adjusting for the quality of mothers’ prior involvement, the moderating role of mothers’ mindset induction condition was investigated. In these Level 2 (between-dyad) equations, the slope (\(\beta_{2ij}\)) between children’s helplessness and the subsequent quality of mothers’ involvement (adjusting for the earlier quality of mothers’ involvement) was predicted from mothers’ mindset induction condition (contrast coded). The following equation was used:

\[
\beta_{2ij} = \gamma_{20} + \gamma_{21}(\text{mindset induction condition}) + U_{ij},
\]

where the segment-level association between children’s helplessness and the quality of mothers’ involvement (\(\beta_{2ij}\)) was modeled as a function of the average association across the sample (\(\gamma_{20}\)) and mothers’ mindset induction condition (\(\gamma_{21}\), with \(U_{ij}\) representing the error term. When significant effects of mothers’ mindset induction condition were found, they were decomposed using the guidelines outlined by Aiken and West (1991).

Overall, children’s helplessness in one segment was not associated with mothers’ heightened unconstructive involvement in the following segment, adjusting for their prior unconstructive involvement, coefficient = .02, \(SE = .01, 95\%\ CI [−.01, .05]\), \(\eta^2(78) = 1.48, ns\). Notably, there was variability in the extent to which this was the case, \(\chi^2(61) = 103.02, p < .01\). This variability appeared to be due in part to the mindset induction: Mindset condition moderated the effect of children’s helplessness on mothers’ subsequent unconstructive involvement, coefficient = -.03, \(SE = .01, 95\%\ CI [−.01, −.06], \eta^2(77) = .245, p < .05\). As shown in Figure 2, the tendency for mothers with entity mindset to be unconstructively involved was intensified when children were helpless. Decomposition following Aiken and West’s (1991) guidelines indicated that in the entity condition children’s helplessness was followed by mothers’ unconstructive involvement, taking into account mothers’ earlier unconstructive involvement, coefficient = .05, \(SE = .02, 95\%\ CI [.01, .09], \eta^2(77) = 2.41, p < .05\); however, in the incremental condition, children’s helplessness

![Figure 1. Mothers’ unconstructive involvement in the first and second half of their interaction with children as a function of mindset condition. Error bars indicate the standard errors of the means.](image-url)
than 1) was calculated; the mean of these proportions was computed across the sample. For each mother, a proportion of segments within which she engaged in the form of involvement (i.e., score was great

Although mothers and children were randomly assigned to the two mindset conditions, it is possible that the attributes of mothers and children in the two conditions may have differed, leading to the effects of condition we identified. As shown in Table 1, out of a total of 10 attributes, there was only one on which the two conditions differed, that of annual household income: Mothers in the entity mindset condition reported lower income than did their counterparts in the incremental mindset condition. However, income did not predict mothers’ unconstructive involvement, $F(1, 75) < 1$; it also did not moderate the effect of children’s helplessness on mothers’ subsequent unconstructive involvement, $t(75) < 1$, ns. Thus, not surprisingly, income did not account for the effect of condition in any of the analyses. The other demographics also did not do so, which was expected given that they did not vary by condition.

**Discussion**

Although there has been speculation that mindsets about the malleability of ability influence the quality of parents’ involvement in children’s learning (e.g., Hoover-Dempsey & Sandler, 1997), the current research is the first empirical evidence that this is indeed the case. In the context of working with children on a set of challenging problems, mothers induced to hold an entity mindset displayed heightened unconstructive involvement in children’s learning—that is, they used greater performance-oriented teaching, exerted heightened control, and were more affectively negative—than were their counterparts induced to hold an incremental mindset. This is significant given the large body of research indicating that parents’ unconstructive involvement plays an undermining role in children’s motivation and ultimately achievement in school (for reviews, see Pomerantz, Grönlund, & Price, 2005; Pomerantz et al., 2007). Entity mindset mothers also responded to children’s helplessness more unconstructively than did incremental mindset mothers. Notably, children may be most hurt by mothers’ unconstructive involvement when they are helpless (Pomerantz, Wang, & Ng, 2005b).

The ability mindset induction influenced mothers’ unconstructive involvement, but not their constructive involvement (i.e., mastery-oriented teaching, autonomy support, and positive affect). This may be because the size of the effect of the mindset induction on mothers’ unconstructive involvement fell near the medium range according to Cohen (1992), whereas that on mothers’ constructive involvement fell in the small range; it is possible that the sample size did not allow for the detection of an effect of this size. The effect of the mindset induction on mothers’ unconstructive involvement may have been sizably larger than that on their constructive involvement because it is easier for mothers to refrain from using unconstructive practices—at least over 15 min without interruptions (e.g., from other children and household demands)—than to adopt constructive practices beyond that which they already use. Promotion of mothers’ constructive involvement in children’s learning may require skills training in addition to a change in mindset.

**Table 2**

*Quality of Mothers’ Involvement as a Function of Mindset Condition*

<table>
<thead>
<tr>
<th>Maternal behavior</th>
<th>Incremental mindset condition</th>
<th>Entity mindset condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
</tr>
<tr>
<td>Unconstructive involvement</td>
<td>1.05</td>
<td>0.08</td>
</tr>
<tr>
<td>Constructive involvement</td>
<td>1.88</td>
<td>0.40</td>
</tr>
</tbody>
</table>

$^a$The proportion of mothers engaging in the form of involvement for at least one segment of the interaction. This was calculated by computing the proportion of mothers in each condition that scored above 1 on the form of involvement. $^b$The average proportion of segments during which mothers engaged in the form of involvement. For each mother, a proportion of segments within which she engaged in the form of involvement (i.e., score was greater than 1) was calculated; the mean of these proportions was computed across the sample. $^c d$ is the between-condition effect size for the mean; an effect size of .20 is small, .50 is medium, and .80 is large (Cohen, 1992).
The findings of the current research suggest why Pomerantz and Dong (2006) found that children are at heightened risk in terms of their academic and emotional functioning when their mothers view them as lacking competence and hold an entity (vs. incremental) mindset. Because children viewed by mothers as lacking competence may frequently be faced with challenge, it is likely that entity mindset mothers use heightened unconstructive involvement with such children. Unfortunately, such involvement may then interfere with children’s academic and emotional functioning. As Bornstein (2006) highlights, studies examining the triad of parents’ beliefs, their practices, and children’s functioning are rare, but they are needed to elucidate the role of parents’ beliefs in the socialization process. Indeed, it will be important for future research to examine this triad to determine if the quality of parents’ involvement in children’s learning underlies the effects of their ability mindsets on children’s functioning as we have speculated.

Several other steps are necessary to understand fully the role of mindsets about the malleability of ability in parents’ socialization of children. First, the question of the process by which parents’ mindsets shape the quality of their involvement needs attention. One possibility is that parents’ mindsets determine their goals. An entity mindset is associated with performance goals (i.e., concern with demonstrating competence), whereas an incremental mindset is associated with mastery goals (i.e., concern with developing competence; e.g., Blackwell et al., 2007). Moreover, parents holding a performance goal are less constructively involved in their children’s learning than are parents holding a mastery goal (e.g., Aunola et al., 1999; Renshaw & Gardner, 1990; Stipek et al., 1992). Thus, it is likely that such goals underlie the effects of parents’ ability mindsets on the quality of their involvement.

Second, a significant question is whether the effects of ability mindsets on the quality of parents’ involvement in children’s learning are stronger for some parents than others. It is possible, for example, that ability mindsets may matter the most for parents who feel their own worth is contingent on children’s performance. Parents with an entity mindset may become particularly distressed when their children are doing poorly if they see such performance as reflecting on them. Indeed, focusing on the social arena, Grolnick, Price, Beisswenger, and Sauck (2007) found that experimentally induced concern with children’s performance led to the most control when mothers’ self-worth was wrapped up in that of their children’s social life. Other attributes of parents (e.g., their self-efficacy and perceptions of responsibility in facilitating children’s learning) as well as children (e.g., their history of achievement and responses to parents’ involvement) may also moderate the role ability mindsets play in the quality of parents’ involvement.

Third, the current research focused on mothers of children in the early elementary school years; this is a time when parents are often beginning their involvement in children’s learning in the context of school. Thus, the quality of parents’ involvement may not yet be consolidated, making it particularly sensitive to situational cues, such as those we used to induce the ability mindsets. It is possible that as children progress through the school system, the quality of parents’ involvement becomes less sensitive to situational cues. In a set of supplementary analyses, we took a preliminary look at this possibility by examining whether the effects of the mindset induction were contingent on children’s grade in school, but this was not the case as there was no interaction between condition and children’s grade. If the quality of parents’ involvement becomes less sensitive to situational cues as children progress through the school years, it may happen later.

Fourth, to ensure that mothers and children did not have preconceived ideas about the malleability of ability involved in the task on which they were to work with children, as well as children’s competence at the task, we used a novel task. A key question is to what extent the same processes are evident when the task is not novel. In addition, to ensure that mothers viewed the task as important, we told them that children would later be tested on their own; in some ways this mirrors daily learning situations at home (e.g., homework), given that children may eventually be tested on the skills they develop in such a context. However, our procedure may have placed greater pressure on mothers and children, such as that experienced when children prepare for a test in the near future. Additional research is necessary to determine how parents’ ability mindsets operate in the different learning contexts in which parents are involved.

Although the experimental design of the current research allowed a window into the causal role that mothers’ ability mindsets play in shaping the quality of their involvement, the design has several limitations. First, it necessitated that mothers and children come to the laboratory. This may have restricted the variability of the sample, given that well-functioning mothers and children may have been more willing to come to the laboratory. Second, our video cameras were not prominent, but mothers were informed that sometime during their visit they would be videotaped; this may have dampened mothers’ unconstructive involvement, which was uniformly less frequent than their constructive involvement, n(78) = 14.85, p < .001. However, consistent with the idea that negative parenting may be more powerful than positive parenting (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001), a single instance of unconstructive involvement on the part of mothers may have lasting effects on children; for example, when parents say to children, “No matter how I explain it, you just don’t get it,” children may be quick to take away the message that they lack competence.

Despite these limitations, the findings of the current research are important in suggesting that the way in which academic tasks, such as homework, are framed to parents may have an impact on the quality of parents’ involvement in such tasks. The homework setting can be frustrating for parents and children alike, particularly when children become helpless (e.g., Levin et al., 1997; Pomerantz et al., 2005a). When parents view children’s ability as something that can be changed—that is, they hold an incremental mindset—it leads parents to refrain from using unconstructive practices, even when children become helpless, thereby enhancing the quality of their involvement in children’s learning. The effects of such incremental mindsets when paired with skills training to help parents learn constructive ways to be involved in children’s learning is a productive direction for future research aimed at developing a useful knowledge base for applications of ability mindsets in educational settings.

References


Received October 22, 2009
Revision received April 27, 2010
Accepted May 11, 2010

---

**Online First Publication**

APA-published journal articles are now available Online First in the PsycARTICLES database. Electronic versions of journal articles will be accessible prior to the print publication, expediting access to the latest peer-reviewed research.

All PsycARTICLES institutional customers, individual APA PsycNET database package subscribers, and individual journal subscribers may now search these records as an added benefit. Online First Publication (OFP) records can be released within as little as 30 days of acceptance and transfer into production, and are marked to indicate the posting status, allowing researchers to quickly and easily discover the latest literature. OFP articles will be the version of record; the articles have gone through the full production cycle except for assignment to an issue and pagination. After a journal issue’s print publication, OFP records will be replaced with the final published article to reflect the final status and bibliographic information.