The Task Matters: Parental Assistance to Children Doing Different Homework Assignments

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Paper presented as part of a symposium at the 2001 annual meeting of the American Educational Research Association, Seattle WA, titled, "The influence of parental involvement in homework: What do we really know and how do we know it?"

Abstract

Nineteen parent-child dyads were observed working on two different mathematics homework tasks. Parents were more directive and controlling and used less elaboration when assisting their children with the arithmetic problem solving task than when assisting with the spatial reasoning task. Parent interviews revealed that parents perceived that arithmetic was more straightforward because there were correct algorithms for solving such problems and that showing the child was most efficient. Spatial reasoning was less familiar to parents and was perceived as an enriching curricular area rather than as a basic skill with prescribed solution paths. Parents drew upon their own school experiences as a foundation for reasoning about what and how children should be taught.

Keywords: homework, parental beliefs, parental involvement, elementary school mathematics

Introduction

Both activity theory and research on mathematics education suggest that the task is an important aspect of what and how individuals learn. Little research attention, however, has been focused on the nature of homework tasks and whether the task matters in the type of help parents provide (Tovey, 1997). Teachers have been given conflicting advice from experts on whether to assign homework tasks requiring practice and review or homework tasks requiring application and problem solving, and on whether homework should be for students to complete independently or for students to complete with parents (Charney, 1999; Epstein et al., 1995; Tovey, 1997). There is little empirical evidence that would provide guidance to educators wishing to ground their homework practices on knowledge about how parents help their children with homework. The purpose of the current study was to examine the assistance parents provided to second grade children on two different homework tasks requiring application and problem solving. One task involved solving an arithmetic word problem, and the other task involved solving a spatial (geometry) problem.

There has been some controversy over how much homework is appropriate for elementary school children or whether doing homework provides any benefits for them (Cooper, Lindsay, Nye, & Greathouse, 1998; Cooper, 1989). Despite the debate over homework, most elementary school students do have some homework assigned to them each day (Snyder, 1998). Epstein (1986) reported that parents expected to help their elementary school children with homework, and Finney (1993) found that 47% of the parents surveyed reported working with their elementary school children on homework every day.

Hoover-Dempsey, Bassler, and Burow (1995) concluded that the parents they studied very much wanted to help their children succeed in school and saw homework support as a way to accomplish that goal. However, reports have begun to appear in the mass media/popular press indicating that parents of elementary students are very frustrated with homework sessions (Tabor, 1996). Some have concluded that "homework is a major battleground for many families," at least partly because parents are closely involved in supervising homework assignments (Kantrowitz & Wingert, 2001, p. 52). Anecdotal reports in scholarly sources also have identified homework as the "bane of parents' existence in the early grades" (Corno, 1996, p. 29).

Previously, only a few researchers have described how parents are involved in homework. Hoover-Dempsey, Bassler, and Burow (1995) interviewed parents of children attending two different elementary schools. The parents in that study provided reports about how they helped their children with homework. Although parents said that they usually tried to have their children complete some of their

homework tasks independently, many acknowledged that they assisted when children had some difficulty with the assignment. Parents also reported using strategies that ranged from more general assistance, like rereading directions, to explicit teaching, such as demonstrating how to get a correct answer. Most parents who described methods for helping with homework focused on drill and practice, particularly with spelling homework. Mathematics homework tended to be mentioned in association with parent reports of more "teaching activities" (p. 443). Parents reported that their teaching was often focused procedurally on helping the child get the correct answer. Few parents in their study mentioned trying to help children understand the material more deeply through explanation or coaching.

Several observational studies of parental assistance with children's mathematics work have been conducted in the past. For example, in several studies of how parents helped their second grade children solve arithmetic problems, Lehrer and Shumow (1997) and Shumow (1998) found that parents were highly directive and controlling and rarely used elaboration (explanations, comparisons) when helping their children with difficult arithmetic problems. Pratt, Green, MacVicar, and Bountrogianni (1992) observed parents helping their fifth grade children with long division. They found that parents were most involved in helping children when the problems were difficult for the children.

Taken together, these anecdotal reports, interviews, and observations suggested that parents are helping children most when there are some difficulties and that they might not be helping children with their homework in optimal ways. At best, few parents have reported using strategies that result in their children gaining a deeper understanding of the material (Hoover-Dempsey, Bassler, & Burow, 1995; Lehrer & Shumow, 1997). How parents help their children is important, because the problem solving assistance provided to children by parents has been related to children's learning. On both laboratory and homework tasks, researchers have found that more controlling assistance was related to less competence, while less controlling assistance was related to the development of greater competence (Hess & Holloway, 1984; Lehrer & Shumow, 1995; Pratt et al., 1992). Also, the amount of elaborative rehearsal parents support in their interaction with their children is important for the children to develop a schema for solving problems, rather than simply an answer to the problem at hand. Elaborative rehearsal is supported when children are asked to compare, explain, or reflect. In the present study, observations were conducted of homework problems that were challenging for the children, and the proportion of controlling parental assistance and the proportion of elaborative assistance was examined on two tasks.

In the case of mathematics homework, at least one researcher has noted that the quality of parental assistance seems to vary with the task (Reineke, 1995). In his qualitative study of 4 parent child dyads, Reineke (1995) listened to audiotapes of fourth grade students doing mathematics homework and reported on the assistance parents provided to those students. Reineke (1995) noticed that parents were quite directive when helping their children with arithmetic tasks. On those tasks, parents tended to identify an algorithm for solving the problem, and then they told children how to solve the problem, directing them through the solution in a lock-step manner. In contrast, on a probability problem that the students brought home, the parents involved the children more in the solution. Prior to the adoption of the National Council of Teachers of Mathematics (NCTM) standards for teaching mathematics (which include statistics and probability as essential content), few students were exposed to statistical concepts or statistical problems in elementary or high school mathematics classes. Like statistics, the NCTM standards first included spatial reasoning (geometry) as essential content for elementary students about a decade ago (see NCTM, 1989). Ideas and concepts included in the NCTM standards for geometry/spatial reasoning went beyond the traditional "proofs" studied in sophomore high school geometry classes. Therefore, most parents were not exposed to these types of problems in their own elementary schooling. In contrast, arithmetic has always been a staple of the elementary school curriculum.

Parental recognition of the tasks as either essential content or as enrichment is likely to be important, because some evidence has suggested that the quality of the assistance provided by parents was tied to how they interpreted the meaning and purpose of the task. For example, in a study by Tudge, Rogoff, Fordham, & Lawrence (1995), the researchers asked parent-child dyads to work collaboratively to learn two computer games, one recreational and one educational, that neither knew previously. Both games required planning in order to solve the problem posed in the game. Despite those similarities, parents provided almost twice as many directives to children during the educational game. The researchers inferred that parent understanding of one game as educational and the other as recreational influenced their assistance to children and resulted in specific differences.

The importance of parental interpretation of the task is explained by activity theory (Leont'ev, 1981). Leont'ev proposed that there are three aspects of activities that impact development. These three aspects are the goal of the activity, the motivation for the activity, and the process through which the goal is achieved. Thus, activities such as "homework" that appear similar on the surface can be quite different in terms of developmental consequences depending on those three different aspects. Like the parent-child activity studied by Renshaw and

Gardner (1990), the tasks in this study have completion as a fundamental goal. The focus of this study is to examine whether the process through which parents accomplish that goal differs by task and whether parents express different ideas about learning such tasks (motives).

The present study investigated how parents assisted their children on two different homework tasks by observing a homework session. Parents also were interviewed to gain a perspective on how they thought about assisting children with mathematical tasks. Most previous studies have inferred how parents interpreted tasks from observations of parent-child interaction rather than by interviewing parents.

Method

Participants

Twenty parents were randomly selected to participate in the present study from among parents of children attending two second-grade classrooms in the Midwestern United States; ten parents were selected from each classroom. Mathematics reforms (e.g., NCTM) were being implemented in these classrooms, which were located in the same school district but in neighboring elementary schools. Teachers utilized the Cognitively Guided Instruction (CGI) approach to reforming mathematics education (Fennema & Carpenter, 1989; Fennema, Franke, Carpenter, & Carey, 1992; Lehrer, Fennema, Carpenter, & Ansell, 1993). The teachers had participated in extensive in-service education, in implementation of the CGI approach to mathematics reforms, and in a university study of mathematics reform for several years at the time of the current study.

Teachers were planning to participate in implementing a parent involvement program that was designed by the research team. The teachers were interested in the parent program for several reasons. First, they valued parent involvement. Second, some parents in the community were concerned about reforms, and the teachers wanted to make sure that the parents were well informed.

All twenty parents (14 mothers, 5 fathers) agreed to be videotaped helping their children with homework, specifically, two mathematics problem solving tasks. All participants were Caucasian. Parents' educational levels ranged from high school graduate to graduate degrees, with a median level of some college education (e.g., attendance at college but not degree completion). Occupations of parents included light industry (e.g., printing), homemaking, service (e.g., banking, sales, child care), managerial, and the professions (e.g., accounting, engineering, teaching). Thus, the socioeconomic status of the families ranged from lower to upper middle class.

Procedure

Parent-child dyads were videotaped in their homes during the fall, before they participated in the parent involvement program. Nineteen of the parent-child dyads completed both problem-solving tasks (the other parent-child dyad did not complete the second task because of family circumstances at the time of the researcher's visit). The purpose of this study was to compare parental assistance on two different types of tasks. Some dyads completed the arithmetic task first, and others completed the spatial reasoning task first. Problem solving sessions ranged in length from twenty to forty minutes.

Tasks

Parents and children were presented with tasks that were similar to the problems that children worked on at school. One task was an arithmetic task and the other task entailed spatial reasoning. The arithmetic task was selected to be difficult for the individual child being videotaped (based on teacher assessments and researcher classroom observations within the CGI framework). Previous studies of parent-child interactions have shown that difficult problems evoke assistance from parents on both laboratory and homework tasks (Pratt et al., 1992; Wood, 1980), and parents have also reported providing most homework assistance to children who are struggling (Hoover-Dempsey, Bassler, & Burow, 1995). An example of a problem that was difficult for a number of children in this study is the following: "Some people were at the store. Then, 15 more people came. Then there were 27 people altogether at the store. How many people were at the store to begin with?" Some children in the study were able to solve the previous problem independently, so for them the following problem was chosen: "A tiger walked 9 miles in 12 hours. How far would the tiger travel if it walked at the same speed for 3 days?"

The spatial reasoning problem was the same for all parent-child dyads. Regularities in children's solutions to measurement problems have been recognized but do not provide great enough detail to select a gradation of problems as was possible with numerical reasoning. No child in the study was expected to be able to solve the problem selected independently. The problem entailed giving each dyad two shapes cut from paper (one a square and one a long thin rectangular strip) and asking, "Do these cover the same amount of space?" (i.e., have the same area). Tools available in the homework bag were counting blocks, graph paper, unlined paper, scissors, a pencil, and a ruler.

Parent Interviews

Parent interviews also were conducted in the parents' homes, except for one parent who worked near the university and requested to be interviewed at the university during lunchtime. Interviews were approximately one hour in length.

Each interview was audiotaped and transcribed. The parent interviews reported in this study were part of a larger study (see Lehrer & Shumow, 1997; Shumow, 1997). In the present study, specific responses (not reported in the larger study) were taken only from the interviews of those parents who were being videotaped helping their children with mathematics homework. The responses to the interviews were examined for beliefs pertaining to the issues examined in this study.

A videotape was created to use in interviewing parents. Classroom vignettes were selected from research videotapes of classrooms in which mathematics reforms were being implemented. Each vignette exemplified various reform practices (agreement that these vignettes were representative of those practices was obtained from two experts on mathematical reform). Evidence of how parents interpreted arithmetic and spatial reasoning tasks was obtained from parental responses to two of the episodes depicted in the videotape. One depicted a third grader using cubes to solve an arithmetic problem correctly and demonstrated that the child had a thorough understanding of place value. The other episode involved a discussion in which children reasoned about how to prove whether two shapes were squares. After viewing the episode in which the child used cubes, parents were asked, "What is your opinion as to the value of using manipulatives (cubes)?" The question following the discussion about the squares asked, "What do you think of this way of teaching math?" A follow-up to each of these questions probed, "Should the teacher have showed the class the column addition way of solving the arithmetic problems or told the class the rules about how to decide if shapes are squares?" Coding of parent responses is described subsequently.

Measures

Coding of Parental Assistance

Arithmetic and spatial reasoning tasks were coded separately. Each assistance move a parent provided to the child was doubly coded for the level of control indicating cognitive responsibility assigned to the child by the adult and for the function of the assistance. An assistance move was usually bounded by a change in turn (child move), although if the child was unresponsive, two or more parent moves might be coded without a child turn. Assistance moves were fully specified in a coding manual. The coded scheme is described in detail elsewhere (Lehrer & Shumow, 1997; Shumow, 1998).

A five-point level of control scale was utilized in coding the first dimension. At the lowest level (level one), the parent made general attempts to focus the child's attention on the problem; for example, the parent might ask the child, "what are we trying to do?" or "what could you do to figure this out?" At the second level

of control, the assistance was directed towards a specific aspect of the problem solving such as asking the child, "what should you do next?" At the third level of control, the parent was usually responding to an error made by the child by refocusing or redirecting the child. The key to this level was that the child retained cognitive responsibility for the solution. At level three, the parent might say, "could that be right?" or "why don't you try writing it down?" Level four was characterized by a parent taking over responsibility for the problem solution by directive coaching or by modeling the process. An assistance move like "add those (pointing) up to get the answer" was coded as level four. At level five, the child was reduced to recording input; for example, the child might be told "write down the four here (pointing) and carry the one up here (pointing).

In this study each assistance move was also coded on a second dimension for the function of assistance provided. Four functions were identified: defining the problem, managing sequential flow, elaboration, or sense making. The proportion of elaborative assistance used during each problem solving task was examined in this study because of the important function elaborative assistance plays in learning (Lehrer & Shumow, 1997; Sweller, 1988) Three types of assistance were coded as elaboration – reflection, explanation, or comparison. For example, either asking or telling the child the reason why a particular process was followed was coded as elaboration.

Coding of interviews

Interview transcripts were read to ascertain whether parents expressed different opinions about the teaching of arithmetic and spatial reasoning. The number of parents who said "no," the teacher should not show/tell the traditional methods were counted, and their reasons for that endorsement were noted. In a previous study (Lehrer & Shumow, 1997), 84% of the parents endorsed including spatial reasoning in the curriculum. In the present study, the reasons parents provided for teaching the third graders column addition and the reasons they provided for including spatial reasoning were examined in order to understand whether parents thought differently about spatial reasoning and numerical reasoning.

Results

Parental Controlling Assistance by Type of Task

Level four and level five assistance indicated that the parent was responsible for the cognitive work in the task, so these levels were added to represent controlling assistance. Table 1 displays the proportion of the assistance moves on which each parent used controlling assistance by type of homework task. A paired t-test

was used to determine whether parents' controlling assistance differed on the two tasks. Results indicated that parents provided less controlling assistance (paired $t = 7.8$, $df = 18$, $p < .001$) to children on the spatial reasoning task.

Table 1. Proportions of Controlling Assistance

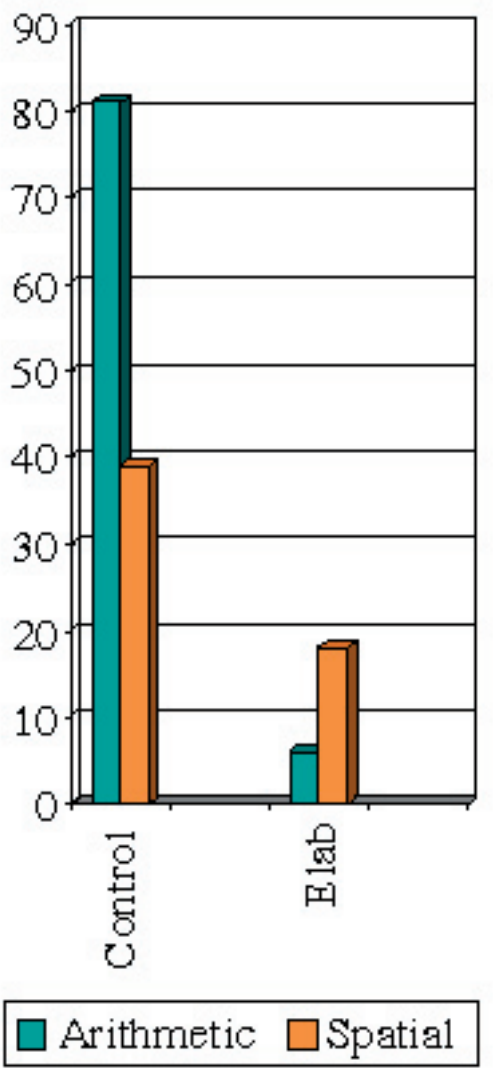
Dyad Identification Number	Arithmetic Task: Proportion of Controlling Assistance	Spatial Task: Proportion of Controlling Assistance
1	.39	.25
2	.90	.63
3	.92	.62
4	.72	.55
5	.73	.48
6	--	--
7	.92	.14
8	.93	.48
9	1.00	.33
10	.80	.60
11	.80	.14
12	.89	.60
13	.90	.53
14	.78	0.0
15	.72	.05
16	.80	.50
17	.82	.67
18	.82	.37
19	.74	.46
20	.83	0.0
Mean Proportion	.81 (.13)	.39 (.23)

Table 2. Proportions of Elaborative Assistance

Dyad Identification Number	Arithmetic Task: Proportion of Elaborative Assistance	Spatial Task: Proportion of Elaborative Assistance
1	.00	.25
2	.10	.15
3	.00	.06
4	.06	.22
5	.02	.08
6	--	--
7	.12	.00
8	.04	.29
9	.00	.33
10	.02	.06
11	.07	.29
12	.06	.05
13	.00	.21
14	.03	.20
15	.12	.24
16	.10	.50
17	.11	.10
18	.13	.11
19	.05	.20
20	.09	.14
Mean Proportion	.06 (.05)	.18 (.12)

Table 2 displays the proportion of statements that were coded as elaborative for each parent by type of homework task. A paired t-test indicated that parents engaged in more elaboration with children on the spatial reasoning task than on the arithmetic task (paired $t = -4.1$, $df = 18$, $p < .001$). Figure 1 displays the mean controlling and elaborative assistance provided on each task.

Figure 1. Mean Controlling and Elaborative Assistance Provided by Parents



Parental Attitudes About Reform/Traditional Mathematics

In their appraisal of the videotaped episodes, parents differed in whether the teacher should show/tell the child the traditional process or rule for solving the problem depending on which episode they were evaluating. Parents overwhelmingly endorsed the idea of teaching the third grader column addition. Only sixteen percent of parents said "no" when they were asked whether the teacher should show the third grade child the process of using column addition rather than simply letting the child use manipulatives for solving the whole number problem. In contrast, fifty-eight percent of the parents said "no" when asked whether the teacher should tell the child the rule for solving the spatial reasoning problem.

Although most parents (84%) had reservations about the third graders using only manipulatives to solve the arithmetic problem, there was a broad range of opinion underlying parents' ideas about teaching the children the traditional method of column addition. Few parents (only 3) thought that the reform method of allowing third grade children to use manipulatives to solve problems was problematic. The parent who said, "The teacher could save time by just telling how. There is a right way, you know, and for uniformity's sake" represented that view. Parents holding that view also tended to be against having children discuss reasons and alternatives or invent their own algorithms. However, most parents (n=13) thought that both traditional and reform methods could be used. Those parents thought, for example, that it was fine to let the children use manipulatives, invent methods, or discuss different ideas about how to define and measure a shape, but that after the children had "done it their way," then the teacher either could or should show them the way that it was done traditionally. Many of those parents seemed to have the idea that time was running out for the third grader and that the child needed to be told/shown before it was too late for him to learn the "standard" way.

Parents appeared to use their own school experiences as a basis for their attitudes. Nearly half of the parents mentioned their own schooling. Referring to why children should be shown how to carry using column addition, several parents sounded much like the mother who said, "that is the way I learned and I can (do addition), you know, maybe that's how they need to learn it." Interestingly, one parent spoke disparagingly about his early traditional school experiences, but then used it as an example of how children should learn. He said, "When I visualize a classroom when I was going to school at that age, you know, rows of children with hands folded on the desk, pretending to be paying attention when you probably were thinking about something totally different." But he later defended his belief about how children should learn basic arithmetic, saying, "we

were drilled …didn't have to think too much about it, it was in your head, rote memorization….I guess that was helpful for me." However, other parents questioned their own experiences when reflecting on what they saw in the classroom vignettes. For example, one mother said "I know, like growing up, there were probably a lot more things that could have been done, so far as, you know, how we were taught in the classroom." Several parents who thought spatial reasoning had some value sounded like the father who mentioned that when he was in school "geometry was only in the tenth grade."

As noted previously, few parents were dead set against teaching spatial reasoning to elementary school children. The mother who said, "I just don't get what it has to do with math, I just don't see where it fits so much into everyday math that you are going to be using everyday. I don't know what's important, I really don't" was representative of the distinct minority of parents who did not think spatial concepts/reasoning should be taught to primary grade students. The reasons that parents provided for why they thought that spatial reasoning was a valuable aspect of the mathematics curriculum for second graders were examined to determine whether they shed light on the difference in controlling assistance that was observed when the parent assisted their child with homework. Thirty-three percent of the parents who were interviewed saw spatial reasoning/geometry as very useful for doing things in everyday life. For example, one parent, who used geometry extensively in his daily work as a surveyor, saw this area of mathematics as "experiential," and another mentioned the importance of spatial concepts/reasoning in building things. Other parents (16%) mentioned that it was important as a foundation for the math classes that children would take in high school or college; those parents tended to have extensive mathematics backgrounds. Yet another set of parents (16%) talked about how it helped children learn to visualize, a skill they saw as useful for helping children to understand abstract concepts. An additional ten percent of the parents thought that it promoted thinking, creativity, and exploration. Thus, most parents saw this area as "enrichment" for the children rather than as "basic," as they viewed arithmetic.

Discussion

Parents provided more controlling assistance to their children when they helped them with the arithmetic task than when they helped with the spatial reasoning task, even though both tasks were challenging for the children. Parents also engaged in more elaboration with the children on the geometry task than on the arithmetic task. The responses that parents provided during an interview indicated that they depended on their own school experiences as a

foundation for thinking about their children's experiences and that arithmetic tasks were more familiar to parents than were spatial reasoning tasks. Consistent with the view that parents tailor their assistance to the meaning they assign to the task, parents viewed spatial reasoning as less straightforward than arithmetic. They tended to talk about arithmetic tasks as "standard" with "right" or "efficient" solution paths, but they saw spatial reasoning as an enriching curricular area because it either prepared children for the realm of accomplishing tasks in everyday life or for advanced classes, concepts, creativity, or thinking.

The results of this study highlight the importance of conducting more observational research of parent-child interaction on homework. The anecdotal reports in both the popular (Kantrowitz & Wingert, 2001; Tabor, 1996) and the scholarly press (Corno, 1996) about parents and children battling over homework certainly do not represent the goals of educators advocating parent involvement. Although extreme frustration was not observed in the present study, the directive controlling assistance documented during the arithmetic task was not conducive to children's learning or to positive relationships.

Previous research focusing on parental assistance with arithmetic problem solving found that parents tended to be directive and controlling of children's thinking when they assisted their children with mathematics homework (Lehrer & Shumow, 1997). The present study extended that research to investigate whether parental assistance varied with the type of task. Consistent with the research of Reineke (1995), parents were more likely to be directive and controlling on arithmetic tasks than on tasks that they did not identify as traditional school curriculum. Interestingly, Wertsch (1985), operating within a sociocultural activity theory framework, explained Brazilian mothers controlling assistance on a model matching task as due to their interpretation of the task as "household work" rather than as a formal education task. However, Greenfield (1984) has pointed out that teaching is most controlling and directive on household tasks in situations where mistakes are costly to the household. Tudge and his colleagues (1995) observed greater directiveness by parents helping with educational computer games compared to recreational ones. Whether parents perceive that there is a "right" way with a process that assures "correct" solutions might be more important than whether the task is a school, recreational, or household task. The statements that parents made during the interviews in this study indicated that most of them believed that there was a right way to solve arithmetic problems and that it needed to be taught by third grade or it would be "too late." In contrast, they viewed the spatial reasoning task as enrichment that would either develop higher level reasoning or provide more "experiential" opportunities.

Renshaw and Gardener (1990) used the "learning" and "performance" goal distinction from the motivation literature and found that parents who interpreted a single task as having a performance goal were directive and controlling, whereas those parents who interpreted the task as having a learning goal were less directive and discussed the solution more with the child. In the present study, the tasks themselves seemed to evoke those differences in distinction within the same parent. More studies should be conducted to determine how parents help depending on the task. It might be especially important to extend this research to other subject areas besides mathematics. For example, writing, spelling, and reading homework tasks could be studied. Hoover-Dempsey and her colleagues (1995) reported that parents perceived spelling homework as drill and practice. If parents perceive spelling as a rote topic, they might be highly directive and controlling while helping with spelling. However, helping children to write a creative story might evoke a different approach from parents. Similarly, skill worksheets for reading homework might evoke a totally different type of interaction than an assignment to read a certain number of pages or minutes for pleasure.

Numerous studies have associated directive controlling assistance from parents with less than optimal child outcomes (Hess & Holloway, 1984; Lehrer & Shumow, 1995; Pratt et al., 1992), suggesting that schools will want to discourage such parent-child interaction. On the one hand, teachers might want homework to consist of independent practice that parents should not be responsible for, beyond providing a time and place for homework. If so, then homework should be assigned for which children need no help. This would require some monitoring on the part of teachers since any given assignment will be easier for some children and harder for others. On the other hand, homework tasks might be a good way for parents and teachers to form partnerships centered on the child's learning. Shumow (1998) found that homework, paired with participation in a parent education program aimed at helping parents to understand their children's thinking, resulted in a significant decrease in directive controlling assistance. However, such a parent education program requires resources that are not accessible to all schools, and few teachers have preparation for working with parents. The current study indicated that the task alone might play a role in the type of assistance that parents provide. This study, together with that of Reineke (1995), might suggest that interactions are less controlling when parents interpret homework tasks as more enriching than uniform/standard school fare. Thus, more open-ended tasks without clear predetermined procedures might evoke the most beneficial parent-child interaction.

The fact that parents drew so heavily upon their own school experiences as a guide for their beliefs about and methods of homework assistance has implications for school reformers. It is not surprising that parents' expectations about

schooling are based on their own experiences; however, such expectations need to be addressed if the goals and techniques of schooling change to support the transition from an industrial to an information economy. Certainly, parents need to be informed about the reasoning behind the reforms. Promoting reflection about their experiences and the changing goals of schooling might be helpful. Parents might benefit from seeing examples of how teachers or skilled parents work with children. Public access cable television shows, school open houses, and parent teacher conferences are all venues for introducing such models. Without alternative examples, parents have little choice but to draw upon their own traditional school experiences. Parents also might benefit from some guidance on the purpose of the assignment and how teachers would like parents to help. If parents perceive that the teachers are more interested in learning goals and in promoting higher order thinking and that elaboration and transfer of responsibility to the child are ways to accomplish those goals, then parents might be more likely to help in less controlling and more elaborative ways. Future research studies will need to examine those possibilities.

This study has several limitations that should be noted. First, the sample was Caucasian and middle class and, therefore, does not represent the diversity present in the United States population. Given the alienation from school found among some minority parents (Calabrese, 1990) and the deference to educators as "authority" figures observed among lower class and immigrant parents (Lareau, 1996), it is unlikely that results would generalize to those populations. This study could be replicated in other, more diverse settings where school reforms are being implemented. Finally, the sample size in the current study is not big enough to examine whether gender, SES, or other parent characteristics predicted parents' beliefs or behavior. Future research could address these questions.

In closing, parents assisted their second grade children in very different ways on an arithmetic problem solving task when compared with a spatial reasoning task. Parent responses during an interview indicated that showing children how to use known algorithms was perceived as the most efficient way to approach arithmetic problems. On the other hand, the spatial reasoning problem tended to be perceived as an enrichment task that could be approached in a less controlling and more exploratory manner. In discussing their preferred approach, parents drew upon their own school experiences as a foundation for reasoning about what and how children should be taught.

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