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Griffith, Saralyn Blanton

CHILDREN'S LEARNING AND MEMORIZATION EXPERIENCES AT HOME
AND AT SCHOOL: A SURVEY OF PARENTS, TEACHERS, AND
CHILDREN

The University of North Carolina at Greensboro

Ph.D. 1983

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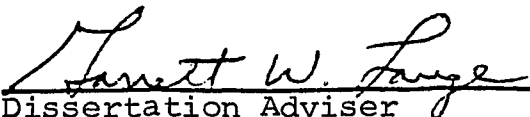
by

Saralyn Blanton Griffith

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Doctor of Philosophy

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1983

Approved by


Dissertation Adviser

APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of the Graduate School at the University of North Carolina at Greensboro.

Dissertation
Adviser

Janett W. Lutz

Committee Members

Hyun Kook

Lynne Sanford Korster

J. Allen Watson

William A. Brown

March 28, 1983

Date of Acceptance by Committee

March 28, 1983

Date of Final Oral Examination

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The schooling hypothesis equates children's cognitive development during the elementary school years with the acquisition of internally directed, self-monitored, and strategic cognitive behavior. This age-related transition to the use of deliberate and planful cognitive strategies has been ascribed to a change in the educational requirements that young children must adhere to as the school begins to take on increasing responsibility for their educational progress.

The present study was designed to examine evidence of a schooling explanation of young children's cognitive strategy development. Through questionnaire and interview instruments, survey assessments of differential learning and memorization requirements at home and school were obtained from 173 public school kindergarten through third-grade children, 96 of their parents, and 100 kindergarten through third-grade teachers. Specifically, the present investigation centered on three major issues: (1) the assessment of purported differences between parents and teachers in the types of information and types of instructional behaviors taught to young children; (2) the assessment of parent and teacher perceptions of learning performance expectations held for young children at home and at school; and (3) the

assessment of young children's perceptions of differential learning and memorization demands and expectations at home and at school.

The findings of this research document some interesting and important perceived differences between informal and formal learning environments. Although parents and teachers generally showed only slight differences in their purported tendencies to require memorization of the various knowledge contents, to teach and test memory skills, and in their perceptions of differential general learning performance requirements, the great majority of the children perceived more rigorous task and performance demands for learning and memorization at school than at home. Theoretically, these more rigorous demands of formal schooling influence the development of deliberate, planful, and strategic cognitive behavior.

Viewed in light of the great deal of research documenting the occurrence of pronounced changes in young children's cognitive behavior during the first years of formal schooling and in light of the influence of perceptions upon one's behavior, the results of the present investigation offer strong, though indirect, evidence of support for a schooling explanation of young children's cognitive strategy development.

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CHAPTER I

INTRODUCTION

Statement of the Problem

For a number of years researchers in the fields of child development and education have identified some rather dramatic changes in children's cognitive behavior that occur during the early elementary school years. A most obvious developmental change is the shift toward planful, deliberate, and strategic cognitive behavior. While older elementary children show signs of using planful and deliberate strategies to help themselves learn and remember, young elementary school children either do not see the need to devise plans and strategies to aid learning and memorization, or have not yet been exposed to kinds of strategies that would be helpful. While these age-related differences are evident in nearly all of the research, very few researchers have focused on those factors that are responsible for the onset of this change in cognitive behavior, often called the cognitive shift phenomenon.

The early elementary school years encompass for most children in our society the beginnings of formal education. Some recent researchers (Brown, 1978; Cole, 1977; Lange, 1979; Sharp, Cole, & Lave, 1979; Stevenson and colleagues, 1978; Wagner, 1981) have argued that cognitive strategies in

general, and memory strategies in particular, develop in direct response to experiences and demands that characterize formal schooling environments. One of the major distinctions noted in developing this position, or "schooling hypothesis," is between the educational requirements placed upon preschool and nonschooled populations, on the one hand, and those in effect for school children. For example, Brown (1975), when referencing the early socialization of memory skills, concluded that because preschoolers are not required to learn mnemonic strategies for study and retrieval purposes and are very seldom asked to reproduce exactly information out of the contexts in which it naturally occurs, they have no need to adopt deliberate strategies for remembering.

The schooling hypothesis, suggesting formal schooling as the major factor in the development of competent cognitive behavior (i.e., the acquisition and use of internally-directed and self-monitored cognitive strategies), seems quite reasonable in view of a considerable amount of research evidence indicating that children's use of adult-like learning and memory strategies first becomes apparent during the elementary school years. This transition to the use of cognitive strategies is ascribed to a change in the kinds of educational requirements young children must adhere to as the school begins to take on an increasing responsibility for their educational progress. What the schooling hypothesis lacks, though, is empirical documentation of differences

between the educational requirements of informal and formal school settings. We know very little about differential expectations and demands for learning and memory performance that parents and teachers place upon young children. Results of a pilot investigation (reported by Lange, 1979; Sullivan, Lange, & Palmer, 1979) indicated that although both teachers and parents alike claim to teach a great many types of information to preschool children, in most cases teachers are more likely than parents to actually require memorization of the information. Teachers are also more likely to forewarn children ahead of time that memory for information will be tested and that rewards for successful memorization will be forthcoming, circumstances that provide children with time and opportunities for introspection about the need for and implementation of cognitive strategy activities. These findings provide a starting point for our understanding of the young children's memorization experiences at home and at school, even though their focus was primarily on preschoolers while the present project deals with young school-age children. Moreover, Lange and his students limited their study to comparisons between parent and teacher influences on children's cognitive strategy development. There are no available data bearing on children's perceptions of differences between cognitive strategy expectations and demands for learning and memorization at home and at school.

Thus, the purpose of the present research was to further examine evidence for a schooling explanation of

children's cognitive strategy development by attempting to identify differences between home and school learning environments as purported by parents and teachers and as perceived by young children. Specifically, the research addressed three major issues: (1) the assessment of differences in reports from parents and teachers concerning types of information (learning contents) important for memorization and concerning instructional behaviors directed toward children's memorization; (2) the assessment of differences and similarities in parent and teacher perceptions of learning performance expectations held for young children at home and at school; and (3) the assessment of the children's perceptions of the differences in the conditions surrounding their learning and memorization experiences at home and at school, particularly those that would be expected to influence the onset of self-regulated cognitive behavior.

Background Literature

During the past two decades interest in the cognitive shift phenomenon--the remarkable change that occurs in cognitive strategy behaviors of children during the first few years of elementary school--has produced a great deal of research literature. Though developing only recently, interest in the schooling hypothesis as an explanation of the cognitive shift has begun to generate some important research findings. Because of the theoretical and empirical relevance of these two areas of theory and research to the

present study, a brief summary of each body of literature is presented below..

The cognitive shift phenomenon and the role of strategy behavior. One of the strongest theoretical statements about the cognitive shift comes from Vygotsky (1962). He argued that before young children can function as independent, self-regulated cognitive agents, they must first carry out their cognitive tasks within a social context. The primary social context for young children is the family. It is within this familial context that the adult takes responsibility for planning, instructing, and monitoring cognitive strategies while young children carry out the behaviors appropriate to task completion. In these instances of "other-regulation" many of the young children's overt behaviors can be similar, if not identical, to those that might otherwise be exhibited through self-regulation. In other words, young children will perform appropriately the very same forms of cognitive behaviors that older children or adults might, but do not undertake these behaviors at their own initiative or under their own direction. As young children begin to realize that they are independent agents in cognitive behavior, they rely less on external control and direction of the practice of their cognitive strategy behaviors and begin to assume internal, self-regulated control of them. In effect, Vygotsky posited that patterns and levels of thinking are products of activities practiced in social institutions of the culture

in which the individual grows up, two of which are the family and the school.

During the past 30 years a great deal of research has accumulated supporting some of Vygotsky's notions and documenting a developmental transition during early childhood from external to internal control and the self-regulation of cognitive skills and behaviors. One line of research has focused on a type of learning problem called transposition. Transposition involves the transfer of a stimulus discrimination response initially associated with one set of stimuli to a new set of stimuli. For example, the child may be trained to recognize and respond to the smaller of two squares. The test requires him/her to transfer or generalize that response to other sets of stimuli bearing the same relational characteristics but differing in absolute size. All age groups of verbal children can generalize to stimuli that are close in absolute size to the original training stimuli; but only older children, that is, those 7 or 8 years of age, are able to generalize their learning to test stimuli differing considerably in size from the training set. Kuenne (1946) argued from these results that older children tend to verbalize to themselves the relational concept learned in the task and rely on the verbal mediation cognitions to help solve the problem.

Another form of discrimination learning research adds more evidence of the cognitive shift phenomenon. Very

influential and prototypical of some of this work is the research of Kendler and Kendler (1959, 1962) on reversal and nonreversal shifts, a complex learning paradigm. Although the Kendlers' experimental results are difficult to interpret conclusively, they lend support for the notion that between the ages of 5 and 7 years a cognitive shift is evident in performance on this task. Essentially the reversal-nonreversal shift task requires that the child learn to discriminate stimuli that differ simultaneously on two dimensions such as color (for example, black versus white) and size (large versus small) by being rewarded to respond to one of the dimensions, either color or size, for example. The reversal shift requires that a child respond to the alternative value of the same dimension (for example, change response from white to black or from small to large), while the nonreversal shift requires a child to begin to respond to the alternative dimension (for example, from whiteness to squareness). The reversal shift requires the child to change his/her response to all four stimuli, whereas the nonreversal shift requires a change in response to only two of the four stimuli. Cognitive mediation theory predicts that younger children, who presumably do not use verbal mediating responses, such as, "If black, I push this button," would have more difficulty learning the reversal problem than the nonreversal problem since they are likely to be responding to each stimulus independently, and thus would have to relearn all four

single-unit stimulus-response relationships. Having to relearn only two new stimulus-response relationships in the nonreversal shift would be easier and should lead to better performance. On the other hand, older children, ages 7 and older, who are suspected of using verbal mediating activities to facilitate performance in this task and therefore are responding to a conceptual dimension of the stimuli (for example, "Pick the black stimuli."), would learn the reversal shift quickly by simply changing the rule for all responses (for example, "Now I respond to white.") despite the fact that all four responses would differ.

Probability learning in which children must function as prediction makers and problem solvers has intrigued researchers for a long time. Most of the developmental studies of probability learning have used a three-choice spatial problem such as this one described by Stevenson (1972): The subject is seated in front of a panel containing a horizontal row of three knobs. Above the knobs is a signal light and below them is a delivery hole through which marbles fall into an enclosed plastic container. The subject is told to press one knob when the light goes on, and if he/she presses the correct knob, a marble will drop into the box. The goal of the task is to get as many marbles as possible. The subject does not know that the choices of only one position are randomly reinforced and that the choices of the other two positions are never reinforced.

Weir (1964) compiled data from a number of studies employing the task described above to produce a picture of the changes that occur between the ages of 3 and 20 in performance on this probability learning task. The pattern that emerged is a U-shaped relationship between age and terminal level of correct responses. Performance of the youngest and the oldest subjects exceeded that of children in the middle years of school. Although the terminal levels of response for the preschool and college-age subjects were similar, the rates at which these levels were approached differed markedly--a rapid settling on the reinforcement knob by the preschoolers and slow, continuous improvement in performance by the oldest subjects. Although not measured directly, it was inferred that differences in performance at different age levels or at different points during the task reflect the use or nonuse of hypotheses and strategies by the subjects. Rarely do 3-year-olds surpass the performance of older children, but in probability learning tasks their innocence--or inability--pays off. They appear to base their responses on reinforcement, not on subject-generated solution hypotheses. This does not seem to be the case for middle-aged children, that is, those 7 to 10 or 11 years old. Unlike older subjects who try to solve the problem using complex strategies but abandon them when these strategies prove unsuccessful, middle-aged children having begun to realize the advantage of strategy usage in most

problem-solving tasks, continue to employ strategy solutions which are ineffectual in probability learning tasks.

The cognitive shift phenomenon can also be seen in the research on concept learning, particularly studies in which inferences can function to improve learning. Concept learning is considerably more effective after age 6 or 7, not just because of an increase in the child's language proficiency but because certain important cognitive skills become effective at this time (Stevenson, 1972). It is a time when the child develops "the ability to string together internal representations of stimulus-response-consequence into sequences which, projected into the future, allow planning, and projected into the past, allow inference" (White, 1965, p. 210). The Kendlers (1967) and their colleagues attempted to train children to use inference to make their learning more efficient. Theirs is a good example of the kind of paradigm used in this type of research. The child is shown three boxes, arranged side by side. The box on the left has a button at the top and a hole at the bottom which dispenses a marble when the button is pushed. The middle box has a hole at the bottom from which another, identical marble can be dispensed. The third box, to the far right, contains a marble hole at the top and a large opening at the bottom from which an interesting trinket emerges when the child inserts a marble in the top hole. The efficient way to obtain "the most trinkets in the shortest amount of time" is to skip the

middle box. Very few 5-year-olds, however, show this inferential solution to the problem. But by third grade, most of the children will not only make a direct, inferential response, but use that inference in the form of a cognitive mediation response, to go directly from the first to the last box.

Research conducted within the areas of transposition, discrimination learning, probability learning, and inferential learning has repeatedly documented differences in cognitive strategy behavior between younger and older children, particularly differences evident in the deliberate, planful, and strategic ways that older children go about their learning tasks. These cognitive mediation differences occur in studies of children's memory as well.

During the late 1960s and throughout the 1970s a great deal of cognitive research was directed toward investigating young children's memory development, primarily memory-strategy development. (Memory strategies, according to Brown, 1975, can be broadly defined as courses of action which are deliberately instigated for the purposes of remembering.) Although not all of this research was conducted specifically to examine the cognitive shift phenomenon, most investigations provided corroborative evidence of cognitive strategy changes occurring in the memorization behaviors of children between the ages of 5 and 8 years. The act of recalling information from memory is a difficult process and not an automatic

outcome of having once learned the material, so that most adults have to prepare for recall during study by thinking of "tricks" or strategies that will aid later retrieval performance. Older children and adults seem to recognize the need to be planful and purposeful at study and retrieval while younger children do not. Rarely does one see children younger than 6 or 7 years of age verbally rehearsing or grouping to-be-remembered learning materials to aid their memory even when they are told beforehand that they will have to recall the information later. For example, in one study when young children were given the opportunity to study pictures and were told beforehand they would have to recall them later, their subsequent recall was no better than when they were simply told to "look at" the pictures with no mention of the following memory task (Appel, Cooper, McCarrell, Sims-Knight, Yussen, & Flavell, 1972). So it seems that the young child does very little to prepare for recall memory, and it is probably for this reason, rather than for reasons of biological limitations in memory capacity or other deficits in the young memory system itself, that recall is poor.

Thinking ahead about learning and memorizing and using planful study skills does not come naturally to children. Young children appear more interested in exploring and enjoying their environments than in making memory records of their experiences for later reference (Lange, 1980).

Also, the effort that goes into memory preparation at study often has no immediate reward, so that young children may not be motivated to spend time devising plans to improve their learning and memorization achievements. Yet by 7 or 8 years of age, children do begin to show signs of memory planfulness by using mnemonic strategies for the purpose of subsequent memory efficiency. Thus, one sees marked differences between the memorization behaviors of young children (prior to 7 years of age) and those of older children.

Older children and adults have been found to use a number of different types of mnemonic strategies such as verbal rehearsal, interrogative, phonetic, rhyming, and thematic forms of verbal elaboration strategies, and stimulus organization. Two mnemonic strategies that provide good examples of developmental changes in children's strategy usage are verbal rehearsal and stimulus organization. Verbal rehearsal activity can vary in sophistication and complexity, but is basically the act of saying over and over to oneself the names of to-be-remembered items in hopes that this method of study will facilitate later recall performance. In the late 1960s Flavell and his colleagues investigated extensively the development of verbal rehearsal as a mnemonic strategy (Flavell, Beach, & Chinsky, 1966). From the results of these recall-memory studies came the concept of "production deficiency." Production deficiency--a hypothetical construct of special interest in the general discussion

of the shift toward self-regulation of cognitive behaviors-- suggests that although young children 5 and 6 years old are quite capable of verbally rehearsing, and can enhance their recall through such an activity, they do not spontaneously adopt this strategy in a recall-memory task even when they can see its beneficial effects for better recall performance. In other words, their poorer performance stems from the failure to produce the strategy, verbal rehearsal in this instance, rather than from an inability to use the strategy. Children older than 7 or 8 spontaneously use verbal rehearsal as a memory strategy, and consequently exhibit better recall than younger children (Flavell et al., 1966; Kenney, Cannizzo, & Flavell, 1967).

An examination of stimulus organization (e.g., forming groups of stimuli on the basis of their category membership) research offers a similar pattern of changes in strategy development. After age 7 or 8, children involved in a recall-memory task might notice that the list of items or array of pictures contains several items of clothing or some things to play with outdoors. With a more active search for interitem semantic connections, they may discover other same-category items. If the memorizers do organize during study, their subsequent recall would tend to be clustered or ordered by category. That is, they would recall most, if not all, of the items from one category before moving on to other items from another category. The finding that stimuli

are recalled in a categorical order quite unlike the order in which they were presented suggests the use of a deliberate plan for remembering through the use of an organizational procedure.

As can be surmised from the above summary, a great deal of cognitive development research during the last 30 years has been concerned with documenting age-related changes in cognitive learning and memory task performance. The research findings, as they relate to cognitive strategy usage, have been remarkably consistent: prior to age 6 or 7 children appear not to employ spontaneously cognitive strategies to aid their learning and remembering; after age 6 or 7, they do. Relatively little attention, however, has been given to the origins of strategy changes in young children. Since these changes parallel early schooling experiences, some researchers have posited that formal schooling is a very likely source.

Schooling influences on children's cognitive strategy development. Interest in the "schooling hypothesis" has come from a

growing suspicion that much of what we regard as normal cognitive development--that is, the acquisition of a repertorie of effective, flexible strategies for coping with decontextual, closed-system problems--is very much affected by significant exposure to formal schooling. (Brown & French, 1979, p. 102)

Formal schooling is generally thought to be "characterized by its . . . regimentation . . . and by its largely academic type of learning" (Kassam, 1977, p. 248).

Because of the confounding of age and schooling in our society, several teams of investigators (namely, Wagner, Scribner and Cole, and Stevenson and colleagues) have undertaken research in cultures having voluntary public education in an effort to gain some insight into the possible influences of formal schooling upon cognitive strategy development. Although the designs, measures, and findings of cross-cultural investigations are inconsistent on particulars, they are in general agreement that (1) differences exist between schooled and nonschooled populations in the development and usage of cognitive strategies, (2) contents of knowledge offered in formal schooling environments differ from those found in nonschool settings, and (3) differential expectations and demands are placed upon young children in school and nonschool environments for dealing with the contents of learning and memorization.

Wagner (1974) was instrumental in the development of the schooling hypothesis. Others writing about the development of memorial strategies had suggested factors such as age and cultural setting to be primarily influential in the development of strategic behavior. After a number of cross-cultural research studies, Wagner (1974) concluded that the extent of one's exposure to formal schooling appeared to be the major factor influencing the acquisition and use of cognitive strategies. As to the features of formal schooling responsible for cognitive strategy development, Wagner stated that

although the evidence presented here supports the hypothesis that formal schooling is critical for the development of the spontaneous use of certain memory strategies, little is known at present as to what aspects of formal school affect memory development. (p. 395)

From later research findings, Wagner (1978, 1981) hypothesized that the structural features of memory, for example, short-term storage and invariant forgetting rates, appear to be independent of cultural influences and are therefore universally available to individuals across cultures. On the other hand, control processes or mnemonic strategies, for example, verbal rehearsal, stimulus organization or categorical clustering, and semantic elaboration, are probably culture-specific. Again he suggested that the primary and most powerful cultural influence in the development of mnemonic strategies is formal schooling.

Scribner and Cole (1973) were more specific about the aspects of formal schooling that probably affect cognitive strategy development. They hypothesized from findings of their cross-cultural research that differences in the social organization of education promote differences in the organization of learning and thinking skills. School, they suggested, represents a specialized set of educational experiences that are discontinuous from those encountered in everyday life and that require and promote ways of learning and thinking that often run counter to those encouraged in practical, daily activities. Two very general dimensions posited to be especially significant in distinguishing

informal and formal educational experiences are (1) the importance of personal identity in the context of the two educational settings, and (2) differences in the contents of learning and memorization. Scribner and Cole (1973) contended that informal education, such as that which occurs within the family, is particularistic, emotional as well as intellectual, and observational. It is particularistic in that expectations for performance are gauged in reference to the idiosyncratic needs of the individual learner and situations peculiar to him/her, and the importance of the information is determined on the basis of the identity of the presenter. For example, what is taught by father to child is considered important for the child because the father is important to the child. Informal education also fuses emotional and intellectual aspects of learning within the affective relationship between teacher and learner (parent and child), a characteristic that may be very important in families' attempts to socialize in the child empathy, imitation, and identification. Informal education is also thought to be largely observational; the child often learns by watching and then doing rather than by just listening and recalling. On the other hand, Scribner and Cole argued that at school what is being taught is more important than who is doing the teaching and learning. Children are expected to learn by relating themselves to the subject matter and by de-emphasizing their relationships with teachers--an experience markedly

different from that encountered in learning in nonschool settings where the emotional and intellectual domains of teaching and learning are bound closely together as in the parent-child relationship.

Scribner and Cole (1973) also contended that the contents of learning distinguish informal and formal education. Different subject matter is introduced in school, for example, grammar, mathematics, and sciences. It is not only the content, but also the basic organizing concepts of these fields of knowledge that may conflict with nonschool ways of understanding and interpreting the world.

The general dimensions of personal identity and differential learning contents that distinguish the educational environments of school are manifested particularly in the differential usage of language in "out of context" teaching and learning at school (Scribner & Cole, 1973). Language serves to convey information in all contexts, but at school language becomes a more exclusive means of exchanging information. When linguistic forms carry the full burden of communication, the amount of information available to the learner is restricted in the sense that observation becomes a limited mode of learning. Unlike the home setting where spoken language often refers the child to think about and perhaps physically manipulate concrete objects in practical situations, in school teaching frequently begins with verbal formulations of a general rule or a generalized verbal

description. Exemplars gradually accrue through extensive practice as the children are required to match individual instances of problems to the general concepts or rules. What is special about school in this regard is that children are asked to learn material that has no natural referent or context; rather, the material is symbolic in nature (e.g., phonetic or mathematical rules) and presented for comprehension "out of context." In additional reference to the learning materials of school, Cole and his colleagues (Sharp, Cole, & Lave, 1979) pointed out tentatively that a critical difference between schooled and nonschooled populations in cognitive task behavior may lie in the operations that people employ in dealing with information rather than in the information itself.

In subsequent writings, Cole and Scribner (1977) further explicated their position on the differences between school and nonschool environments by suggesting that the distribution of situations possessing different task demand characteristics, especially with reference to memory, may be the source of differences in memory performance in schooled and nonschooled groups. They stated that

schools represent the major cultural institution in technological societies where remembering as a distinct activity, occurring apart from the application of anything remembered, is engaged in repeatedly with a great variety of stimulus materials. (Cole & Scribner, 1977, p. 269)

In summary, then, Cole and Scribner added specificity to the schooling hypothesis by pointing out the differential

characteristics of informal (home) and formal schooling, namely differences in emphasis on personal identity of teacher and learner and differences in contents of learning (concrete, everyday versus linguistic; decontextualized), characteristics which within formal schooling involve distancing requirements as the child is placed at a distance from the teacher as well as the learning materials.

Relying on their cross-cultural research findings, Stevenson, Parker, Wilkinson, Bonnevaux, and Gonzalez (1978) pointed out, as did Scriber and Cole earlier, that through repeated experiences with a variety of tasks formal schooling offers the learner opportunities for generating concepts and general rules for use in further learning. However, their particular contribution to an explanation of the schooling hypothesis was the supposition that the most reasonable explanation for observed increases in young children's level of performance in cognitive tasks during the early years of school is that the formal didactic setting of school presents children with an array of specific skills to be learned. Some of these skills are attending to and carrying out instructions, encoding experiences into words, and decoding pictorially represented stimuli--skills that others usually attribute to maturation as opposed to specific instructional experiences.

Brown (1975, 1977, 1978, 1979) has written extensively on the memorial processes of the developing child and the

significant impact that formal schooling has upon the changes that take place in the cognitive development of young children. In her view of the schooling hypothesis, developed from a review of cross-cultural research and intracultural investigations on the effects of schooling, Brown has posited that expectations and demands held for young children's memory performance differ markedly between the home and school environments, and it is the young child's recognition of the task demands of school that influences the acquisition of mnemonic strategies and the ability to monitor and control them effectively.

The recognition of the task demands of formal schooling comes gradually; acculturation into the new culture of formal school is not automatic. Young children come to school with a form of "secondary ignorance" (Brown, 1975; Sieber, 1968). Not only do they not know how to memorize efficiently, young children do not even seem to realize they need to memorize. This situation is hardly surprising since as Brown noted:

The young child is seldom, if ever, required to reproduce exact information or to rote learn. Prior to the school years, the child existed without the need to employ deliberate strategies for remembering. He has managed to acquire a language; he can comprehend an impressive set of conceptual relations; he can recognize familiar places and people and reconstruct meaningful events without the need to employ strategies. . . . It is only when he encounters material which is not inherently meaningful or must be reproduced exactly that deliberate memorial skills are necessary. It takes time for him to recognize that these, in some sense artificial, situations exist and demand that he respond with something more than he has done in the past. He must, in fact, recognize that because of

the nature of the material and the need for exact reproduction, he must apply a deliberate strategy or he will fail to retain the material. (p. 112)

Brown (1977) later added that "deliberate remembering as an end in itself rather than as means to achieve a meaningful goal is very much a school-inspired activity" (p. 248).

Concerning the symbolic nature of the material to be learned in school, Scribner and Cole (1973) had emphasized differences in the content and context of the material to be learned at school, and Stevenson et al. (1978) also had alluded to the decontextual nature of school material. But Brown's emphasis on the requirement that young children recognize the importance of being strategic in dealing with the decontextualized material to be learned at school, or consequently failing to remember that material, adds an important dimension to the schooling hypothesis. Brown (1978) noted that it is within the culture of school that the young child first becomes aware of him/herself as an active agent in knowing. Brown considers this awareness essential to a child's adaptation to the formal schooling environment. Awareness of oneself as an active agent in knowing involves a recognition of one's own competence and fallibility as a memorizer of school materials (Brown, 1978).

Mnemonic development, according to Brown, of course involves the acquisition of specific skills, and the task demands of formal schooling, especially the demand for deliberate remembering, provide an environment conducive to the

gradual emergence and refinement of a number of specific memorial skills such as verbal rehearsal, elaboration, and taxonomic categorization. Brown's emphasis, though, in discussing the effects of formal schooling, is on the development of young children's metamemorial skills, for example, self-monitoring, self-testing, and self-direction, as they are faced increasingly with more demanding situations requiring reproductive recall. Young children learn to evaluate the task demands, their own abilities, and the interaction of tasks and their abilities; they begin to exert conscious control and regulation of efficient goal-oriented strategies. Not only is the development of metamemorial skills, especially self-monitoring of comprehension, useful to the young learner, it is essential before young children can deal efficiently with the increasingly complex environment of school (Brown & French, 1979).

Brown's contribution to the schooling hypothesis is her emphasis on young children's developing awareness of themselves as active agents in knowing, especially in the self-monitoring or "executive function" (Brown, 1977) of their own comprehension. But what is lacking in her position is an explanation of how young children as a result of the task demands of formal schooling first become self-conscious of their inadequacy, recognize that they are on their own in their learning and memorizing activities, and consequently experience a felt need to copy or invent strategies to help themselves learn and remember.

Lange and some of his students (Lange, 1979; Sullivan, Lange, & Palmer, 1979) have further clarified the demand aspects of informal and formal schooling environments and have suggested that testing for the retention of information may be the impetus for the young child's initial step toward becoming planful and strategic in his/her cognitive strategy behavior. Results obtained from observational-survey research with parents of preschoolers and teachers of primary grade school children strongly suggested that the demands placed upon young children for self-responsibility and self-direction in their memory activities are more rigorous and explicit at school than at home. For example, they found that although parents and teachers alike claim to teach a great many types of information to children, in most instances teachers are more likely than parents to require memorization of information. Requirements for memorization were particularly apparent for knowledge of a conceptual nature.

As Lange (1979) noted, teachers more than parents are responsible for day-to-day improvements in their pupils' achievements and encourage, and often demand, their pupils to remember today's information for application to tomorrow's lesson. They often make their demands for retention explicit. Particularly interesting is the finding that teachers are more likely to inform pupils ahead of time to ensuing tests and rewards. According to Kienapple and Lange (1979),

the importance of the findings [for an understanding of the schooling hypothesis] stems from the fact that a most powerful method of inducing children to resort to

tricks or strategies to improve remembering is to impress upon them that they, and only they, are responsible for the memorization process. Once a child recognizes this and begins to appreciate the need to perform well in remembering situations, . . . [he/she] perhaps for the first time, will begin to develop or adopt from others means to aid his/her remembering activity. (p. 16)

Lange's clarification of the "performance demand" aspect of the schooling hypothesis is important in explaining how young children might initially experience the felt need for self-responsibility in their memorization experiences.

Throughout all of these perspectives of the schooling hypothesis a "demand" component appears to be significant, but demand does not hold the same implications across all of the versions. At least two complementary aspects of the demand characteristics of formal schooling can be distinguished. One characteristic generally refers to what can be called task demands--demands that derive from the distancing requirements of the formal educational setting, that is, the child's physical and emotional distance from teacher as well as from the referents of school learning materials (Brown, 1977; Scribner & Cole, 1973). Young children, coming from emotionally laden, interpersonal, observational learning situations at home to impersonal, primarily decontextualized, linguistic learning situations at school, are simultaneously confronted with being placed at a distance from the teacher and from what is being taught. The teacher cannot engage in one-to-one teaching experiences with each child most of the time. Consequently the child is often

alone with the material to be learned and remembered. The decontextualized, symbolic nature of a great deal of the material places the child at a distance from the objects and events that form the contents of what he/she must learn. Because concrete structure is not available with the material, young children must begin to create structure, impose generalizations, and organize the material to be remembered if they are to make sense of it. These task demands of formal schooling with their distancing requirements (from teacher and from materials) are likely to foster within young children a recognition of increasing difficulty in dealing on their own with the learning materials of school and a recognition that perhaps their learning and memorization success is primarily dependent upon themselves.

It is unclear, though, how task demands initially become apparent to young children and how that awareness translates into behavior. The second and perhaps complementary instance of demand appears to be an answer. Lange (1979) suggested that demand for person-performance, made explicit through testing and rewarding for successful remembering, impresses upon young children that they themselves are responsible for their own memorization process. Task demands are general and may not convey directly to young children what to do in appropriate response. On the other hand, person-performance demands are individual and specific and convey a direct message to young children that they are solely responsible

for their own performance and that they need to be concerned with performing accurately and efficiently.

Perhaps it is at the complementary conjunction of task demands, that is, distancing requirements from teacher and materials, and explicit personal demands for successful performance in remembering activities that formal schooling exerts a very powerful force upon young children's cognitive strategy development, powerful enough to affect changes in that development toward planful, strategic, and deliberate behavior.

Considered together, these varying perspectives of the schooling hypothesis begin to provide a picture of the differential nature of the contents of learning and memorization in informal and formal educational environments and the differential demands and expectations placed upon young children for becoming self-responsible in their strategic cognitive behavior in dealing with what must be learned and remembered. The versions of the schooling hypothesis tend to be in agreement that the types of knowledge important for learning and memorization at home and school fall within two general orientations or dimensions. First, contents of learning and memorization at home are oriented toward the child's immediate and peculiar needs and situations and are, for the most part, concrete and context-bound. Second, materials often learned and memorized at school tend to be oriented toward the child's future needs, experiences, and tasks, and are usually abstract and linguistic in nature.

The second part of the picture that emerges from versions of the schooling hypothesis concerns the conditions surrounding the learning and memorization process, namely tasks demands with their distancing requirements and person-performance demands. There appear to be four dimensions along which the conditions of learning environments for young children differ, each of which depicts school as the more rigorous and demanding environment. Two dimensions pertain to emphases placed on memorization in the formal schooling environment. One memory dimension refers to the amount and types of formal instructions young children receive for deliberate and strategic memorization (Brown, 1975, 1977). Theoretically, at school more than at home, one expects to find instructional conditions encouraging or teaching the child to use deliberate and efficient strategies. This would account for the child's exposure to examples of mnemonic skills.

The second memory dimension refers to the young child's experiences in being tested for, and rewarded for, successful memorization. The testing process serves to stress the importance of memory as cognitive activity, and as Lange (1979) suggested, requires young children to become aware of their own responsibility for the memory function and of their need to derive and use means to aid memory performance. In addition, testing provides assessment for the teachers as well as for the children of the children's

adaptation to the expectations, demands, and instructions for deliberate and strategic learning and memory behavior while rewards for successful memorization serve as reinforcements for continued successful performance.

Two additional dimensions pertain to general learning performance conditions and expectations that parents and teachers hold for their young children (pupils). One of these general performance dimensions refers to demands and expectations for deliberate self-directed performance behaviors. Researchers have suggested that within the formal school setting specific verbal mediational and attentional skills are taught (Stevenson et al., 1978). Also young children are expected to remember exact information (Brown, 1977), and to perform their remembering activities well and accurately on their own (Lange, 1979). Theoretically, school more than home requires that young children listen carefully, think hard and concentrate, work alone, and make sure to do things carefully and correctly.

A second general performance dimension refers to the experiential relevance of learning materials. Scribner and Cole (1973), Stevenson et al. (1978), and Brown (1977) have noted the differential relevance of learning materials at home and at school. Theoretically home learning materials are concrete, practical, and relevant to the child's immediate needs and experiences. Those of school are, for the most part, symbolic, and more relevant to the child's future

needs and experiences, often for use in the future acquisition of even more abstract, complex information. Differential relevance of learning materials is very likely to demand differential learning techniques. Learning information that does not have an immediate, concrete referent is more likely to require planfulness, deliberateness and strategy usage. So the nature of the materials themselves helps differentiate informal and formal educational environments.

Thus, the contents of information and the conditions that surround the demands for self-regulatory cognitive behavior in dealing with these contents, elements common to all the versions of the schooling hypothesis, are hypothesized to create a schooling environment that differs considerably, sometimes more in degree than in kind, from that of home. The basic assumption is that it is these differential contents and the expectations and demands placed upon young children that contribute largely to observed changes in strategic cognitive behavior during the first few years of formal schooling. (See Tables 1, 2, and 3 for the theoretical designation of the contents and the conditions of learning and memorization at home and at school.)

Approach to the Problem

One investigative approach that might be taken to examine differences in the contents and conditions of children's learning environments is to observe directly instructional behaviors of teachers and parents at school and at home, and

Table 1

Theoretical Categorization of the Contents of
Children's Learning and Memorization

<p style="text-align: center;">Dimension I</p> <p>Types of Knowledge Oriented to the Child's Immediate Needs, Experiences, Tasks</p> <p style="text-align: center;"><u>Home Predictions</u></p>	<p style="text-align: center;">Dimension II</p> <p>Types of Knowledge Oriented to the Child's Future Needs, Experiences, Tasks</p> <p style="text-align: center;"><u>School Predictions</u></p>
<p>Names of doctors and dentists</p> <p>Names of foods, drinks, and pieces of clothing</p> <p>Names of family members, friends, and neighbors</p> <p>Names of appliances and tools</p> <p>Names of vehicles, machines and tools</p> <p>Rules of games and sports</p> <p>Rules of conduct in adult's absence</p> <p>Rules of safety</p> <p>Rules for finding things and putting them back</p> <p>Rules for using tools, utensils, and appliances</p> <p>Rules of caring for property</p>	<p>Names of famous or histor- ical cities and events</p> <p>Names of famous people in the news or in history</p> <p>Names of numbers and alphabet letters</p> <p>Names of cities, states, and countries</p> <p>Rules of arithmetic</p> <p>Rules of speech</p> <p>Explanations of body functions</p> <p>Explanation of events in nature</p> <p>Explanations of mechanical functions</p> <p>Contents of stories (themes, plots, and characters)</p> <p>Words of songs, poems, and sayings</p>

Table 2

Theoretical Categorization of the Survey Questions by
Memory Dimensions that Characterize the Conditions
of School Learning Environments

Memory Dimension I: Skill Instruction

School Predictions

Does instructor repeat over and over what the child is to remember?
Is child told to repeat to him/herself over and over what is to be remembered?
Is child asked to memorize several things at a time?
Is child asked to memorize things in groups rather than things individually?
Is child encouraged to make up stories or rhymes to make remembering easier?
Is child encouraged to try to figure out easy ways or "tricks" to remember things?
Is child taught the kinds of tricks or strategies that adults use to aid memory?

Memory Dimension II: Tests and Rewards for Memory

School Predictions

Is child's memory tested by waiting several hours or days before asking for the
memorized material?
Is child rewarded for successful memorization?
Is child notified ahead of time of ensuing test?
Is child notified ahead of time of ensuing reward?

Table 3

Theoretical Categorization of Survey Statements by General Learning
Performance Dimensions that Characterize the Conditions
of School and Home Learning Environments

General Performance Dimension I: Self-directed Performance Behaviors

School Predictions

Child must listen carefully when learning.

Child must do and learn things carefully.

Child must think and concentrate on what is being learned.

Child must be sure that he/she has learned something correctly.

Child must think about and work on something by him/herself in order to learn it.

Child must think about or keep track of a number of things at the same time in order to learn something new.

General Performance Dimension II: Relevance of Learning Contents

Relevant to child's future experiences

School Predictions

Child learns about things never seen or heard before.

Child learns the kinds of things he/she needs to know later in adolescence or adulthood.

Relevant to child's present experiences

Home Predictions

Child gets concrete experiences with learning materials.

Child learns things that can be used in everyday situations even when he/she is by him/herself.

to relate changes in these instructional modes to cognitive changes in young children. A major barrier in pursuing this approach is the lack of an instructional model of teacher classroom behavior from which to derive measures and develop an observational scale. Another investigative approach, less direct but deemed an appropriate first step, is to assess by means of interviews and questionnaires parent, teacher, and child perceptions of home and school learning environments. It is this survey approach that was followed in the present investigation of the schooling hypothesis.

On the basis of the schooling views of Wagner, Scribner, Cole, and colleagues, Stevenson et al., Brown, and Lange that informal and formal educational settings can be distinguished by (1) differences of learning contents encountered, and (2) emphases on instruction for memorization, testing and rewards, self-directed performance behaviors, and the relevancy of learning materials, survey and interview instruments were designed for use in the present study.

Expected Findings

Predictions concerning the contents for learning and memorization in informal and formal educational environments (Contents Dimensions). Differential predictions in memorization requirements were made depending on the kinds of knowledge being considered. Parents were expected to place more rigorous memorization requirements on information pertinent to the child's immediate environment (e.g., names of doctors

and dentists, names of food, drinks, and articles of clothing, rules of behavior in parents' absence, and rules of safety). Teachers were expected to place heavier memorization requirements on information which is not directly related to the child's immediate environment and which is more conceptual in nature (e.g., names of cities, states, and countries, names of famous people in the news and history, rules of arithmetic, and contents of stories). Moreover, it was expected that even the youngest of school children sampled here are aware of these differences in learning contents.

Predictions concerning the emphases placed on memorization skills in the formal schooling environment. Memory Dimension I (Skills Instruction). The schooling hypothesis suggests that formal more than informal educational settings provide conditions for the development of internal control of cognitive behavior by placing more rigorous demands on the memorization function and by providing more opportunities for the child to learn self-regulatory memorization skills. As pointed out earlier, it is at school that deliberate memorization is required as a task in itself. It was expected, therefore, that the information obtained from Memory Dimension I would indicate that teachers are more rigorous than parents in their demands for memorization and more often provide opportunities for learning self-directed, efficient memorization strategies. For example, it was expected that teachers more often than parents encourage the child to

memorize things in groups rather than individually, encourage the child to make up stories or rhymes to make remembering easier, and teach the child the kind of "tricks" or strategies that adults use to help themselves remember. Moreover, it was expected that the children are aware that the more rigorous demands for use of memorization skills occur at school rather than at home.

Memory Dimension II (Testing and Rewards). It was expected that teachers are more likely than parents to test for and reward successful memory and to tell the children beforehand that tests will be forthcoming and that rewards will come for successful memorization. It was also expected that children consider testing and rewards for memory more likely to occur at school than at home.

Predictions concerning general learning performance conditions and expectations that parents and teachers hold for their young children. General Performance Dimension I (Self-directed Performance Behaviors). The schooling hypothesis suggests that formal more than informal educational environments place heavier demands upon children to assume responsibility for and direction of their own learning. Theoretically, it is assumed that the differences between informal and formal educational requirements are clear enough to young children that they recognize that to adapt to the formal schooling environment they must learn to self-direct their own learning performance activities. The assumption

is not that at entrance into a formal educational setting young children suddenly realize that they must be internally controlled. Rather, with increasing exposure to the demands of school they begin to perceive differences and gradually learn what these differences require of them. In the present investigation it was expected that at school more than at home demands are more rigorous and require more self-regulation of cognitive performance. For example, it is more often at school than at home that young children are likely to have to listen carefully, think hard and concentrate, do their work alone, and do things carefully and correctly. It was expected that parents, teachers, and the children would view school as the more rigorous of the two educational settings in demands for self-direction of cognitive performance behavior.

General Performance Dimension II (Relevance of Contents).

It was expected that parents, teachers, and the children hold the view that while many of the materials presented at school are likely to be relevant to the child's later life experiences, those at home are more often relevant to present experiences and useful in everyday situations.

Predictions concerning factors responsible for memory difficulties in young children. It follows that if teachers are more likely to place rigorous demands upon the child for self-regulation of his/her cognitive skills behavior, they ascribe difficulties that children might have in memory

development to a lack of motivation and to a lack of strategy development rather than to factors related to limitations of physical capacity. Parents, however, may not make rigorous demands because they think the child is not maturationally ready to handle them.

To reiterate, the basis for this questionnaire-interview investigation reflects the assumption that formal schooling makes rigorous task and person-performance demands for learning and memorization upon young children to become responsible for their own cognitive strategy behavior.

CHAPTER II

METHODS

Sample

Three hundred sixty-nine children and adults representing a cross-section of socioeconomic, racial, and ethnic groups participated in the study. In an attempt to sample children and parents, informed consent letters were distributed to approximately 500 children who attended three public elementary schools within the Greensboro City Schools system. Of those, 173 (35%) families indicated their own willingness and that of their children to participate in the study. The low return rate reported here may be due to several factors. At the request of school principals, informed consent letters were distributed by school personnel en masse to designated classes. This procedure precluded knowledge as to how many letters reached the parents, how many parents might have disregarded the letters without reading them, or how many signed letters were not returned by the children to the teachers. The children deemed by their teachers to be of average or above average intellectual and social maturity constituted a sample of 45 kindergarteners (23 boys and 22 girls with a mean age of 6.1 years), 37 first graders (18 boys and 19 girls with a mean age of 7.2 years), 34 second graders (16 boys and 18 girls with a mean age of

8.3 years), and 57 third graders (24 boys and 33 girls with a mean age of 9.1 years).

The parent sample consisted of 94 mothers and 2 fathers or 56% of the 173 families targeted for participation in the study and represented 17 kindergarten children, 25 first graders, 20 second graders, and 34 third graders. Twenty-three members of this sample were single parents. Mean ages of the father and mother members of all participating families were 35.9 and 33.5 years, respectively. The education levels of fathers and mothers were comparable, with fathers completing on the average two and one-half years of post-secondary education and mothers completing on the average two years of postsecondary education. Parent education levels ranged from junior high school through four years of graduate or medical school for fathers and from elementary school to two years of graduate school for mothers.

The 100 teachers, representing a return rate of approximately 64%, were sampled from kindergarten ($\underline{n} = 21$), first grade ($\underline{n} = 30$), second grade ($\underline{n} = 19$), and third grade ($\underline{n} = 30$). Teachers represented seven public elementary schools within the Greensboro City Schools system and six public elementary schools within the Burlington City Schools system. The mean number of years of teaching experience held by teachers at the grades in ascending order were 14.7, 14.4, 19.2, and 17.4.

Instruments

On the basis of the theoretical distinctions between home and school types of information and the dimensions along which the learning performance and memorization environments differ, survey research instruments were designed to deal with three major issues: (1) differences in reports from parents and teachers concerning types of information important for memorization (Contents) and concerning instructional behaviors directed toward children's memorization (Memory Dimensions I and II); (2) differences and similarities in parent and teacher perceptions of the learning performance expectations held for young children at home and at school (General Performance Dimensions I and II); and (3) young children's perceptions of expectations for memorization and learning performance at home and at school (all dimensions).

The questionnaire for parents and teachers (Appendices A and B) consisted of both forced-choice and open-ended questions designed to obtain information related to demographic family variables and the teachers' work experience, and the three major issues of this research as well as factors thought to be responsible for young children's memory difficulties. A final section of the parent questionnaire assessed parental aspirations for children's educational achievement. All questionnaires were accompanied by a cover letter describing the general purpose of the project, detailed instructions for each section of the questionnaire explaining response

procedures, and a self-addressed stamped envelope for return of the completed questionnaire. Because addresses and/or telephone numbers of parents and teachers were not made available at all the schools, no attempts were made to follow up nonresponse to the questionnaire.

The interview schedule for the children, paralleling the first four sections of the adult questionnaire, consisted of forced-choice questions designed to assess the children's perceptions of the differential demands for learning and memorization at home and at school. (See Appendix C.) Questions concerning types of knowledge were accompanied by pictures of exemplars of each knowledge type.

Procedure

Parents and teachers were surveyed by means of a mail questionnaire. Each child who participated in the survey was given a questionnaire to take home for parents to complete and return in a self-addressed stamped envelope to UNC-G. The questionnaires distributed by the interviewer to the children's teachers and to the additional sample of teachers were returned in self-addressed stamped envelopes. Completing the adult questionnaires required about 20 to 30 minutes.

Each child was interviewed individually in one 15- to 20-minute session at his/her school. Through a practice set of questions the child learned to respond to situations asking where something has to be remembered or where something

happens more often by pointing to a picture of a house for an "at home" answer or a picture of a school for an "at school" answer. An example practice question was, "Where do you have to remember spelling words? At home or at school?" One half of the children at each grade level answered the "at home" probe questions first, while the other half answered the "at school" probe questions first. The order of probe questions was randomly assigned as the children appeared for the interview. Each child's responses were recorded by the interviewer on the interview schedule.

Data Analyses

Descriptive statistics were applied to the demographic variables of each sample in order to derive the characteristics that appropriately described the participants of the survey.

Because the children's responses to the interview yielded dichotomous data, relationships between responses to the items and grade level, sex, and school were examined through a series of chi square tests. To test the present predictions of home and school responses one sample chi square tests were employed.

The interval data obtained from the adult questionnaires permitted a series of t tests and analyses of variance procedures to test mean differences between schools, grade levels, and teacher and parent responses.

CHAPTER III

RESULTS

The purpose of this research was to examine evidence of a schooling explanation of young children's cognitive strategy development through a survey assessment of parent, teacher, and child perceptions of differential learning and memorization environments at home and at school. As discussed in Chapter I, the schooling hypothesis equates children's cognitive development during the elementary school years with the acquisition of internally directed, self-monitored, and strategic cognitive behavior. This age-related transition to the use of deliberate and planful cognitive strategies has been ascribed to a change in the kinds of educational requirements that young children must adhere to as the school begins to take on increasing responsibility for their educational progress.

In light of theoretical distinctions made between home and school learning environments (Brown, 1975, 1977; Lange, 1979; Scribner & Cole, 1973; Stevenson & colleagues, 1978), the data gathered in the present investigation centered on three major issues: (1) the assessment of purported differences between parents and teachers in the types of information and types of instructional behaviors taught to young children; (2) the assessment of parent and teacher perceptions of learning performance expectations held for young

children at home and at school; and (3) the assessment of young children's perceptions of differential learning and memorization demands and expectations at home and at school.

Preliminary Analyses

Before examining the major substantive issues of the investigation, preliminary analyses pertinent to the consistency of subsamples in reference to spouse reports, schools, and sex and the consistency of groups categorized according to the children's ages were conducted. These analyses used all 51 items* comprising Sections II, III, and IV of the interview and questionnaire instruments, which were related to the three major issues of the research.

Consistency of subsamples. The final parent sample consisted of 96 respondents, 94 mothers, and 2 fathers. When appropriate two questionnaires were given to each child participant to take home for both parents to complete independently and return. Since only 19 fathers returned completed questionnaires, 17 of whom constituted a second-spouse report, it was decided to discard those 17 from the parent sample. However, to retain the two fathers, who were sole representatives of the family, it seemed necessary to determine the similarity of their responses to those of the mothers. Because a direct test of mean differences with such discrepant

*Although Sections II, III, and IV of the instrument included a total of 51 items, only 43 were relevant for later use in the tests of the central predictions of the study.

sample sizes was not feasible, a series of t tests was performed on the 17 father-mother pairs to examine mean differences in their responses to the 51 instrument items. Since only two of these tests were statistically significant, $p < .05$, the evidence of similarity of the responses from the father-mother pairs was assumed sufficient to include the two sole respondent fathers in the parent sample. (See Table A.)

Although parents lived within the same public school district, they represented three different schools within the system. To determine the comparability of responses from these three subsets of parents, a one-way analysis of variance (ANOVA) was performed on each instrument item. These ANOVAs yielded four statistically significant F 's, $p < .05$, and the differences were not consistently biased in one direction. Therefore, it was thought appropriate to combine the three groups of parents for inclusion in all subsequent analyses. (See Table B.)

Unlike the situation for parents, who came from the same geographic region and whose children attended public elementary schools in one school district, it was necessary to recruit teachers in the present study from two public school systems, Greensboro and Burlington. The teachers represented seven schools in the Greensboro system and six in the Burlington system. Because there were too few teachers from some of the schools within systems to allow

within-system comparisons, the concern in reference to consistency of the teacher samples centered upon system-wide comparisons. To assess the comparability of data gathered from these two teacher samples, ANOVAs were performed on responses of the Greensboro and Burlington samples to the 51 questionnaire items. Of these calculations, only five reached statistical significance, $p < .05$. Since the pattern of differences failed to show a constant bias toward home or school items, it was thought justified to combine the teacher samples in all subsequent analyses. (See Table C.)

To assess the comparability of responses from children in the three public elementary schools, a series of 51 chi square tests (one for each instrument item) was conducted. Of these, only one result showed statistical significance related to the school factor, $p < .05$, a result quite likely to appear by chance. Thus it was thought justifiable to collapse the school subsamples of children in all subsequent analyses. Similarly chi square comparisons of sex differences in the 51 response patterns of the 81 boys and 92 girls in the child sample yielded only one response pattern significantly related to sex, $p < .05$. In view of this single statistically significant result, the boy and girl samples were collapsed for inclusion in all subsequent analyses. (See Table D.)

Consistency across age-group categories. Another general issue pertinent to organizing the data for analysis concerns the consistency of parent, teacher, and child responses over the four age groups of children. To examine the relationship of age group to response patterns, a series of one-way analyses of variance was performed on the adult data and a series of chi square tests was performed on the child data.

The ANOVAs performed separately for teachers and parents revealed statistically significant age differences on 12 of the 51 items for teachers and on 3 items for parents, $p < .05$. Scheffé's multiple comparisons tests showed that most of the age differences in response patterns were between adults of younger (i.e., kindergarteners or first-graders) and those of older (i.e., second- or third-graders) children. (See Table E.) Thus, it was thought reasonable to collapse the 4 grade levels into 2, i.e., kindergarten and first-grade teachers for the younger group ($n = 51$) and second- and third-grade teachers for the older group ($n = 49$). Even though only 3 items were statistically significant for parents and only 2 of these revealed group differences with Scheffé's tests, the parents at the 4 age levels were also collapsed into 2, younger for parents of kindergarteners and first-graders ($n = 42$), and older for parents of second- and third-graders ($n = 54$), to allow direct comparisons between teacher and parent responses for younger and older children.

The chi square tests performed on the children's responses showed statistically significant relationships between age group and response pattern on 15 of the 51 items under consideration, $p < .05$. (See Table F.) As in the case with adults, the majority of significant relationships between response and age level appeared between the younger age levels (kindergarten or first grade) and the older (second or third grade) ones. (See Table G for a summary of these findings.) These results further justified collapsing the 4 age levels into 2, i.e., younger children ($n = 82$) and older children ($n = 91$), for all subsequent analyses.

Tests of Predictions from the Schooling Hypothesis

The first set of analyses of the central predictions of the present study focused on the contents of learning and memorization, more specifically on the purported tendencies of parents and teachers to encourage and require children to memorize certain knowledge contents at home and at school and the children's perceptions of the relative importance of remembering these contents in the two learning environments. The extent to which parents and teachers encourage and require learning and memorization of the various knowledge contents is shown in Figures 1 and 2.

The data obtained from adult responses to the knowledge content items better supported the home predictions than the school predictions. While parents were expected to show high tendencies to encourage and require memorization of the

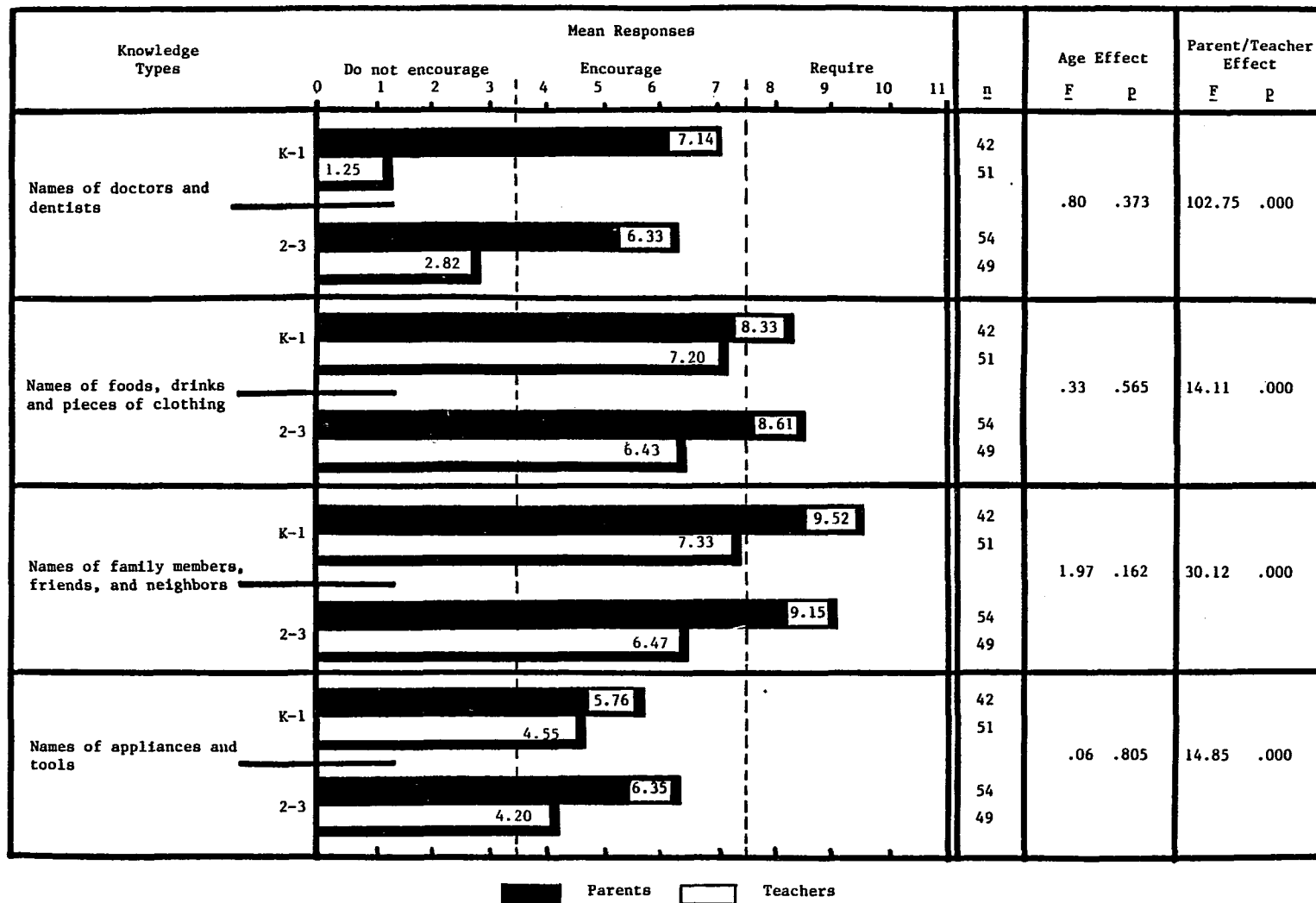


Figure 1. Adults' purported tendencies to encourage or require the learning and memorization of information immediately relevant to young children's experiences (Home predictions).

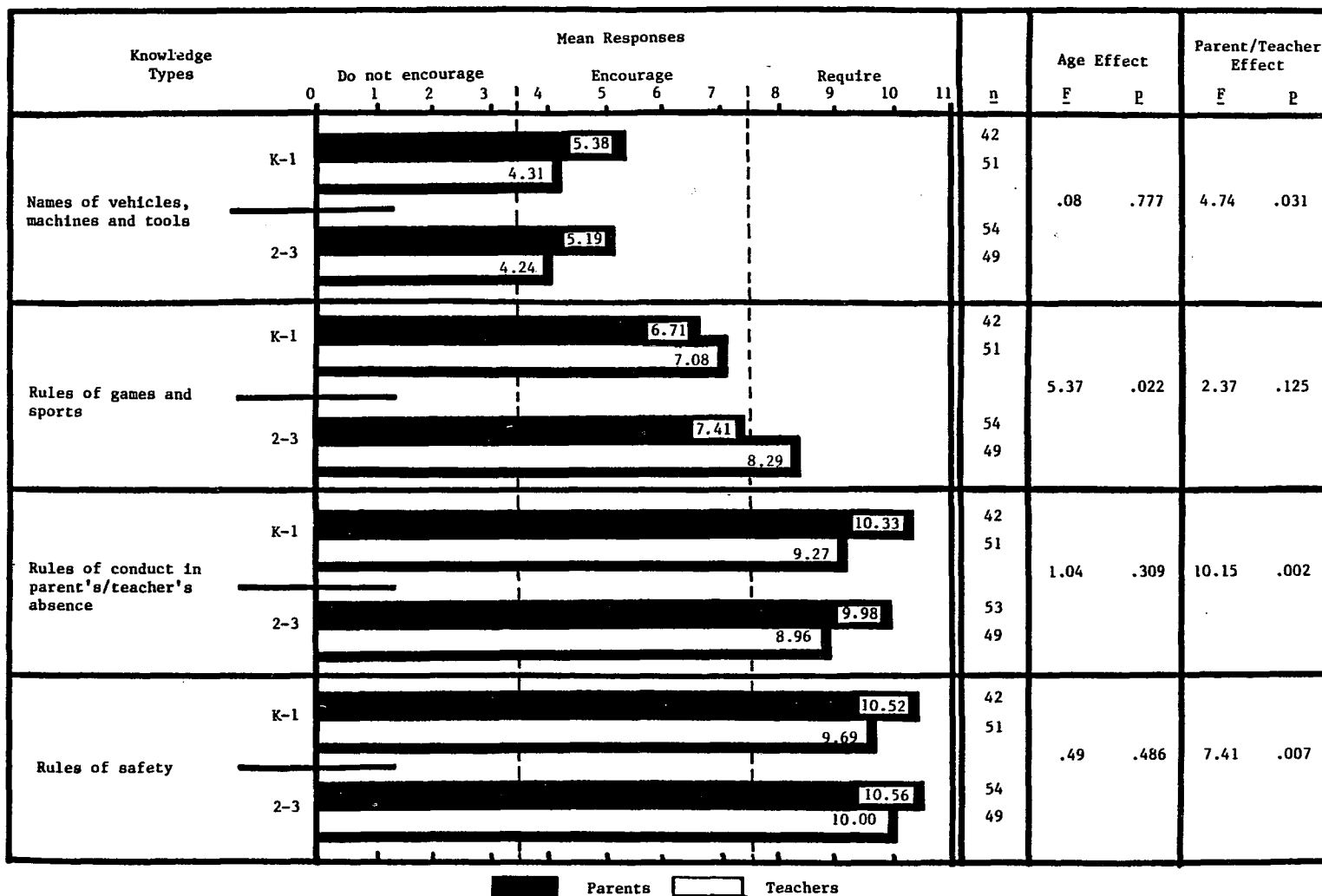


Figure 1. (continued)

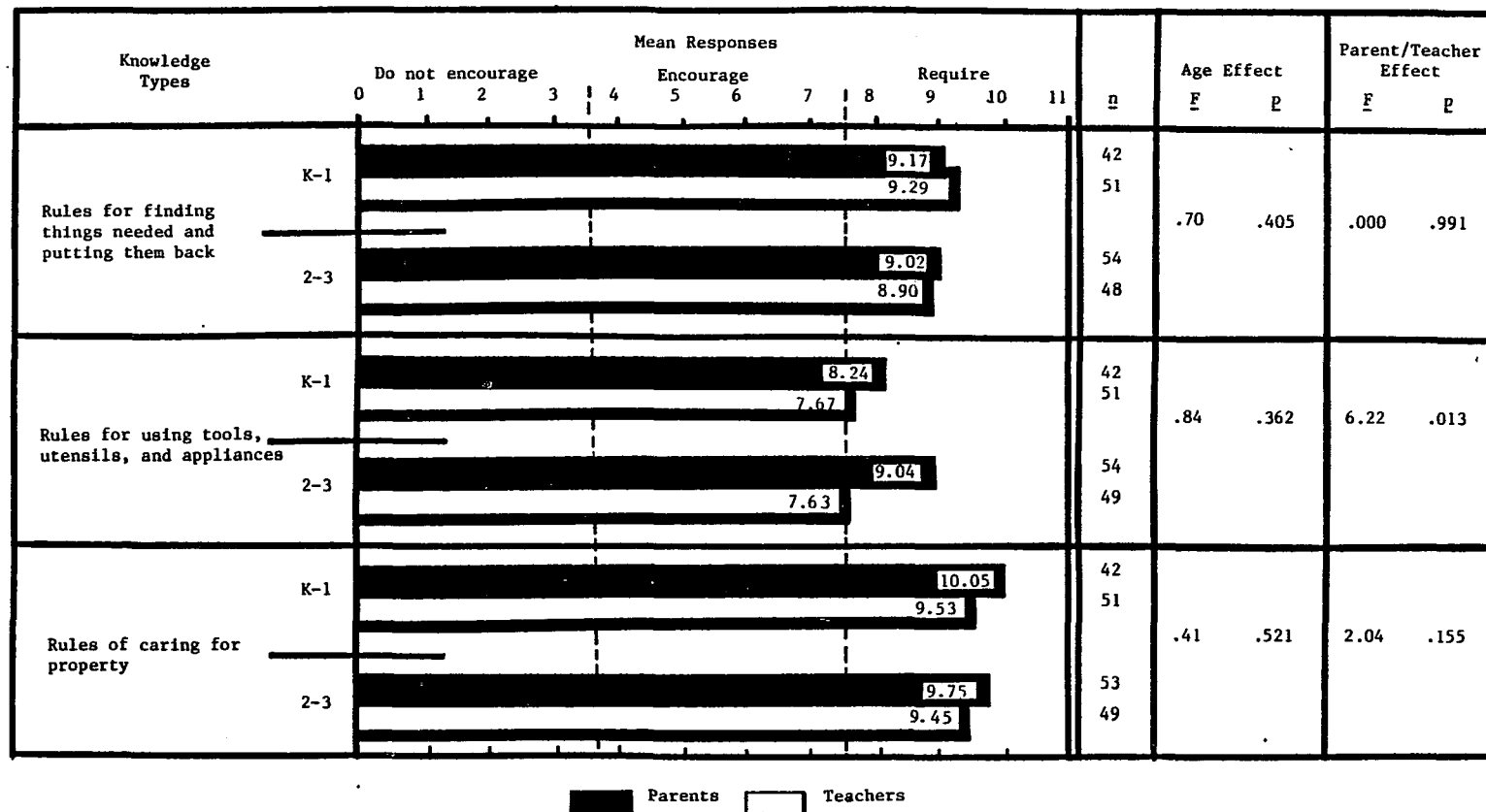
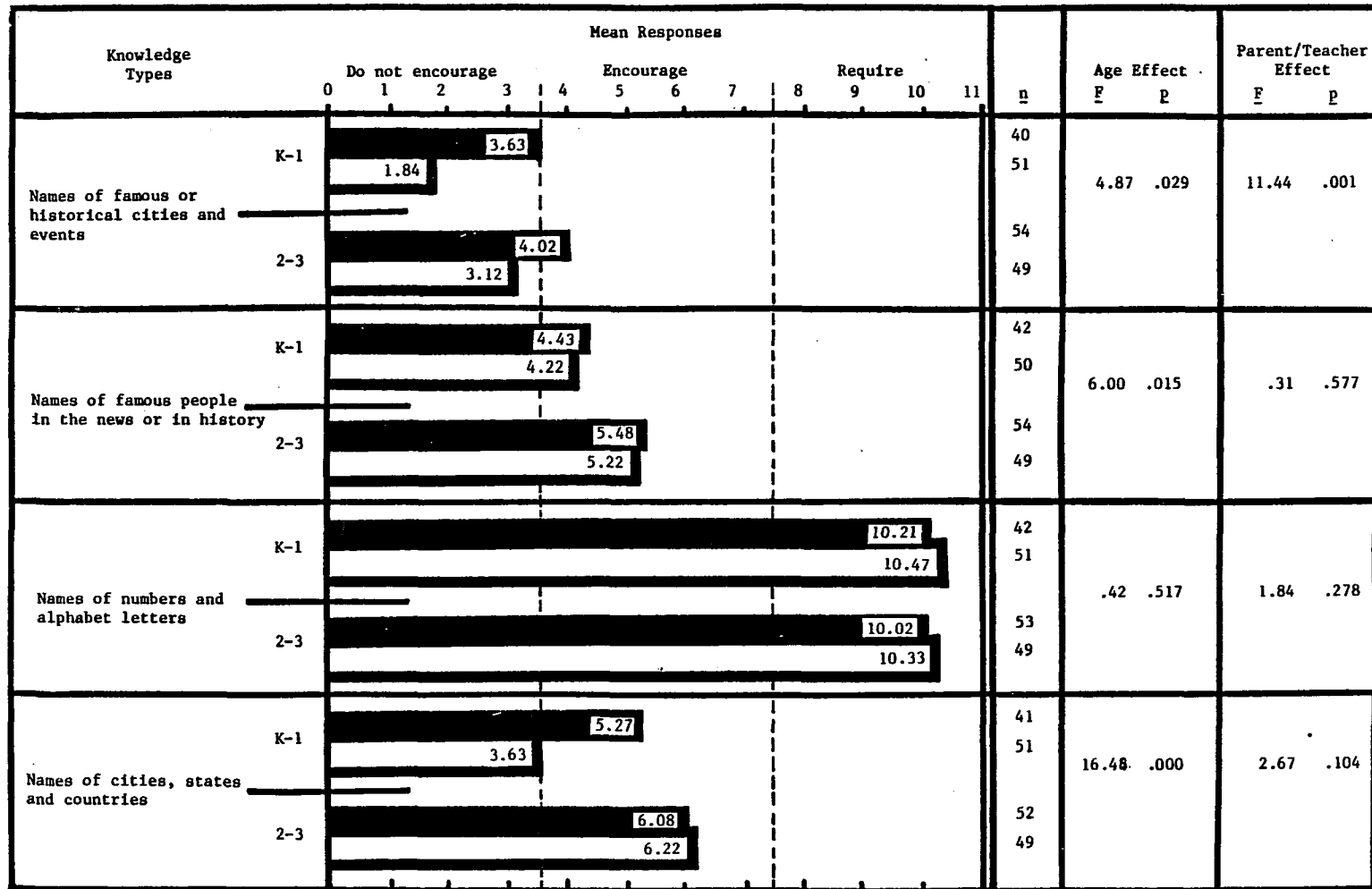


Figure 1. (continued)



Parents
 Teachers

Figure 2. Adults' purported tendencies to encourage or require the learning and memorization of information relevant to the child's future experiences (School predictions).

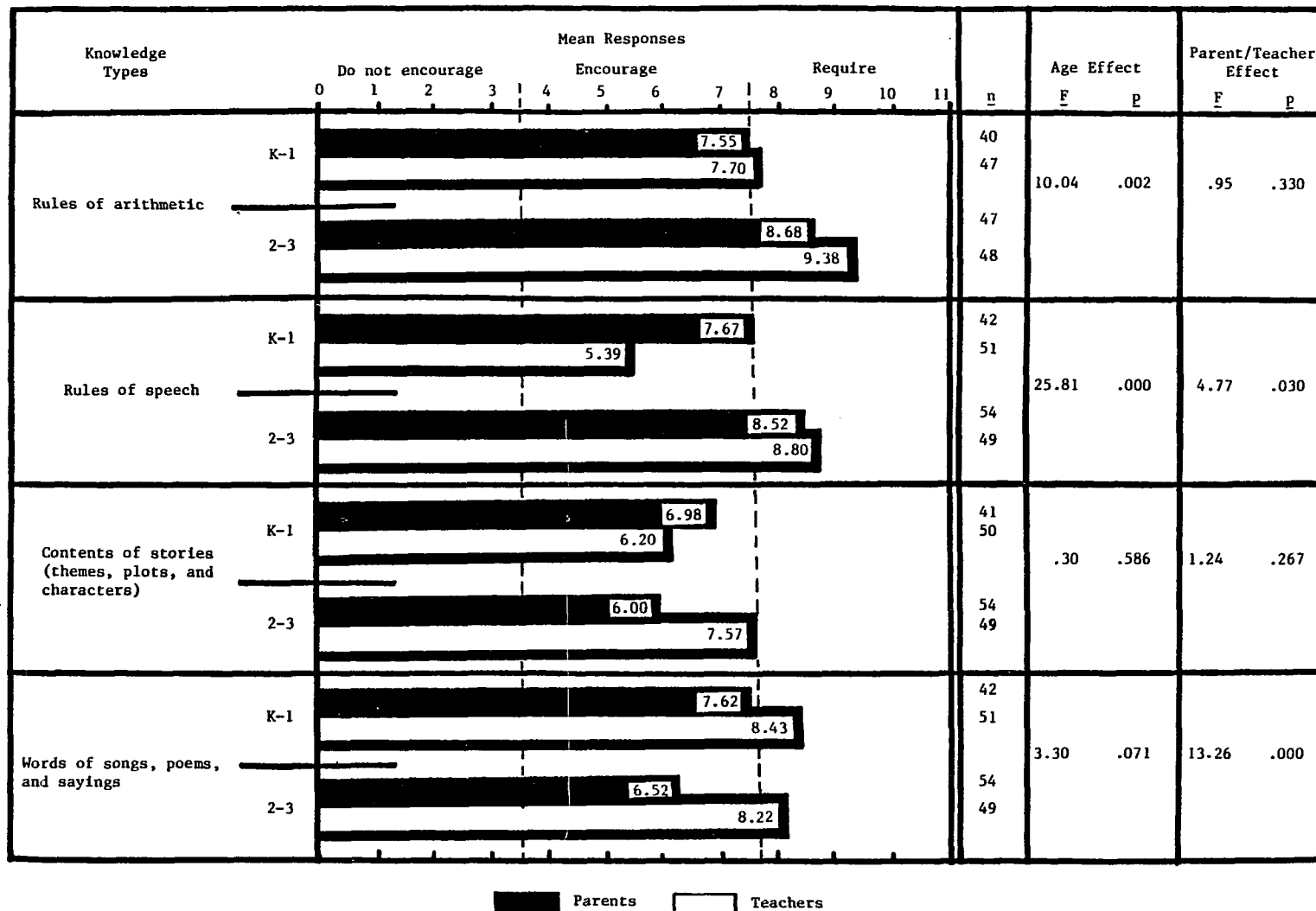


Figure 2. (continued)

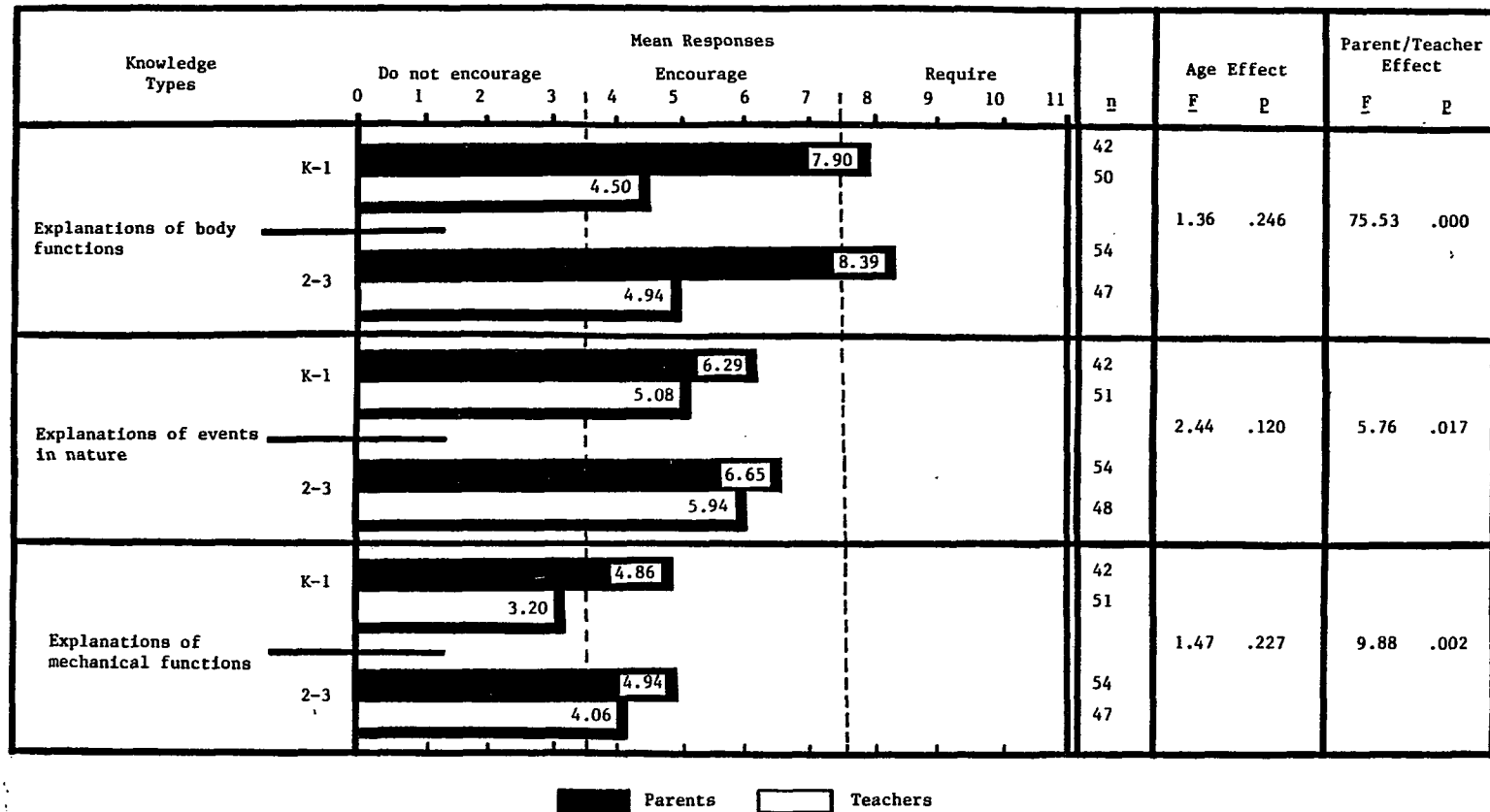


Figure 2. (continued)

home items, they also showed higher than expected tendencies to encourage and require memorization of school-prediction items. Figure 1 shows parent and teacher comparisons for learning and memorization contents relevant to young children's immediate experiences, i.e., the home predictions, those that parents have been expected to place the highest priority on. Eight of these 11 items showed statistically significant parent-teacher differences favoring parents, $p < .05$.

In reference to knowledge contents relevant to children's future life situations, i.e., the school predictions, most of the parent-teacher comparisons did not support predictions from a schooling hypothesis. As shown in Figure 2, only 6 of the 11 items showed statistically significant parent-teacher response differences, $p < .05$, and 4 of these 6 significant differences favored parents. In addition to the parent-teacher differences, 5 of the 11 items produced significant age-group differences favoring parents and teachers of older children on such items as rules of arithmetic and speech, and names of famous or historical places, events and people, $p < .05$.

Analyses of children's perceptions of the relative importance of remembering the knowledge contents at home and at school yielded more consistent support for the schooling hypothesis. The first section of Table 4 shows percentages of children's responses to home-prediction items. For 9 of

Table 4

Percentages of Children Responding in the Home and School Categories
to the Question, "Where do you have to remember
(instance of knowledge type)?"

Knowledge Types	<u>Percentages</u>				<u>One Sample Chi Square</u>			
	Younger ^a		Older ^b		Younger		Older	
	At Home	At School	At Home	At School	χ^2	p	χ^2	p
			<u>Home Predictions</u>					
Names of doctors and dentists	67	33	84	16	9.56	.002	40.89	.000
Names of food, drinks, and pieces of clothing	89	11	88	12	49.95	.000	52.32	.000
Names of family members, friends, and neighbors	98	2	98	2	74.20	.000	83.18	.000
Names of appliances and tools	95	5	97	3	66.78	.000	79.40	.000
Names of vehicles, machines, and tools	61	39	57	43	3.95	.047	1.86	.173
Rules of games and sports	70	30	53	47	12.49	.000	.28	.600
Rules of conduct in adult's absence	65	35	66	34	7.02	.008	9.24	.002
Rules of safety	45	55	45	55	.78	.377	.89	.345

Table 4 (continued)

Knowledge Types	<u>Percentages</u>				<u>One Sample Chi Square</u>			
	Younger ^a		Older ^b		Younger		Older	
	At Home	At School	At Home	At School	χ^2	p	χ^2	p
Rules for finding things needed and putting them back	41	59	53	47	2.39	.122	.28	.600
Rules for using tools, utensils and appliances	74	26	66	34	19.51	.000	9.24	.002
Rules of caring for property	71	29	75	25	14.10	.000	22.25	.000
	<u>School Predictions</u>							
Names of famous or historical cities and events	32	68	15	85	10.98	.001	43.62	.000
Names of famous people in the news or in history	24	76	4	96	21.51	.000	75.73	.000
Names of numbers and alphabet letters	4	96	0	100	70.44	.000	91.00	.000
Names of cities, states, and countries	29	71	3	97	14.10	.000	79.40	.000
Rules of arithmetic	4	96	0	100	70.44	.000	91.00	.000
Rules of speech	6	94	4	96	63.22	.000	75.70	.000
Explanations of body functions	32	68	24	76	10.98	.001	24.28	.000

Table 4 (continued)

Knowledge Types	<u>Percentages</u>				<u>One Sample Chi Square</u>			
	Younger ^a		Older ^b		Younger		Older	
	At Home	At School	At Home	At School	χ^2	p	χ^2	p
Explanations of events in nature	50	50	21	79	.00	1.00	30.87	.000
Explanation of mechanical functions	38	62	13	87	4.88	.027	49.33	.000
Contents of stories (themes, plots, characters)	39	61	19	81	3.95	.047	35.70	.000
Words of songs, poems, and sayings	41	59	11	89	2.39	.122	55.40	.000

^a_n = 82

^b_n = 91

these 11 items, statistically higher percentages of the younger children responded to the home category, while for the older children statistically higher percentages were revealed on 7 of the 11 items, $p < .05$, with 3 of the remaining 4 showing response tendencies in the predicted direction.

The latter portion of Table 4 shows the percentages of children responding to contents relevant to future life situations, i.e., the school predictions. In contrast to the questionable support from parent-teacher comparisons, the children's responses reflected strong support for the schooling hypothesis. For 9 of these 11 items the response differences of the younger children revealed statistically higher percentages in the predicted direction, while the older children's responses resulted in higher percentages in the predicted direction for all 11 of the items, $p < .05$. Note the large differences on items such as names of numbers and alphabet letters and rules of arithmetic, items for which the purported requirements of parents and teachers differed only slightly.

The second set of analyses dealt with the purported tendencies of parents and teachers to teach memory skills and to test and reward for memory and the children's perceptions of the frequency of occurrence of these activities at home and at school. As in the first set of findings, these analyses of parent-teacher responses lent some, though not

overwhelming, support to the schooling hypothesis. Figure 3 indicates that for 5 of the 7 items, teachers showed significantly higher purported tendencies to teach the various memorization skills, $p < .05$. Four of the 7 items produced significant age-group differences, with parents and teachers of younger children more likely to use the technique of repeating over and over what the child is to remember, while parents and teachers of older children were more likely to encourage the children to make up stories and rhymes, to figure out "tricks" to aid memory, and were generally more likely to teach adult-like memory strategies, $p < .05$.

Three of the 4 parent-teacher comparisons shown in Figure 4, namely rewarding the child for successful memory, notifying the child of ensuing tests, and notifying the child of ensuing rewards for memory, revealed statistical significance, favoring teachers, $p < .05$. Moreover, notifying the child of ensuing tests and of ensuing rewards yielded statistically significant age-group differences, wherein parents and teachers more frequently reported telling older children than younger ones about forthcoming tests and rewards.

As in the first set of results, the children's responses to interview items pertinent to the teaching, testing, and rewarding of memorization skills lent strong support for the schooling hypothesis. Both the younger and older children perceived that at school more frequently than at home they

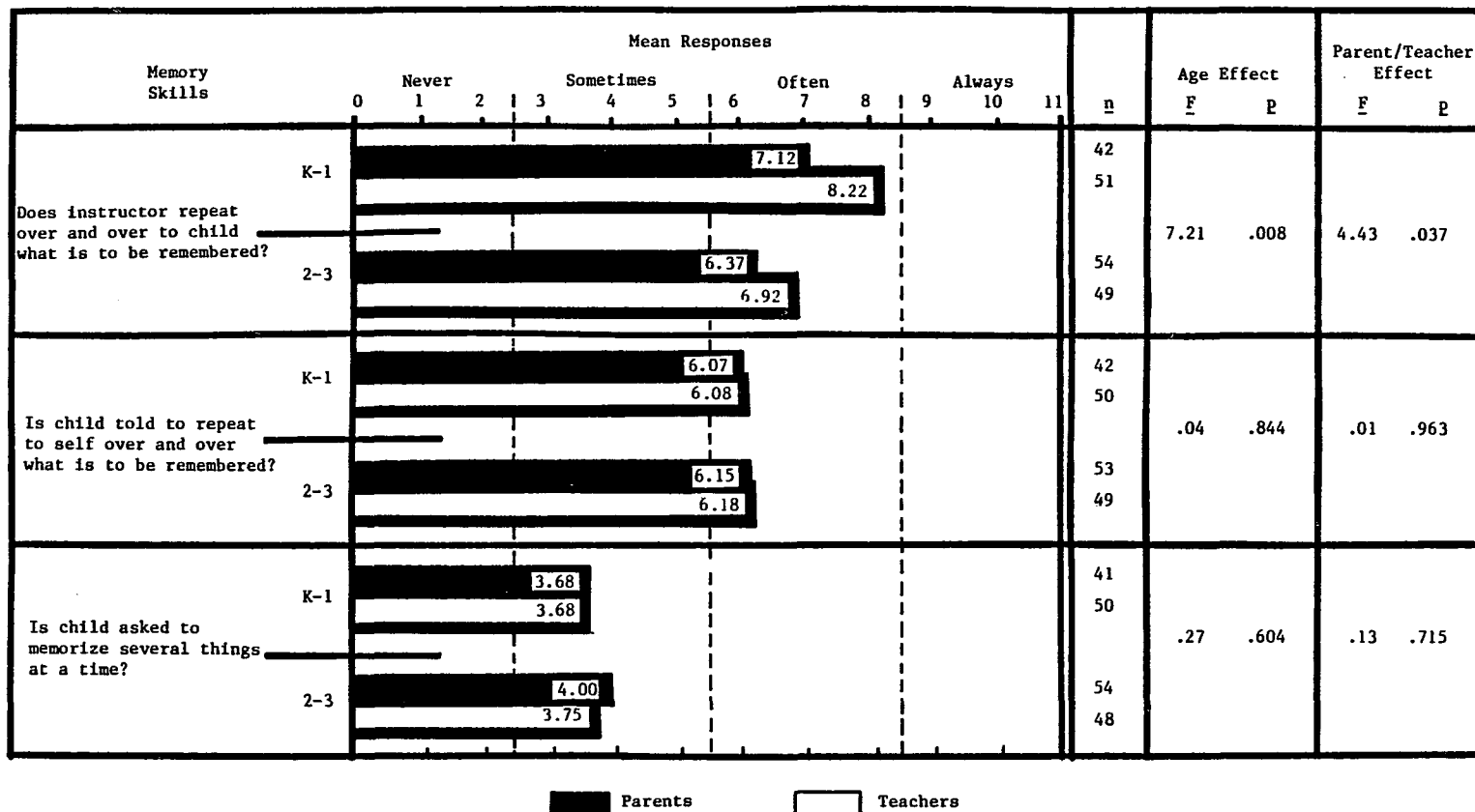
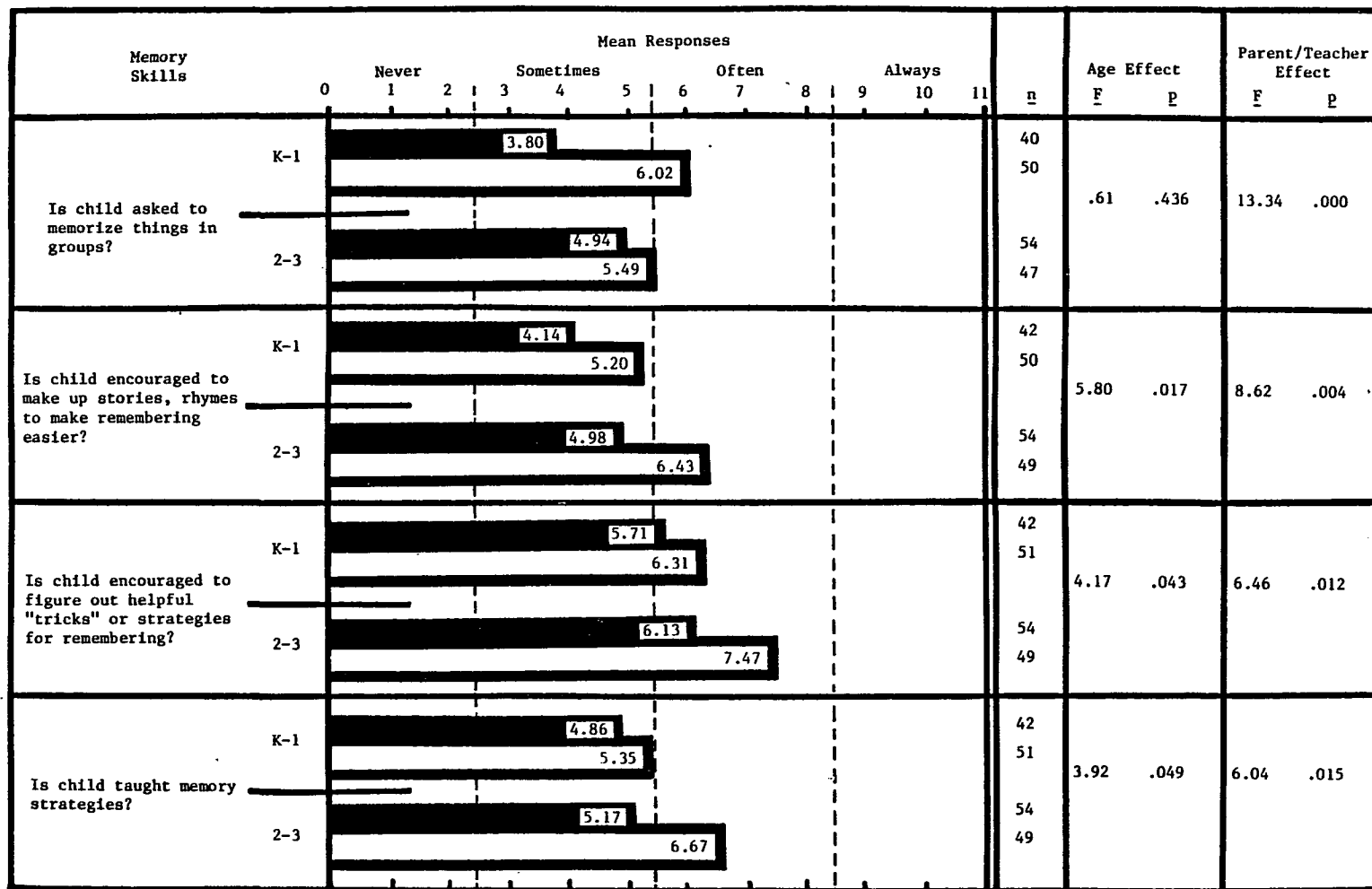


Figure 3. Adults' purported tendencies to teach memorization skills (School predictions).



Parents Teachers

Figure 3. (continued)

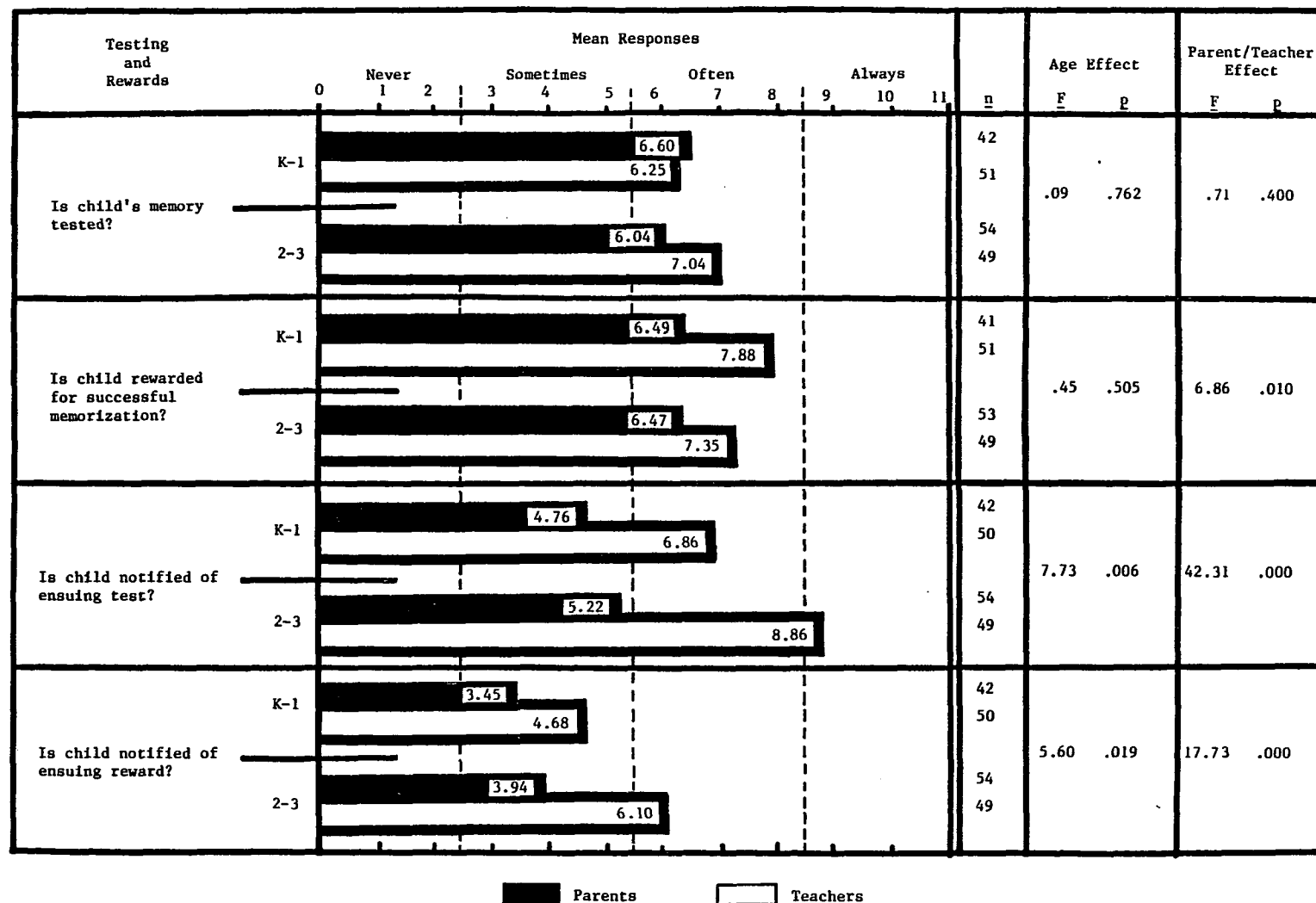


Figure 4. Adults' purported tendencies to test and reward children's successful memory (School predictions).

were encouraged to use, and were actually taught, the various types of memorization strategies, $p < .05$. (See Table 5.) For example, they were much more likely to report that at school rather than at home they were asked to remember by repeating over and over to-be-remembered information, and they were told to try to remember things by making groups first or by making up stories or rhymes. In addition, the older children perceived that more frequently at school than at home they had to figure out by themselves how to find an easy way or strategy to use to remember something.

The younger children responded with significantly higher percentages in the predicted direction, that is, to the school category, on all 4 test and reward memory items reported in Table 6, while the older children perceived that 3 of the 4 items represented more frequent occurrences at school than at home, $p < .05$. The nonsignificant item for the older children, where are you told beforehand of ensuing rewards, tended in the predicted direction.

The third set of analyses concerned adults' and children's perceptions of the general learning performance requirements imposed on children at home and at school, more specifically perceptions of cognitive performance requirements and perceptions of the relevance of learning and memorization contents to immediate and future life situations. The adults' perceptions are shown through the means reported in Figures 5 and 6. The importance of these findings

Table 5

Percentages of Children Responding in the Home and School Categories
When Asked Where Each Activity Happens More Frequently

	<u>Percentages</u>				<u>One Sample Chi Square</u>			
	<u>Younger^a</u>		<u>Older^b</u>		<u>Younger</u>		<u>Older</u>	
	At Home	At School	At Home	At School	χ^2	p	χ^2	p
Memory Skills								
			<u>School Predictions</u>					
Where are you told something over and over until you can remember it?	48	52	48	52	.20	.659	.10	.753
Where are you asked to remember things by saying their names over and over to yourself?	38	62	28	72	4.88	.027	18.47	.000
Where are you told to remember a lot of things at one time?	37	63	40	60	5.90	.075	3.97	.046
Where are you told to try to remember things by putting them into groups first?	23	77	10	90	23.61	.000	58.56	.000
Where are you told to try to remember things by making up a story or a rhyme about them?	24	74	19	81	20.75	.000	35.70	.000

Table 5 (continued)

	<u>Percentages</u>				<u>One Sample Chi Square</u>			
	<u>Younger^a</u>		<u>Older^b</u>		<u>Younger</u>		<u>Older</u>	
	At Home	At School	At Home	At School	χ^2	p	χ^2	p
Memory Skills								
Where do you have to figure out by yourself how to find an easy way to remember something?	43	57	37	63	1.77	.185	5.81	.016
Where do you learn "tricks" that make things easy to remember?	35	65	38	62	7.02	.008	4.85	.028

^an = 82

^bn = 91

Table 6

Percentages of Children Responding in the Home and School Categories
When Asked Where Each Activity Happens More Frequently

	<u>Percentages</u>				<u>One Sample Chi Square</u>			
	Younger ^a		Older ^b		Younger		Older	
	At Home	At School	At Home	At School	χ^2	p	χ^2	p
Testing and Rewards								
Where are you checked up on or tested to see if you can remember what you are supposed to?	1	99	1	99	78.05	.000	87.04	.000
Where do you get a reward, or are told you've done very well, when you have remembered what you are supposed to?	8	92	22	78	56.39	.000	28.58	.000
Where are you told beforehand that you will be checked up on or tested after you have learned something?	12	88	8	92	46.88	.000	65.15	.000
Where are you told beforehand that you will get a reward, or something nice will be said to you, if you do a good job of remembering?	33	67	45	55	9.56	.002	.89	.345

^a_n = 82; ^b_n = 91

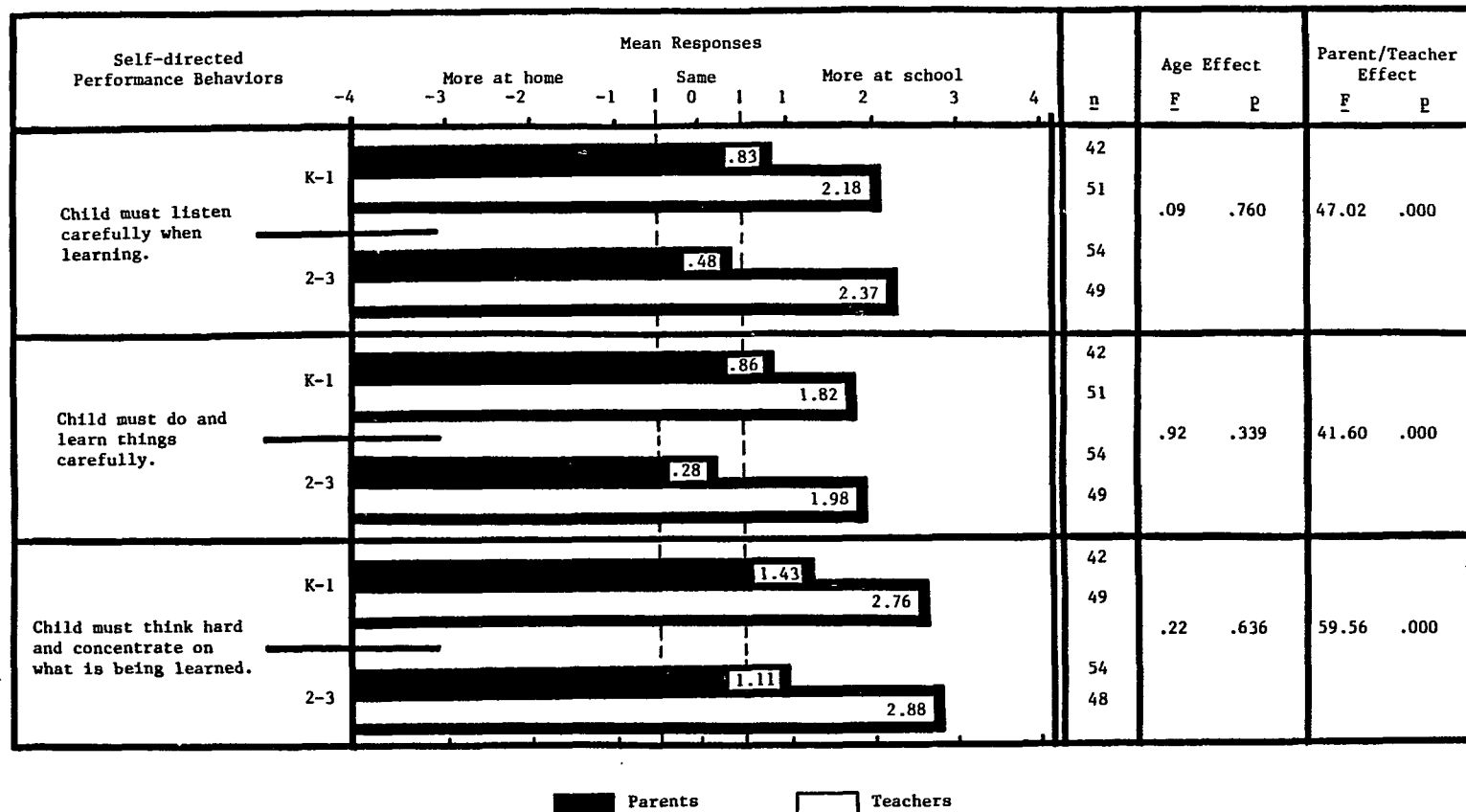


Figure 5. Adults' perceptions of the cognitive performance requirements imposed on children at home and at school (School predictions).

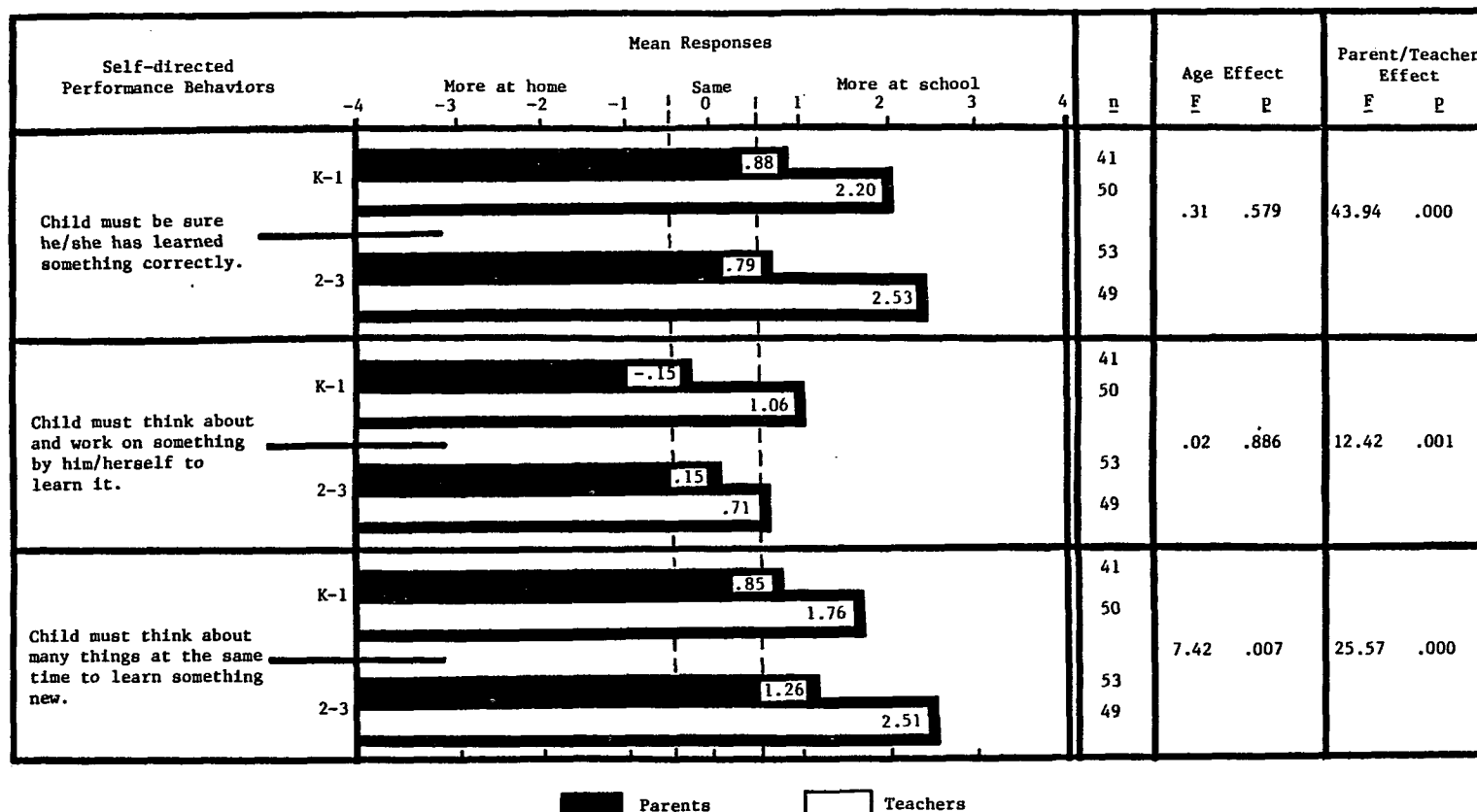


Figure 5. (continued)

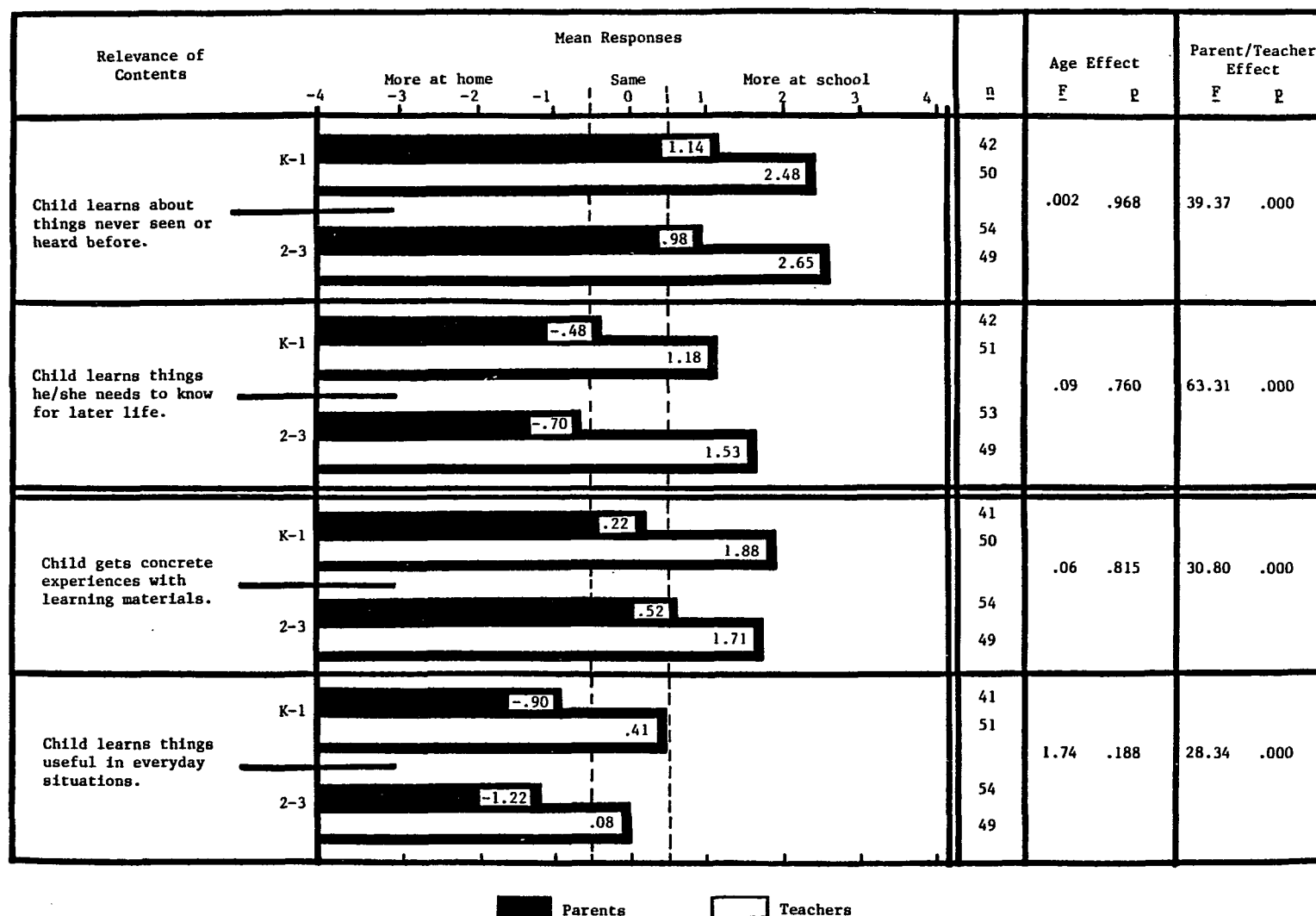


Figure 6. Adults' perceptions of the relevance of learning contents for children at home and at school. (The first two statements reflect school predictions; the last two, home predictions.)

lies more in the consistency of parent-teacher perceptions than in differences, since both parents and teachers were expected to perceive school as a more rigorous environment for cognitive performance. However, as can be seen in Figure 5, statistically significant parent-teacher differences favoring teachers were revealed on all items, $p < .05$. While teachers perceived more frequent occurrence at school of cognitive performance requirements such as the child must listen carefully, do his/her work carefully and correctly, and must think hard and concentrate while learning, on most of the items parents perceived no differences between the cognitive performance requirements in effect at home and at school. Only one item showed an age-group difference wherein parents and teachers of older children perceived more frequent occurrence at school than at home of the requirement that the child must think about many things at one time to learn something new.

Similarly, both parents and teachers were expected to perceive the emphasis at school to be on future-oriented learning and memorization contents and the emphasis at home to be on immediate, concrete learning materials. Contrary to predictions, analyses of adult perceptions showed significant statistical differences between the responses of parents and teachers on all four items, $p < .05$. (See Figure 6.) The first two items reflect school predictions. Teachers in showing significantly different responses from those of

parents reported that children learn about things never seen or heard of before much more at school than at home while parents reported that this occurs only slightly more at school. Showing significantly different responses, teachers reported that children learn at school more than at home the things they need to know later in life, while parents reported that children learn these things more at home than at school.

The home-prediction items produced results no more clear than those for the school predictions. Parents showed significantly different responses from teachers in their reported perceptions that children get concrete learning experiences as often at home as at school. However, teachers reported these experiences occur more frequently at school than at home. Parents, according to prediction, perceived that at home more than at school, children learn things useful in everyday situations. Teachers, on the other hand, showed responses to this item which indicated that they perceived little difference between home and school.

These findings related to the relevance of learning contents do not support the prediction of consistency of parent and teacher reported perceptions. They do, however, confirm that teachers view school, for the most part, as the more demanding setting, reflected in the distancing requirements of out-of-context and future-oriented information.

Analyses of percentages of children perceiving self-directed cognitive performance requirements and the contents

of learning materials to be more demanding at school than at home are shown in Tables 7 and 8. Consistent with predictions, all six of the items related to cognitive performance requirements for both younger and older children reached statistical significance favoring the "at school" response, $p < .05$. In other words, the children reportedly perceived school as the learning environment in which they more often have to listen carefully, to do work carefully and correctly, and to think hard and about many things at once when learning new things. Moreover, for three of the four items related to the relevance of learning materials to the home and school settings, both younger and older children responded in the predicted manner. (See Table 8.) For example, they perceived that they learn about unfamiliar things as well as those needed for future use more often at school than at home, and learn more often at home the things they can do every day even when alone. They perceived no differences between home and school in the occurrence of concrete learning experiences.

The first three sets of analyses were performed to deal with the major substantive issues of this research. Additional analyses were concerned with the adults' perceptions of factors thought to be responsible for young children's memory difficulties. (See Figure 7.) Two of the six items yielded statistically significant parent-teacher response differences, $p < .05$. Teachers significantly more than

Table 7

Percentages of Children Responding in the Home and School Categories
When Asked Where Each Activity Happens More Frequently

	<u>Percentages</u>				<u>One Sample Chi Square</u>			
	Younger ^a		Older ^b		Younger		Older	
	At Home	At School	At Home	At School	χ^2	p	χ^2	p
Self-directed Performance Behaviors								
			<u>School Predictions</u>					
Where do you have to listen more to what is said to you when you are learning?	1	99	1	99	78.05	.000	87.04	.000
Where do you have to be more careful when you are learning things that you are supposed to?	15	85	16	84	41.02	.000	40.89	.000
Where do you have to think harder about what you are learning?	6	94	1	99	63.22	.000	87.04	.000
Where do you have to be sure you are learning something the right way?	11	89	13	87	49.95	.000	49.33	.000

Table 7 (continued)

	<u>Percentages</u>				<u>One Sample Chi Square</u>			
	Younger ^a		Older ^b		Younger		Older	
	At Home	At School	At Home	At School	χ^2	p	χ^2	p
Self-directed Performance Behaviors								
Where do you have to think by yourself about how to learn something before you start to try to learn it?	38	62	40	60	4.88	.027	3.97	.046
Where do you have to keep a lot of things in your head at the same time when learning something new?	13	87	2	98	43.90	.000	83.18	.000

^a_n = 82

^b_n = 91

Table 8

Percentages of Children Responding in the Home and School Categories
When Asked Where Each Activity Happens More Frequently

	<u>Percentages</u>				<u>One Sample Chi Square</u>			
	Younger ^a		Older ^b		Younger		Older	
	At Home	At School	At Home	At School	χ^2	p	χ^2	p
Relevance of Learning Contents								
Where do you often learn about things that you've never seen or heard about before?	26	74	13	87	19.51	.000	49.33	.000
Where do you learn the things you will need to know when you grow up?	33	66	13	87	9.00	.003	49.33	.000
Where do you get a chance to touch and pick up things when you are learning about them?	55	45	47	53	.78	.377	.28	.600
Where do you learn things that you can do every day even when you're by yourself?	73	27	72	28	17.61	.000	18.47	.000

^a_n = 82

^b_n = 91

Note. The first two questions reflect school predictions; the last two, home predictions.

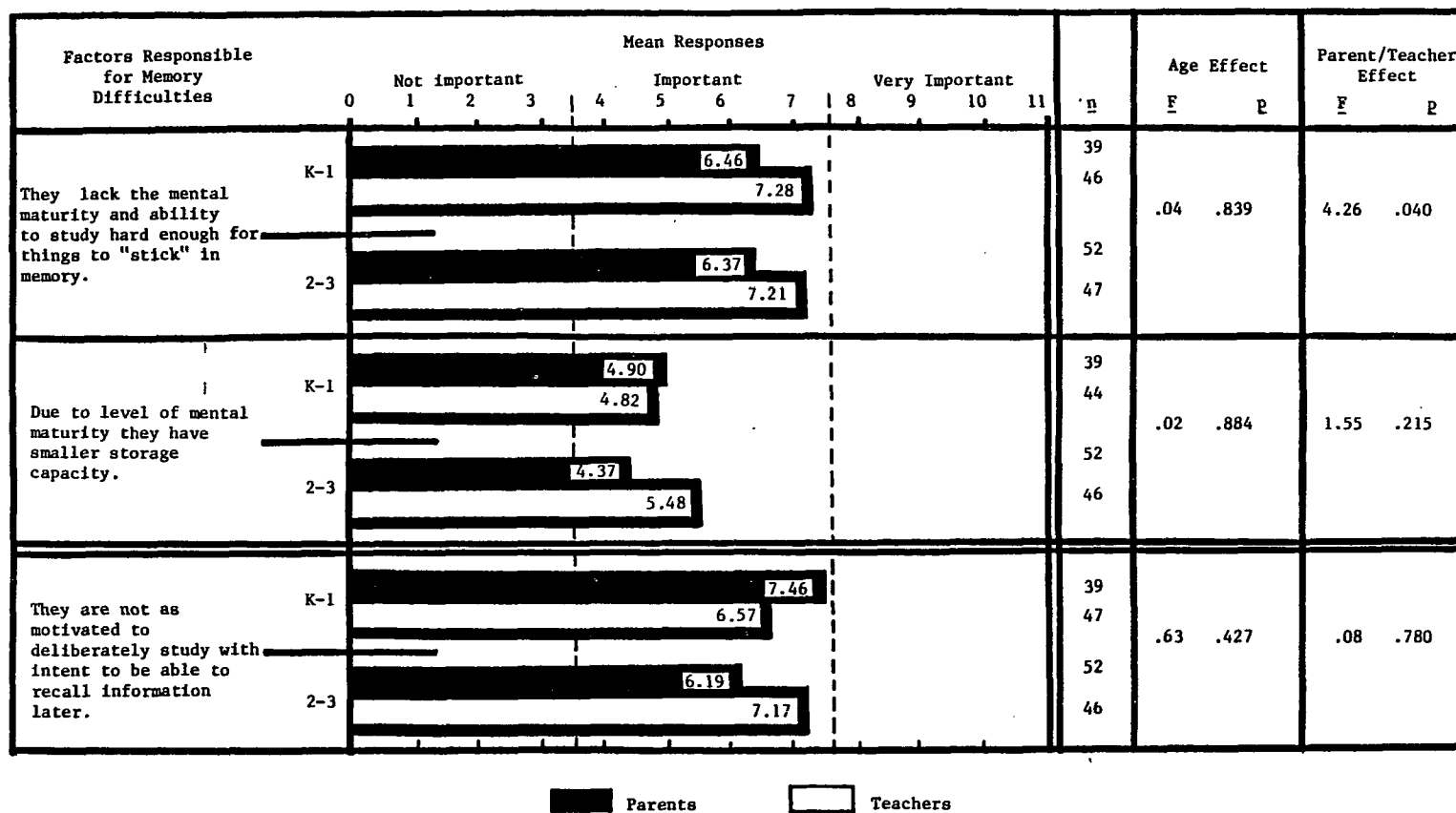


Figure 7. Adults' perceptions of factors responsible for memory difficulties in young children.

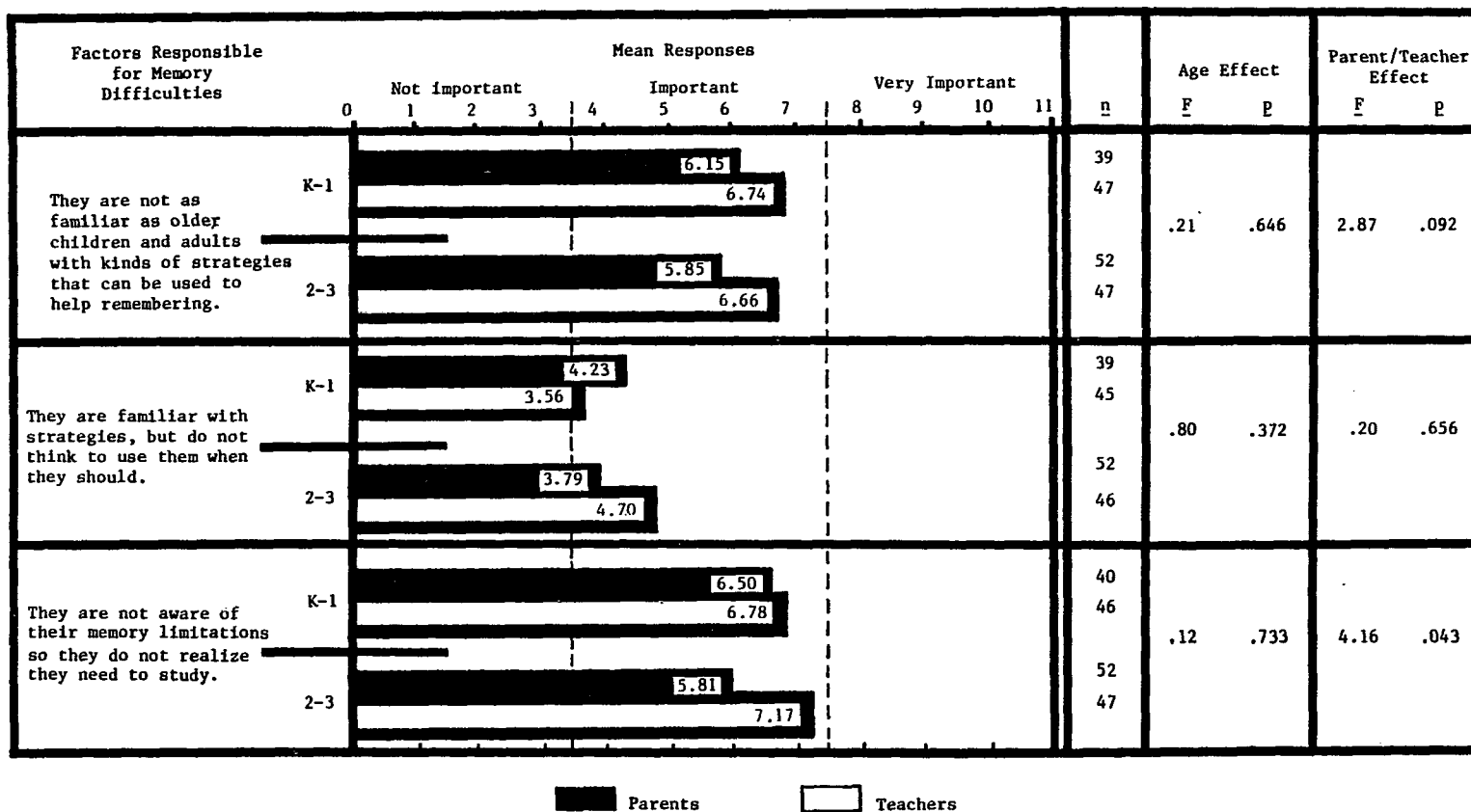


Figure 7. (continued)

parents tended to perceive that young children's memory difficulties are due to their lack of mental maturity and ability, a finding that does not support the predictions that parents more than teachers would ascribe memory difficulties to biological factors. On the other hand, the second statistically significant item showed that teachers more than parents purported that memory difficulties are due to young children's unawareness of their memory limitations and of their need to study. This result is consistent with the expectation that teachers would ascribe memory difficulties to strategy-related factors.

The three sets of analyses which dealt with the central predictions of the present study as well as these additional analyses of factors responsible for memory difficulties in young children show that while the parent-teacher data provided inconsistent support for the schooling hypothesis in terms of differential learning and memorization requirements of home and school learning environments, the data representing the children's perceptions of those requirements offered clear support for the schooling hypothesis.

CHAPTER IV

DISCUSSION

This survey research was designed to examine evidence for a schooling hypothesis of young children's cognitive strategy development by investigating dimensions along which the learning and memorization demands of informal and formal schooling may differ. Through survey questionnaires, assessments were made of parents' and teachers' purported tendencies to encourage and require memorization of various knowledge contents and to teach skills for learning and remembering. The questionnaires also assessed parent and teacher perceptions of cognitive performance requirements and of the experiential relevance of learning materials for young children at home and at school. An interview instrument developed in parallel to the questionnaire was used to assess young children's perceptions of learning and memorization demands and of expectations held for them by their parents at home and their teachers at school.

Overall, the findings of this research, particularly those that stem from the children's data, document some interesting and important perceived differences between informal and formal learning environments. These perceived differences, insofar as they are related to the emergence of self-regulated cognitive behavior as has been argued

here, offer supportive evidence for a schooling explanation of young children's cognitive strategy development.

Interpretations of Parent-Teacher Responses

In light of theoretical distinctions made between home and school requirements for memorization of knowledge contents, for memorization skills behavior, and for general learning performance, it was expected that parents would tend to give higher ratings to theoretically determined home items while teachers would give higher ratings to school items. It was also expected that parents and teachers alike would view school as the more rigorous educational environment. Analyses of the adult data provided only partial support for the schooling hypothesis. While the statistically significant items offer interesting insights into adult perceptions of home and school educational requirements, the mean scores for most of the items revealed only slight differences between parent and teacher perceptions.

Assessment of parent-teacher requirements for memorization of knowledge contents. The data obtained here better supported the home predictions than the school predictions. As expected, parents showed higher tendencies than teachers to encourage and require memorization of a majority of the types of knowledge oriented toward young children's immediate needs, experiences, and tasks. It is quite reasonable that parents would encourage and require memorization of theoretically determined home contents such as names of doctors and

dentists, names of and usage rules for appliances and tools, rules of safety, and rules of conduct in adults' absence because young children need to remember them in their immediate, day-to-day activities.

Contrary to predictions, the majority of the school-prediction knowledge-content items failed to support the schooling hypothesis. Not only did parents show high tendencies to encourage and require home-prediction items as was expected, they also showed higher than expected tendencies to encourage and require memorization of some of the school-prediction types of knowledge. Four of the six school-prediction knowledge-content items which yielded significant parent-teacher differences showed parents to express more rigorous requirements than teachers, namely for memorization of names of famous or historical cities or events and for memorization of explanations of body functions, of events in nature, and of mechanical functions. In fact, teachers purported to encourage or require to statistically greater degrees than parents only one school-prediction item, namely contents of songs, poems, and sayings.

Adult responses to several school-prediction items, e.g., names of famous or historical cities and events, names of famous people in news or history, rules of arithmetic, resulted in statistically significant age-group differences wherein both parents and teachers required that older more than younger children remember those knowledge items.

These findings suggest that requirements become more rigorous at home as well as at school for certain theoretically determined school types of knowledge as the children grow older. Moreover, adult responses on three other school-prediction items, names of cities, states, and countries, rules of speech, and contents of stories, revealed significant interactions wherein heavier requirements for remembering shifted across age from parents of younger children to teachers of older children.

The findings that parents purported higher tendencies than teachers to encourage and require memorization of most types of knowledge listed in the questionnaire are consistent with those of Lange et al. (1979). However, both parents and teachers in the present study tend to place more rigorous demands for memorization upon the older children, particularly for memorization of the information theoretically expected to occur more frequently in the school setting.

Assessment of parent-teacher reports of the teaching and testing of memorization skills. The majority of the memory skill items, that is, five of the seven items, supported predictions from the schooling hypothesis that teachers more often than parents would encourage or teach the use of memorization skills. Though revealing small magnitudes of differences between means, teachers significantly more than parents reported, for example, to ask their pupils to memorize things in groups, to make up stories and rhymes to

aid memory, and to figure out by themselves strategies for remembering. Teachers also significantly more than parents tended to encourage the use of memorization skills by actually teaching young children adult-like memory strategies.

Four of the five memory skill items that produced significant parent-teacher differences also showed significant age-group differences. For younger children, parents and teachers more often reported taking on the mnemonic strategies responsibilities themselves by repeating over and over to the children what the children are to remember. On the other hand, for older children, parents and teachers more often reported encouraging and teaching the children (pupils) to learn and use self-directed mnemonic strategies on their own.

Three of the four items related to testing and rewarding for memory supported predictions from the schooling hypothesis. Teachers more often than parents reported that they reward successful memory and notify children ahead of time of ensuing tests and rewards. The strongest support in terms of mean differences between parents and teachers came from the item, notify the child of ensuing tests. The weakest support, though statistically significant, was found for the item, reward for successful memory.

Significant age-group differences showed that parents as well as teachers purported higher tendencies to notify

older children rather than younger children of ensuing tests and rewards. This finding along with the strong parent-teacher differences found for notifying the child of ensuing tests shows that testing is clearly perceived by adults to be an aspect of formal schooling and suggests the adult assumption that notifying older children of ensuing tests and rewards will make a difference. Perhaps the assumption is that the older children, if notified ahead of time, will work to prepare for tests and to insure rewards for successful memory.

Assessment of parent-teacher perceptions of general learning performance dimensions. The prediction here was that parents and teachers alike would view general learning performance requirements to be more rigorous at school than at home. Contrary to prediction for self-directed cognitive performance requirements, parent and teacher perceptions differed significantly for all items. Parents perceived most of these cognitive requirements to occur almost as frequently at home as at school. In contrast, teachers with response patterns significantly different from those of parents reported that there is considerably more frequent occurrence at school than at home of such requirements as the child's having to listen carefully when learning, the child's having to do and learn things carefully and correctly, the child's having to think hard and concentrate on his/her work alone, and the child's having to consider a

number of things when learning something new, all of which are cognitive skills which require a degree of self-direction and self-regulation. The only significant age effect occurred for the item, the child must consider many things at the same time to learn something new, wherein parents and teachers perceived this behavior to occur more frequently at school for older than for younger children.

Similarly, it was expected that parents and teachers alike would perceive abstract, future-oriented learning contents more likely to be emphasized at school, while concrete, everyday learning contents would more likely be emphasized at home. Again, the analyses showed statistical differences in the mean perceptions of parents and teachers on all of these items.

In partial support for the schooling hypothesis, responses to school-prediction items showed that teachers perceived that at school more than at home children learn about things they have never seen or heard of before and about things they need to know later in life. However, parents reportedly perceived that children learn about things never seen or heard of before only slightly more at school than at home but that children learn the things that they will need to know in later life much more at home. Responses to the home-prediction items as well offered only partial support for the schooling hypothesis. Parents reported that children learn things useful in everyday

situations at home while teachers reported no difference between home and school for this home-prediction item. While parents reported no difference between home and school in the child's having concrete experiences with learning materials, teachers purported that concrete learning experiences occur more frequently at school.

While parents reported few differences in the experiential relevance to home and school of learning contents, teachers reportedly perceived that school, rather than home, is the more demanding environment. At school the emphasis is on future-oriented, unfamiliar learning contents, contents whose nature places the young child at a distance because they are out of his/her present environmental context. It follows that if teachers perceive formal schooling to have the more rigorous cognitive performance requirements and learning contents, they may convey to the children, either directly or indirectly, their expectations for self-responsible cognitive performance.

Interpretations of Children's Responses

The children's data lent stronger support than the adult data for the theoretical distinctions made in the present investigation between home and school learning environments. Though parent and teacher responses showed substantial differences on some home-prediction knowledge items, their responses generally showed only slight differences in their reported tendencies to teach and test memory

skills and in their perceptions of general learning performance requirements. However, the great majority of children evidenced different perceptions of the learning and memorization requirements of home and of school throughout their responses to the interview items. It should be noted here that there is a 50-50 chance of an individual child's giving an "at home" or an "at school" response to each item. This discussion is based on percentages of younger and older children responding either in the home or school category to each interview item.

Assessment of children's perceptions of requirements for memorization of knowledge contents. In reference to requirements for learning and memorization of knowledge contents, the majority of both age groups of children reportedly perceived the necessity of remembering at home those contents relevant to their immediate needs and behavioral situations, and at school, those contents that were more abstract, linguistic, and often more appropriate for future needs and experiences.

Responses to most of the home-prediction knowledge contents showed support for the predictions. For example, the children's responses showed that 98% of the 173 children reportedly perceived that at home more than at school they had to remember names of family members, friends, and neighbors, and 95% of the younger and 97% of the older children reported that at home more than at school they had to

remember names of appliances and tools. However, while the younger children responded in the predicted direction on 9 of the 11 home-prediction items, the older children responded in the predicted direction on only 7 of the items. The older children reportedly perceived little difference between home and school requirements for remembering the names of vehicles, machines, and tools, and rules of games and sports. Of particular interest are the two home-prediction items, namely rules of safety and rules for finding things needed and putting them back where they belong, for which neither age group of children reported differential requirements. Apparently younger and older children perceive the necessity of remembering safety rules and rules for keeping things in their places both at home and at school.

Responses to school-prediction knowledge contents showed even clearer support for the predictions, particularly the older children's responses which were in the predicted direction on all 11 of the school-content items. For example, 96% of the younger children and 100% of the older ones reportedly perceived that at school more than at home they had to remember the names of numbers and alphabet letters and rules of arithmetic, 94% of the younger and 96% of the older children reported that at school more than at home they had to remember rules of speech, and 61% of the younger and 87% of the older children perceived that more at school than at home they had to remember explanations of mechanical

functions. The younger children's responses to two school-prediction items, namely explanations of events in nature and words of song, poems, and sayings, were contrary to predictions in that these children perceived little differential requirements for memorization of these knowledge contents.

Three additional knowledge-content items were included on the instruments to assess perceptions of requirements for items expected to be emphasized equally at home and at school, i.e., names of people's trades and occupations, names of animals, and names of plants and trees. Interestingly, parents and teachers did not differ in their purported tendencies to require memory for names of these items. However, there were observed differences between home and school requirements reported by the children. For example, 68% of the younger and 82% of older children perceived that at school more than at home they had to remember names of animals and 68% of the older children reported that at school more than at home they had to remember names of people's jobs. (See Tables H and J.)

The children's reports of the requirements for remembering knowledge contents show that young children perceive considerable differences in the requirements to remember at home and at school. This is evidenced by the fact that 82% of the predictions of the knowledge-contents dimensions were supported by statistically significant differences in the

children's data. Particularly interesting are the perceptions of the second and third graders. Although parents more than teachers purported tendencies to require memorization of the majority of both home and school types of knowledge, second- and third-grade children perceived less rigorous requirements at home than at school. This finding suggests that after a year or two of formal schooling children are well aware of the differential importance and necessity of remembering certain types of information at school, notwithstanding the parents' purported tendencies to stress learning and memorization of all types of information at home.

Assessment of children's perceptions of learning and memorization skills at home and at school. The assessment of perceptions of instructions for memory skills and of tests and rewards for memory at home and at school afford a similar picture of strong support from the children's data for differences between the educational requirements of informal and formal schooling. Even for items on which the adult groups did not differ significantly, the great majority of children perceived that encouragement to learn and use memorization skills occurred more often at school than at home. For example, although both parents and teachers indicated that they often ask the children (pupils) to repeat over and over to themselves what is to be remembered, 62% of the younger and 72% of the older children perceived that this request occurs more frequently at school than at home.

The children reported that it was at school that they are told to use efficient memory strategies. For example, 77% of the younger and 90% of the older children perceived that they are asked to make groups of to-be-remembered items more often at school than at home, and 74% of the younger children and 81% of the older ones reported that teachers ask them more frequently than parents to make up stories and rhymes to help themselves remember. Only the older children reported that at school more than at home they have to figure out by themselves how to find an easy way or "trick" to use to remember something. The younger children perceived little difference between home and school for this self-directed behavior requirement. Neither the younger nor the older children perceived differences in occurrence of being told by the adults something over and over again until they can remember it. That question, related to external control, brought a knowing smile to the faces of many of the children. A frequent answer was, "My teacher does that a lot, but my mom does, too." In effect, however, most of the efficient strategy behaviors were perceived by both age groups of children to be more evident at school than at home.

The majority of younger and older children perceived that the school environment more than the home setting involved testing and rewards for successful remembering. Even though parents and teachers similarly reported that

they often test their children's (pupils') memory, 99% of the children, younger and older, reported that they are tested or checked up on more frequently at school than at home to see if they remember what they are supposed to.

Although all the items comprising the memorization skills and tests and rewards sections of the instruments were theoretically determined school items, several additional items representing less rigorous memory requirements were included in the instruments but were not formally designated for analysis. On these additional items parents and teachers reported no differences, but there were observed differential requirements among the children. For one example, 92% of the younger children and 93% of the older ones reported that they are told more frequently at home than at school that it is all right to forget some of the time. (See Tables J and K.) The inference that can be drawn here is that although parents may perceive themselves to teach some memory skills and to check up on and test their young children's memory, parents are perceived by the great majority of children to be more tolerant than teachers of their forgetting.

Assessment of children's perceptions of cognitive performance requirements and the relevance of contents to be learned and memorized. Parents generally perceived little or no differences between home and school in reference to most of the cognitive performance requirements, and teachers

perceived that these requirements are only slightly more likely to be emphasized at school. However, the great majority of younger and older children clearly perceived these self-directed cognitive performance requirements to occur more frequently at school than at home. For example, 99% of the children responded that it is at school more than at home that they have to listen more carefully when learning, and 94% of the younger children and 99% of the older ones reported that at school more than at home they have to think hard and concentrate on what is being learned.

Although the items that comprised the cognitive performance dimension were theoretically determined as school items, several additional items, theoretically designated home items, were included in that section of the questionnaire and interview instruments. The reported tendencies of parents and teachers on these home items failed to support the predictions while the children reportedly perceived home to be less demanding than school. For example, 79% of the younger and 88% of the older children reported that they find things easier to learn at home rather than at school, and 89% of the younger and 91% of the older children perceived that it is at home that they can take as long as needed or wanted to learn things. (See Tables L and M.)

The children also generally made distinctions in the experiential relevance of learning and memorization contents of home and of school. For example, the majority of

younger (66%) and older (87%) children perceived that at school more than at home they learn things they will need to know when they grow up even though their parents reported perceptions that the children learn these things more at home than at school. In addition, 74% of the younger children and 87% of the older ones responded that more frequently at school than at home they learn about things that they have never seen or heard of before, and 73% of the younger and 72% of the older children reported that at home rather than at school they more frequently learn the things they can do every day even when they are alone. However, contrary to predictions, younger and older children reported little differences between home and school in the frequency of concrete learning experiences.

The results from analyses of the assessments of the general learning performance dimensions that characterize home and school lead to inferences that young school-age children clearly perceived school to be more demanding than home in expectations for self-directed cognitive performance. They perceived that they must listen harder, think harder, be more careful and accurate at school than at home. They perceived that at home there is less rigor and less pressure for self-directed cognitive performance.

Though educational environments are perceived to differ, apparently kindergarteners, first-graders, second-graders, and third-graders enjoy learning in both environments. The

majority of the children reportedly perceived differential requirements for their learning and memorization performance, but when asked where they more enjoy learning and remembering, the percentage of children responding "at home" did not differ from the percentage responding "at school."

CHAPTER V

SUMMARY AND CONCLUSIONS

In the present investigation, two separate estimates of perceived differences between learning and memorization environments were analyzed. While responses of the parents and teachers showed rather minimal numerical differences in their perceptions of the educational requirements of home and school, kindergarteners through third-grade children revealed perceptions of considerable differences between home and school expectations and demands for their learning and memorization performance. Thus, it is the data from the children that provide the strongest support for the schooling hypothesis upon which the study was based.

There are no doubt several explanations for the relatively small differences found here between parent and teacher responses to the questionnaires. Consistent with the data, one reason that seems most plausible is that parents, not wanting to appear too lax or inattentive to their children's formal educational needs, overestimated the rigor with which they make learning and memorization demands upon their young children. On the other hand, teachers, perhaps not wishing to appear too harsh, might have underestimated the rigor of their demands.

To be sure, the adult perceptions considered as a whole are discrepant from the child perceptions. The

findings that are perhaps most interesting and most important are those indicating that even the youngest children perceive the task and person-performance demands for learning and memorization to be far more rigorous at school than at home.

Consideration of the importance of perceptions is enlightening as a source of environmental description (Weinstein & Middlestadt, 1979) as well as an explanation of an individual's behaviors within his/her environment. Swick and Taylor (1982) suggested that one's perceptions are an important part of how various ecological factors affect the way individuals behave; each person has a "world view," in a sense, and behaves in accordance with that mental framework. The children's responses to questions about learning and memorization requirements at home and at school indicate that they perceive differential task and person-performance demands in these two learning environments. As noted in Chapter I, task demands are those which derive from the distancing requirements of the formal schooling environment, that is, the child's physical and emotional distance from teacher as well as from the referents of school learning materials. Person-performance demands, made explicit through testing and rewards for successful remembering, are individual and specific, and convey a direct message to young children that they are the ones responsible for their own performance and that they need to be concerned with

performing their learning and memorization tasks accurately and efficiently. Theoretically, these more rigorous task and performance demands of formal schooling influence the development of deliberate, planful, and strategic cognitive behavior. It follows that insofar as children respond to these task and person-performance demands, or "ecological factors," of the formal educational environment, school is potentially more instrumental than the home in the development of cognitive strategy behavior.

As discussed earlier, there is a great deal of research evidence related to the cognitive shift phenomenon which suggests that during the first few years of elementary school children begin to exhibit pronounced changes in their cognitive behavior. Particularly obvious is a shift toward planful, deliberate, and strategic cognitive behavior which has been attributed by some to the expectations and requirements of the formal schooling environment. If this position is a viable one, then children would be expected to perceive differences in the learning and memorization conditions that exist at home and in school. The results of the present investigation, particularly those that stem from the children's data, offer strong, albeit indirect, evidence of support for a schooling explanation of young children's cognitive strategy development. The fact that children perceive heightened emphasis at school on future-oriented information, on the need to learn formal mnemonic skills,

and on cognitive performance requirements may well account for the acquisition and increasing usage of efficient strategies in cognitive task settings.

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APPENDIX A
LEARNING AND MEMORIZATION EXPERIENCES THAT
YOUNG CHILDREN HAVE IN THE HOME

LEARNING AND MEMORIZATION EXPERIENCES
THAT YOUNG CHILDREN HAVE IN THE HOME

I. Family Information

In order for us to make comparisons between families that differ in various ways, the following information would be helpful to us.

1. Family identification number: _____
2. Survey completed by: (circle one) Mother Father
3. Are you a single parent? (circle one) Yes No
4. Does your child live with you? (circle one) Yes No
5. Does your child have any medical or psychological disabilities that might interfere with successful achievement at school?

6. Age (in years) and sex of child's brothers and sisters:

<u>Age</u>	<u>Sex</u>	<u>Age</u>	<u>Sex</u>	<u>Age</u>	<u>Sex</u>
___	___	___	___	___	___
7. Age of father _____ and mother _____
8. Highest grade in school completed by father _____
9. Highest grade in school completed by mother _____
10. Father's occupation _____
11. Mother's occupation _____

	Don't Encourage Child to Memo- rize at Home				Encourage Child to Memo- rize at Home				Require or Make Sure Child Memo- rizes at Home			
	0	1	2	3	4	5	6	7	8	9	10	11
18. Rules for finding things you need and putting them back where they belong												
19. Rules for using tools, utensils & appliances												
20. Rules of caring for property												
C. <u>Explanations</u>												
21. Explanations of body functions												
22. Explanations of events in nature												
23. Explanations of mechanical functions												
D. <u>Contents of Stories and Phrases</u>												
24. Themes, plots and charac- ters in stories												
25. Words of songs, poems and sayings												

If there any any types of knowledge that we have not listed and that you emphasize most strongly on a day-to-day basis for your children to memorize or remember, please list them below in order of importance (the first being the most important).

1. _____
2. _____
3. _____
4. _____
5. _____

V. Your Own Comments

In your own opinion, are there any differences between how your child is expected to learn things and behave at school, and how he or she is expected to learn and behave at home? If not, it's not necessary to comment here. If you do see some differences, please comment below.

VII. Parental Aspirations for Children's Educational Achievements

For this last part we are interested in the hopes and goals that you, as a parent, have for your child's education in the future. Many parents have some idea of the kind and amount of education they would hope that their children would achieve. To help us assess your hopes and goals for your child, I would appreciate it if you would answer the following questions.

- A. 1. Do you want your child to pursue either an academic education or technical education? _____
2. What kind of a job or occupation would you most desire your child to have when he/she grows up? _____

B. For the following group of questions, we would like for you to circle the answer which indicates how satisfied or dissatisfied you would be with each of the following situations.

1. If your child finished his/her education upon graduation from junior high school, would you be:

a) very dissatisfied	c) moderately satisfied
b) moderately dissatisfied	d) very satisfied
2. If your child finished his/her education upon graduation from high school, would you be:

a) very dissatisfied	c) moderately satisfied
b) moderately dissatisfied	d) very satisfied
3. If your child finished his/her education upon graduation from junior college or vocational school, would you be:

a) very dissatisfied	c) moderately satisfied
b) moderately dissatisfied	d) very satisfied
4. If your child finished his/her education upon graduation from a four-year college, would you be:

a) very dissatisfied	c) moderately satisfied
b) moderately dissatisfied	d) very satisfied
5. If your child finished his/her education upon graduation from a post-graduate master's or doctoral program, would you be:

a) very dissatisfied	c) moderately satisfied
b) moderately dissatisfied	d) very satisfied

C. For the next group of questions, please circle either yes or no.

At this point in time, do you anticipate that your child will:

1. Finish his/her education upon graduation from junior high school?
Yes No
2. Finish his/her education upon graduation from high school?
Yes No
3. Finish his/her education upon graduation from junior college or vocational school?
Yes No
4. Finish his/her education upon graduation from a four-year college?
Yes No
5. Finish his/her education upon graduation from a post-graduate or doctoral program?
Yes No

APPENDIX B

LEARNING AND MEMORIZATION EXPERIENCES THAT
YOUNG CHILDREN HAVE AT SCHOOL

LEARNING AND MEMORIZATION EXPERIENCES THAT
YOUNG CHILDREN HAVE AT SCHOOL

I. Demographic Information

1. Teacher identification number: _____
2. Teacher's sex: (circle one) Male Female
3. Grade taught during this school year: _____
4. How many pupils are in your class? _____
5. Number of boys _____; Number of girls _____
6. Are pupils from a predominantly rural, metropolitan, or urban area?
(circle one)
7. Number of years teaching at this level: _____
8. Please list other grades you have taught and the number of years of
experience at each level:

<u>grade</u>	<u>number of years</u>	<u>state</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

	Don't Encourage Pupils to Memorize at School				Encourage Pupils to Memorize at School				Require or Make Sure Pupils Memorize at School			
	0	1	2	3	4	5	6	7	8	9	10	11
16. Rules of conduct in teacher's absence												
17. Rules of safety												
18. Rules for finding things you need and putting them back where they belong												
19. Rules for using tools, utensils & appliances												
20. Rules of caring for property												
C. <u>Explanations</u>												
21. Explanations of body functions												
22. Explanations of events in nature												
23. Explanations of mechanical functions												
D. <u>Contents of Stories and Phrases</u>												
24. Themes, plots and characters in stories												
25. Words of songs, poems and sayings												

If there are any types of knowledge that we have not listed and that you emphasize most strongly on a day-to-day basis for your pupils to memorize or remember, please list them below in order of importance (the first being the most important).

1. _____
2. _____
3. _____
4. _____
5. _____

V. Your Own Comments

In your own opinion, are there any differences between how your pupils are expected to learn things and behave at home, and how they are expected to learn and behave at school? If not, it's not necessary to comment here. If you do see some differences, please comment below.

APPENDIX C
CHILDREN'S LEARNING AND MEMORIZATION EXPERIENCES
AT HOME AND AT SCHOOL

CHILDREN'S LEARNING AND MEMORIZATION EXPERIENCES AT HOME AND AT SCHOOL

I. DEMOGRAPHIC INFORMATION

1. Name _____
2. Sex _____
3. Age _____ (Birthday _____)
4. Grade _____
5. Teacher _____
6. Schedule Form _____

II. TYPES OF KNOWLEDGE

Instructions: I am going to show you some pictures and tell you about some things that parents and teachers want children like yourself to remember. Some of them are things that your parents want you to remember at home, others are things that your teacher wants you to remember at school. Each time I tell you and show you something, you have to tell me whether it is something that you have to remember at home or something that you have to remember at school. (If you're not sure, tell me whether it is more important that you remember at home or at school.)

As each knowledge type is presented, the interviewer will ask "Is this something you have to remember at home or something you have to remember at school?"

Response: To respond the child will point to a picture of a house or to a picture of a school.

	<u>H</u>	<u>S</u>	<u>Names of people and things</u>
1.	_____	_____	Famous places and things
2.	_____	_____	Doctors and dentists
3.	_____	_____	People's jobs
4.	_____	_____	Foods, drinks, and clothes
5.	_____	_____	Animals
6.	_____	_____	Family members, friends, and neighbors
7.	_____	_____	Famous people
8.	_____	_____	Numbers and alphabet letters
9.	_____	_____	Cities, states, and countries
10.	_____	_____	Plants and trees
11.	_____	_____	Appliances and tools
12.	_____	_____	Vehicles, machines, and tools

RULES

Instructions: Now I am going to talk about some rules that you have to remember sometimes. For each rule that I tell you, you have to tell me whether it is a rule you have to remember at home or a rule you have to remember at school. If you're not sure tell me whether it is more important that you remember at home or at school.

13. _____ Rules of arithmetic
14. _____ Rules of games and sports
15. _____ Rules of speech
16. _____ Rules for behaving with other people and animals when no grown-ups (adults) are around
17. _____ Rules of safety
18. _____ Rules for finding things you need and for putting them back where they belong
19. _____ Rules for using tools, utensils, and appliances
20. _____ Rules of caring for property

EXPLANATIONS

21. _____ Explanations of body functions
22. _____ Explanations of nature events
23. _____ Explanations of how things work

CONTENTS OF STORIES AND PHRASES

24. _____ The people and things that happen in stories and nursery rhymes
25. _____ Word of songs, poems, and sayings

III. PERCEPTIONS OF MEMORY EXPERIENCES AT HOME AND AT SCHOOL

Instructions: I am going to tell you things that you may hear or that you are supposed to do when parents and teachers want you to remember things. I want you to tell me whether these things happen more at home or more at school.

Response: To respond the child will point to a picture of a house or to a picture of a school.

H S

1. _____ Where are you told something over and over again until you can remember it? At home or at school?
2. _____ Where are you checked up on or tested to see if you can remember what you are supposed to? At home or at school?
3. _____ Where are you asked to remember just one thing at a time? At home or at school?

- | | <u>H</u> | <u>S</u> | |
|-----|----------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4. | _____ | _____ | Where are you asked to try to remember things by saying their names over and over again to yourself? At home or at school? |
| 5. | _____ | _____ | Where do you get a reward, or are told that you've done very well, when you have remembered what you are supposed to? At home or at school? |
| 6. | _____ | _____ | Where are you told to remember a lot of things at one time? At home or at school? |
| 7. | _____ | _____ | Where are you told to try to remember things by putting them into groups first, the things that are alike go in the same groups? At home or at school? |
| 8. | _____ | _____ | Where are you told beforehand that you will be checked up on or tested after you have learned something? At home or at school? |
| 9. | _____ | _____ | Where are you told to try to remember things by making up a story or a rhyme about them? At home or at school? |
| 10. | _____ | _____ | Where are you told beforehand that you will get a reward, or something nice will be said to you, if you do a good job of remembering? At home or at school? |
| 11. | _____ | _____ | Where is it all right to forget things some of the time? At home or at school? |
| 12. | _____ | _____ | Where do you have to figure out by yourself how to find an easy way (or trick to use) to remember something? At home or at school? |
| 13. | _____ | _____ | Where do you learn "tricks" that make things easy to remember? At home or at school? |

IV. PERCEPTIONS OF GENERAL PERFORMANCE EXPECTATIONS

Instructions: I am going to ask you some questions about how you may feel or what you may have to do at home or at school. For each thing I say I want you to let me know if it happens to you more at home or more at school.

Response: To respond the child will point to a picture of a house or to a picture of a school.

- | | <u>H</u> | <u>S</u> | |
|----|----------|----------|-------------------------------------------------------------------------------------------------------------------|
| 1. | _____ | _____ | Where do you have to listen more to what is said to you when you are learning? At home or at school? |
| 2. | _____ | _____ | Where do you get a chance to touch and pick up things when you are learning about them? At home or at school? |
| 3. | _____ | _____ | Where do you have to be more careful when you are learning things that you are supposed to? At home or at school? |
| 4. | _____ | _____ | Where do you learn things that you can do every day even when you're by yourself? At home or at school? |

- | | <u>H</u> | <u>S</u> | |
|-----|----------|----------|--------------------------------------------------------------------------------------------------------------------------------|
| 5. | _____ | _____ | Where do you have to think harder about what you are learning? At home or at school? |
| 6. | _____ | _____ | Where do you have more fun learning? At home or at school? |
| 7. | _____ | _____ | Where do you have to be very sure that you are learning something the right way? At home or at school? |
| 8. | _____ | _____ | Where are the things that are the easiest to learn? At home or at school? |
| 9. | _____ | _____ | Where can you take as long as you need or want to learn about things? At home or at school? |
| 10. | _____ | _____ | Where do you have to think by yourself about how to learn something before you start to try to learn it? At home or at school? |
| 11. | _____ | _____ | Where do you often learn about things that you've never seen or heard about before? At home or at school? |
| 12. | _____ | _____ | Where do you learn the things you will need to know when you grow up? At home or at school? |
| 13. | _____ | _____ | Where do you have to keep a lot of things in your head at the same time when learning something new? At home or at school? |

APPENDIX D
TABLES

Table A
Significant Differences in the Response Patterns
of Fathers and Mothers

Questionnaire Item	Fathers' Mean n=17	Mothers' Mean n=17	t value	p value
Does instructor repeat over and over what child is to remember?	4.76	6.94	2.23	.033
Is child asked to repeat to him/herself over and over what is to be remembered?	4.06	6.41	2.47	.019

Table B

Significant Differences in the Response Patterns
of the Three Subsets of Parents

Questionnaire Item	<u>F</u>	<u>p</u>	Scheffe' Multiple Comparisons
Names of numbers and alphabet letters	3.24	.044	No group differences
Is child told that it is all right to forget things some of the time?	4.82	.010	School 2 differs from School 3.
Child enjoys learning.	4.82	.010	School 2 differs from School 3.
Child learns about things never seen or heard of before.	5.06	.008	School 2 differs from School 3.

Table C

Significant Differences in the Response Patterns
of the Greensboro and Burlington Teachers

Questionnaire Item	Greensboro Mean n=62	Burlington Mean n=38	<u>F</u>	<u>p</u>
Names of animals	8.08	6.73	4.17	.044
Names of family members, friends, and neighbors	7.56	5.95	4.30	.041
Explanations of body functions	5.24	3.89	5.70	.019
Is child's memory tested by waiting before asking for the memorized material?	6.11	7.50	4.58	.035
Child enjoys learning.	.90	1.60	4.62	.034

Table D
Significant School and Sex Differences in the
Response Patterns of the Children

Interview Item	χ^2	$\frac{p}{\text{value}}$
<u>By School</u>		
Names of foods, drinks, and pieces of clothing	6.56	.038
<u>By Sex</u>		
Names of people's occupations and trades	6.44	.010

Table E

Significant Age-group Differences in the Response
Patterns of Teachers and Parents

Questionnaire Item	<u>F</u>	<u>p</u>	Scheffe' Multiple Comparisons
<u>Teachers</u>			
Names of doctors and dentists	3.34	.020	1 vs. 2
Names of numbers and alphabet letters	8.57	.000	K, 1 vs. 3
Names of cities, states, and countries	3.49	.019	K vs. 3
Rules of arithmetic	16.20	.000	K vs. 1, 2, 3
Rules of games and sports	3.28	.024	K vs. 3
Rules of speech	13.48	.000	K vs. 2, 3 1 vs. 3
Does instructor repeat over and over what child is to remember?	3.15	.029	No group differences
Is child notified ahead of time of ensuing test?	5.92	.001	K vs. 2, 3
Is child encouraged to make up stories or rhymes to make remembering easier?	3.01	.034	K vs. 3
Is child encouraged to try to figure out easy ways or "tricks" to remember things?	4.06	.009	K vs. 2, 3
Is child taught the kinds of strategies that adults use to aid memory?	4.61	.005	K vs. 1, 3

Table E (continued)

Questionnaire Item	<u>F</u>	<u>p</u>	Scheffe' Multiple Comparisons
Child must think about or keep track of a number of things at the same time in order to learn something new.	4.03	.010	K vs. 3
<u>Parents</u>			
Rules of arithmetic	3.64	.016	K vs. 3
Is child asked to memorize one thing at a time?	3.58	.017	1 vs. 2
Child finds things easy to learn.	2.72	.049	No group differences revealed

Table F
Significant Age-group Differences in the
Response Patterns of the Children

Interview Item	χ^2	p
Names of famous or historical cities and events	10.48	.01
Names of doctors and dentists	10.04	.02
Names of famous people in the news or in history	29.49*	.000
Names of numbers and alphabet letters	8.68*	.04
Names of cities, states, and countries	23.62	.000
Rules of arithmetic	8.68*	.04
Explanation of events in nature	16.80	.001
Explanation of mechanical functions	15.62	.001
Contents of stories (themes, plots, and characters)	10.92	.012
Contents of songs, poems, and sayings	21.72	.00
Where do you get a reward, or are told you're done well, when you have remembered what you are supposed to?	8.11	.04
Where are you told to try to remember things by putting them into groups first?	8.94	.03
Where do you have to think harder about what you are learning?	11.26*	.01
Where do you learn the things you will need to know when you grow up?	11.65	.001
Where do you have to keep a lot of things in your head at the same time when learning something new?	10.58*	.01

*At least one cell has an expected frequency of less than 5.

Table G

The Locus of Age-group Differences in the
Response Patterns of the Children

Interview Item	K-1	K-2	K-3	1-2	1-3	2-3
Names of famous or historical cities and events			X			
Names of doctors and dentists		X		X		
Names of famous people in the news or in history	X	X	X			
Names of cities, states, and countries		X	X		X	
Explanations of events in nature		X	X		X	
Explanation of mechanical functions		X	X		X	
Contents of stories (themes, plots, characters)			X		X	
Contents of songs, poems, and sayings		X	X	X	X	
Where do you get a reward or are told you've done very well when you have remembered what you are supposed to?			X			
Where are you told to try to remember things by putting them into groups first?			X			
Where do you have to think harder about what you are learning?			X			
Where do you learn the things you will need to know when you grow up?		X	X			
Where do you have to keep a lot of things in your head at the same time when learning something new?			X			

Table H

Adults' Purported Tendencies to Encourage or Require the Learning and
Memorization of Information Relevant both to Child's
Immediate and Future Experiences

Knowledge Type	<u>Mean Responses</u>				<u>Age Effect</u>		<u>Parent-Teacher Effect</u>	
	K-1 Parents	K-1 Teachers	2-3 Parents	2-3 Teachers	<u>F</u>	<u>p</u>	<u>F</u>	<u>p</u>
Names of people's occupations and trades	4.50 n=42	4.24 n=50	4.76 n=54	4.83 n=47	.82	.356	.03	.854
Names of animals	8.51 n=41	7.96 n=50	7.94 n=53	7.17 n=48	2.60	.109	2.50	.115
Names of plants and trees	4.26 n=42	3.88 n=51	5.04 n=54	5.78 n=49	10.36	.002	.25	.617

Table I

Percentages of Children Responding in the Home and School
Categories to the Question, "Where do you have to
remember (instance of knowledge type)?"

Knowledge Type	<u>Percentages</u>				<u>One Sample Chi Square</u>			
	Younger ^a		Older ^b		Younger		Older	
	% H	% S	% H	% S	χ^2	p	χ^2	p
Names of people's jobs	44	56	32	68	1.22	.269	11.97	.001
Names of animals	32	68	18	82	10.98	.001	38.25	.000
Names of plants and trees	57	43	46	54	1.76	.185	.54	.463

^a_n = 82

^b_n = 91

Table J

Adults' Perceptions of Memorization Demands
Imposed on Children at Home

Memory Skills Requirements	<u>Mean Responses</u>				<u>Age Effect</u>		<u>Parent-Teacher Effect</u>	
	K-1 Parents	K-2 Teachers	2-3 Parents	2-3 Teachers	<u>F</u>	<u>p</u>	<u>F</u>	<u>p</u>
Child is asked to remember one thing at a time.	7.52 n=42	6.96 n=48	5.98 n=54	6.77 n=48	5.62	.019	.18	.670
Child is told it is all right to forget some of the time.	6.48 n=42	6.75 n=51	5.06 n=54	5.86 n=49	6.93	.009	1.60	.208

Table K

Percentages of Children Responding in the Home and School
Categories When Asked Where Each Activity
Happens More Frequently

	<u>Percentages</u>				<u>One Sample Chi Square</u>			
	Younger ^a		Older ^b		Younger		Older	
Memory Skills	% H	% S	% H	% S	χ^2	p	χ^2	p
Where are you asked to remember just one thing at a time?	56	44	64	36	1.22	.269	6.87	.009
Where are you told it is all right to forget some of the time?	92	8	93	7	56.39	.000	68.58	.000

^a_n = 82

^b_n = 91

Table L

Adults' Perceptions of the Cognitive Performance
Requirements for Children at Home

Cognitive Performance Requirements	<u>Mean Responses</u>				<u>Age Effect</u>		<u>Parent-Teacher Effect</u>	
	K-1 Parents	K-2 Teachers	2-3 Parents	2-3 Teachers	<u>F</u>	<u>p</u>	<u>F</u>	<u>p</u>
Child enjoys learning things.	.57 n=42	1.00 n=49	.37 n=54	1.35 n=49	.13	.720	11.01	.001
Child finds things easy to learn.	.07 n=42	.20 n=49	-.22 n=54	.49 n=49	.00	.996	3.64	.058
Child can take as long as needed or wanted to learn things.	-1.60 n=42	-.98 n=50	-1.70 n=54	-1.88 n=48	4.07	.045	.64	.426

Table M

Percentages of Children Responding in the Home and School
Categories When Asked Where Each Activity
Happens More Frequently

Cognitive Performance Requirements	<u>Percentages</u>				<u>One Sample Chi Square</u>			
	Younger ^a		Older ^b		Younger		Older	
	% H	% S	% H	% S	χ^2	p	χ^2	p
Where do you have more fun learning?	52	48	51	49	.195	.659	.011	.917
Where do you find things easier to learn?	79	21	88	12	28.098	.000	52.319	.000
Where can you take as long as you need or want to learn things?	89	11	91	9	49.951	.000	61.813	.000

^a_n = 82

^b_n = 91