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LEARNING ABOUT SCHOOL: THE DEVELOPMENT OF KINDERGARTENER'S SCHOOL SCRIPTS

City University of New York PH.D. 1983

Learning about school:
The development of kindergartener's school scripts

Robyn Fivush

A dissertation submitted to the Graduate Faculty in Psychology
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Abstract

LEARNING ABOUT SCHOOL:

THE DEVELOPMENT OF KINDERGARTENERS' SCHOOL SCRIPTS

by

Robyn Fivush

Advisor: Katherine Nelson

The focus of this research was on children's developing knowledge about the school day routine. Three major issues were addressed: the formation and development of a general event representation, or script, the relationship between a general representation and specific event memories, and children's knowledge about the rules and regulations of the classroom and how this relates to their knowledge of the school day routine. Kindergarten children were interviewed four times during the first three months of school. They were asked general and specific questions about the daily routine and about the classroom rules. In addition, the kindergarten teachers were asked to evaluate their students.

The results indicate that children construct a general event representation on the basis of one experience with the school day routine. The event representation is organized as a spatial temporal framework of those acts which occupy a particular time and place in the daily routine, and each of these acts seems to subsume a collection of possible activities which might comprise that act.

Both the spatial temporal and the hierarchic organization of the event representation develops over time.

While children were easily able to report the general routine, the had difficulty recalling what happened in school the day before. Only when provided with a direct cue could children report information about yesterday's activities. These results suggest that general and specific event information is coded and retrieved in different ways.

Moreover, children knew the behavior rules of the classroom from the second day of school on, but had more difficulty learning the performance rules. Those children who reported a more elaborated school day narrative also evidenced better knowledge of the performance rules early in the school year, but by the third month this relationship was uncertain. Teacher evaluations were not related to children's knowledge of the school day routine, but they were strongly related to knowledge of the performance rules. Those children who evidenced better knowledge of the performance rules of the classroom were judged to be better students.

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And to John -- who never doubted.

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Introduction

The purpose of this research is to examine the development of children's knowledge about a routine event, the school day. This problem arose from the consideration of two issues in developmental psychology. The first is the problem of real world memory, or how children come to represent information about their world. This issue was examined within the framework of the script model of event representations. The second issue is how children learn the rules and regulations governing behavior and performance in the classroom. Research on classroom interaction has demonstrated that there is a complex social organization which children must learn in order to participate successfully in academic activities. It was believed that children might learn the rules and regulations of the classroom in the context of the daily routine of the school day. Before discussing this idea in more detail, a theoretical and empirical review of these issues will be given.

Memory Development

Whereas early work on memory development found young children's memory to be largely unorganized and idiosyncratic, more recent research has indicated that even very young children have generalized, organized knowledge about their world. The discrepent findings reflect a shift, both theoretically and methodologically, from laboratory

list-recall studies, which focus on categorical memory organization, toward more naturalistic methods for assessing the schematic organization of world knowledge.

Categorical organization. Much of the early work on memory development focused on the development of strategies for recalling categorically organized lists of words (see Hagen, Jongeward & Kail, 1975, for a review). This research indicates that children younger than about 7 years of age are predominantly non-strategic. Given a list of words to recall, they do not spontaneously rehearse the words (Ornstein & Naus, 1978), cluster the words into taxonomic categries (Moely, 1977), or exhaustively search during retrieval (Kobasigawa, 1977). Even when coerced into using an effective mnemonic strategy leading to better recall performance, they will not continue to use the strategy when the external constraints are removed (Flavell & Wellman, 1970; Williams & Goulet, 1975). One conclusion drawn from these findings is that with increasing age, children are increasingly able to efficiently organize material.

However, as Brown (1975) points out, this developmental increase is not evident in tasks which do not require deliberate mnemonic strategies. The prototypical example is recognition tasks which bypass encoding and retrieval strategies, but require the child to judge whether or not particulsr items were presented. In fact, there is little improvement in recognition memory from about age 4 on (Perlmutter & Lange, 1978) suggesting that it is not simply

memory organization that develops but the ability or the intention to use a deliberate mnemonic strategy when asked to recall a categorically organized list of words.

On the other hand, young children do evidence better recall when the material to be remembered is embedded in a more meaningful or naturalistic context. When preschool children are engaged in a meaningful activity they can remember a list of words (Istomina, 1975), recall the spatial location of various objects (Perlmutter, Sophian & Myers, as reported in Myers & Perlmutter, 1978), and even recall the location of a hidden object after several days delay (DeLoache & Brown, 1979). This is in accord with the Soviet view of involuntary memory (see Meacham, 1977, 1972, for a review). Material which is related to the individual's activity or goals will be automatically remembered because the ongoing activity provides a meaningful context or organization for subsequent recall.

Young children also perform better when the material itself is more meaningful, as the research on story recall has demonstrated (Mandler, 1978a; Stein & Glenn, 1979). This research is particularly interesting because young children not only recall a great deal but organize their recall in the same way as adults. (This will be discussed in greater detail in the next section.)

Taken together, these findings suggest that it is not the memory tasks per se which young children find difficult in list recall studies, but rather the organization of the material to be remembered. Young children may perform poorly on list recall studies because the categorical organization of the list is not easily accessible to them. This is related to Brown's (1975) notion of "headfitting"; when the material is organized in the same way as the child's head it will be easily understood and recalled. The problem, then, is to understand how young children organize their knowledge.

Schematic organization. Mandler (1978b) has argued that young children's memory organization is schematic rather than categorical. She defines a schema as a representation of a body of knowledge that is spatially or temporally organized according to contingencies experienced in the environment. A schema consists of a series of variables, or slots, which can be instantiated with greater or lesser degrees of probability. Since a schema is an organized whole, the instantiation of any one slot constrains the possible instantiation of all other slots. Examples of schematically organized knowledge include scenes, stories and events. Most important, schematic organization is not replaced by categorical organization later in development; adults continue to organize their knowledge of the everyday world schematically.

The term schema was first used by Bartlett (1932) in his work on memory for stories. Schema referred to general information organized into structural units. Bartlett particularly emphasized the active, dynamic nature of schemas. He argued that information is not comprehended detail by detail but instead, a general impression of the material is formed at the time of comprehension on the basis of a pre-existing schema and the details are constructed later to fit this impression.

The dynamic, constructive nature of the organization is a basic assumption of schema models. Models of memory designed to account for the organization of categorical material tend to focus on the static, declarative nature of memory representation. In contrast, schema models stress the procedural aspects of the representation (see Mandler, in press, for a discussion of declarative and procedural representations). Schemas are active processing elements containing procedural definitions of potential functions and operations (Bobrow & Norman, 1975).

Another assumption of schema models is automaticity. Schemas are automatically activated in familiar situations and are used to both process incoming information and to guide later recall without the use of deliberate encoding, storage or retreival strategies. Although it is often assumed that schema activation involves only top-down, conceptually driven processing (e.g., Rummelhart & Ortony, 1977), Bobrow & Norman (1975) have pointed out that schemas

must be data driven as well. The incoming information constrains the possible contexts of interpretation which will determine which schemas will be activated.

In sum, schemas are dynamically organized representations which specify with greater or lesser probability which variables will be present in a given situation. They are activated automatically in familiar situations and contain procedural information which specifies their functions and range of application.

Several predictions about how information will be comprehended, including distortions, elaborations and inferences, follow from schema models of memory. Bransford and his colleagues (Bransford, Barclay & Franks, 1972; Bransford & Johnson, 1972, 1973; Bransford & McCarrell, 1974) have conducted a series of studies addressing these issues using a semantic integration paradigm. In one design, subjects are asked to read and later recall anomolous sentences with or without an appropriate context. In an alternative design, subjects are presented with a series of related sentences and are later asked to distinguish the presented sentences from new sentences which express consistent inferences or elaborations. The basic assumption of the research is that comprehension is a joint function of the incoming information and prior knowledge. Certain cognitive contributions are necessary and these contributions must be made during the processing of material in order for comprehension to occur.

Bransford's research indicates that when there is no available context for anomolous sentences, subjects are not able to comprehend or later recall them, even if an appropriate context is given after the presentation of the sentences. Yet the same sentences are easily comprehended and recalled when the context is given beforehand. Further, subjects make inferences during comprehension which allow deeper processing of information. They falsely recognize sentences which state relations, instruments and consequences which were only implied in the presentation sentences. These findings confirm that schemas provide a background context for comprehension and that schematic processing is constructive and elaborative.

Paris and his colleagues (Paris & Lindaur, 1978; Paris & Mahoney, 1974; Paris & Upton, 1976) have studied semantic integration in children and found a similiar pattern of results. Children falsely recognize consistent inferences from presented sentences and pictures and can infer implied instruments, although there is some improvement in this ability with age. Brown (1976; Brown & French, 1976) also found that young children falsely recognize new but consistent pictures of narratives and are able to infer antecedants and consequences of meaningful sequences. Thus, schematic processing seems to function in qualitatively similar ways for children and adults.

The most convincing evidence of this developmental continuity is the research on story recall mentioned earlier (Mandler, 1978a; Stein & Glenn, 1979). Not only do children recall simple stories remarkably well, but they organize their recall in the same way as adults. Mandler has argued that story recall is guided by a story schema which specifies event categories, or nodes, such as reactions, goal paths, attempts and outcomes. Both children and adults tend to recall sentences from each of the major story nodes. Further, when stories are presented in a scrambled order, children and adults restructure the material to conform to the canonical order of the major story constituents even when asked to recall the material in the presented order (Mandler & DeForest, 1979). These findings suggest that story schemas automatically guide retrieval of story narratives.

It seems, then, that schemas are used for comprehending and recalling meaningful linguistic input. Although children do not perform as well as adults on memory tasks using categorically organized materials, when the material is schematically organized, children and adults perform in qualitatively similar ways. However, the focus of the research has been on the implications and consequences of schematically organized memory for particular experimental tasks. If, in fact, young children's memory is schematic, then it is imporant to specify more precisely the nature of the schematic organization. Questions of interest include

how schemas are acquired, how they are organized and how they develop. Further, although schema models of memory generally assume that schemas represent world knowledge, little is known about how young children come to represent their world. One way of approaching this problem is to examine what young children know about routine and familiar events.

The Script Model

Schank and Abelson (1977) have proposed a schema model of event knowledge based on scripts. They define scripts as spatially-temporally organized frames (Minsky, 1977) for defining an expected sequence of actions. Scripts include knowledge about the probable actions, actors and props in the event and allow individuals to predict and anticipate their environment. Bower, Black and Turner (1979) have conducted a comprehensive series of studies on the script model with adults. They found, first, that adults show a surprising degree of uniformity in which acts are mentioned for various events, such as visiting a doctor or going grocery shopping. Further, when asked to recall an event based story, adults tend to mention script actions which were not explicitly stated and also tend to revert misordered actions to their canonical order. They conclude that adults do have scripts for routine events and use scripts to comprehend, organize and make inferences about environmental events.

Nelson and her associates (Nelson & Greundel, 1982; Nelson, Fivush, Hudson & Lucariello, in press) have adapted the script model to study the development of event knowledge in young children. Their research indicates that children as young as three years report a familiar event such as going grocery shopping or to a birthday party, as a temporally organized sequence of actions. The event is reported in a generalized, action planning form, using the second person plural and the timeless present tense, "You do x." Morover, the acts reported are both common across children and consistent over time for any given child. These findings argue that scripts form a basic representational system even for very young children.

Nelson (Note 1) makes a further distinction between three levels of the representational system: the event structure, the event representation and the event narrative. The event structure refers to the organization of the event in the real world, the event representation is the internalized schematic representation of the event structure, and the event narrative is the verbal report of the event.

In past research (e.g. Bower, Black & Turner, 1979; Mandler, 1981) "script" has been used to refer to the event representation, the event narrative, or both, and the possible relations between the two levels has not always been clearly delineated. There is, however, suggestive evidence that the event narrative does reflect the

organization of the underlying representation. Gruendel (Note 2) asked children from three to eight years old for either a script or a story about a familiar event on two separate occasions. She found that both the content and the organization of scripts remained stable over time, while the stories did not, even though children were asked to recall their previous reports as exactly as possible. This suggests that children were not simply recalling their previous narratives when asked to report an event, but rather were reconstructing the event narrative from the organization of the underlying representation.

Further evidence for this interpretation comes from a study conducted by Hudson and Nelson (Note 3). They asked young children to recall event based stories in which several of the acts were temporally misordered. Children either reverted to the canonical order or omitted the missequenced acts from their recall. Again, this suggests that children are reconstructing the story event from the underlying organization of the event representation. Children's event narratives thus seem to be guided by the underlying representation.

Another question is whether the organization of the event representation necessarily reflects the organization of the event in the real world. For example, some events are more temporally constrained than others. When going to a restaurant, you must sit down before you can order, you must order before you can eat, and so on. Birthday parties,

in contrast, have a flexible temporal order. Certain things are bound to happen, but it doesn't much matter when. You can play before or after you eat cake, get balloons when you come in or when you leave, etc. This is essentially a distinction between causally linked actions, as in the restaurant event, and conventionally linked actions, as in the birthday party event.

Fivush (Note 4) asked five and seven year old children to sequence pictures of these two events, and, in fact, five year old children commonly agreed on the restaurant sequence but not on the birthday party sequence, although they did sequence the pictures coherently. That is, the necessary temporal relations were maintained (e.g., blowing out the candles occurred before eating the cake) but the other actions were sequenced flexibly. However, seven year old children commonly agreed on a temporal sequence for both the restaurant and the birthday party events. The fact that older children imposed a more rigid temporal organization on the birthday party event than necessarily exists in the real world suggests that the underlying representation may be organized around a "prototypical", or conventional birthday party sequence. Further, the developmental difference suggests that event representations may become more conventionally organized with increasing age or experience regardless of the causal structure of the event in the real world.

This discussion points to an important assumption underlying the script model. Although scripts are representations of events in the real world, they are not assumed to be based solely on the experienced action routines. The representation also reflects social and cultural aspects of events. That is, the way we think about and define events and the activities which comprise events is influenced by social factors. This influence is evidenced in several related ways. First, events are imbued with affective meanings which define the importance of the event and its relationship to other events in the world. Second, the organization of the event is influenced by social conventions, as the birthday party event discussed previously illustrates. Social conventions play an important role in our shared understanding about events and allow us to communicate about and participate in events with others in our sociocultural group. Finally, the individual's event representation is influenced by how others represent the event. The way in which events are talked about and displayed plays an important role in how the individual comes to understand and represent the event. Further, just as adults prepare themselves for new events by talking to others about their experiences, children are prepared for new events by being told about what to expect. These expectations influence how the first experiences with the event are understood.

Thus, this review indicates that even very young children have general, organized knowledge about routine events. The event representation is not a simple reflection of the structure of the event in the real world, but is also influenced by the social and cultural definitions of the event. Further, the underlying representation seems to be reflected in the event narrative, or script. What still needs to be considered is how this representation is formed and how it develops over time.

Script Formation. Theoretically, there are at least two possible ways in which an event representation can be formed. One assumes that the general event representation is abstracted from a series of specific autobiographical event memories. That is, the individual has several discrete memories and through a process of matching across these memories constructs a general representation based on those aspects of the event which are invariant. This process is analogous to the abstraction theory of concept formation, which assumes that the invariant features of the concept are abstracted across particular instances (see Nelson, 1974, for a discussion).

The second possibility is that the general representation is constructed from the first encounter with an event, and that additional experiences are incorporated into the general representation. Support for this alternative comes from children's reports of a fire drill after only one experience (Nelson, Note 5). Children still

reported the event in the general tenseless form and few children included idiosyncratic or autobiographical information. Nelson (Note 1) concludes that,

> "Young children's knowledge of event structures is generalized from the outset; that is, that the first experience of an event leads to an expectation that further experiences of the kind will contain the same basic elements and relationships and an open structure is set up for this purpose." (page 5)

A distinction must be drawn here between a general representation and an abstract representation. The term general stands in contrast to specific, while abstract can be contrasted to concrete. An event representation is general in the sense that the event structure will be asssumed to be similar for future occurrences of the event. That is, the representation is organized as a set of expectations. However, although the representation is assumed to be general from the outset, it may still be concrete, in that it is clearly based on actions experienced in the real world.

Further, the idea of a first encounter with an event needs some clarification. First of all, our understanding of any new event will be influenced by our understanding of events in general. Previous experience with events and already formed event representations provide information about how events can be structured in the world and what cues define the boundaries of events and their component actions. In addition, there are several ways in which an

experience can be considered to be a first encounter with an event. For example, an event can be completely novel and unlike any other event ever experienced. This type of event, however, must be extremely rare if it exists at all. Almost all of the events we experience in our lives can be thought of as similar to some other event, and, in fact, we probably search for similar event representations in order to understand new, but somewhat similar events. Even if we have not personally experienced an event, we can call on information available through the socal or cultural group about the event. Thus it is highly unlikely that we are ever in a situation where we have no expectations about what is likely to occur.

Another sense in which an occurrence can be a first encounter is to be a new routine of a familiar event. For example, one might have a restaurant script but the first encounter with a fast food restaurant would require modifying the representation. Although some of the basic actions remain the same -- ordering food, sitting down, eating and paying -- the sequence and procedures of implementation of these activities are different. Thus, one would construct a new event representation based on both the already established restaurant script and the new experience of going to a fast food restaurant.

Hence the claim that a general event representation is constructed on the basis of the first encounter with an event needs to be somewhat modified. The representation is assumed to be organized as a general set of expectations about the event after only one experience. However, the representation is constructed from the actual experience with the event, from previous experience with similar events and knowledge about events in general, and from expectations based on the sociocultural definitions of the event. What is important about this claim is that it is assumed that after only one experience with an event, all of these sources of information are integrated and coordinated into a general event representation.

One of the implications of this approach is that there are no episodic event memories at first, but only the general representation. Although this possibility seems counterintuitive, it has received preliminary support in a study done by Hudson and Nelson (Note 6). They found that three and five year old children were better able to answer a general, "What happens?", question about dinner at home or snack at their day care center than a specific, "What happened?", question about the same events. Thus, the general representation seems to incorporate specific episodic memories for routine events. Of course, some occurrences are remembered, but it is unclear why and when certain occurrences and not others are remembered. Both the process of formation and the relationship between the

general representation and specific memories needs to be studied in greater detail.

Script Development. Although previous script research has shown that young children give well organized, general verbal reports about familiar events, older children do give more elaborated event narratives. They not only report more actions than younger children, but they also give more complex kinds of actions. Complex actions are of two types, conditionals and optionals. An act is conditional if it specifies a prerequisite for another act, as in(1)

> "And then if you want desert, you can have desert." (Restaurant, 7,0)

A conditional can also specify the time at which a particular act can occur:

> "When the, there's cake, all the children turn off the lights." (Birthday party, 7,7)

An optional act is either one that may or may not occur in an event sequence, or a specification of alternative possibilities:

> "And you might get an ice cream cake." (Birthday party, 5,11)
>
> "My father goes to the desk and pays, or he pays at the table." (Restaurant, 7,8)

All of the research conducted thus far indicates that older

---

(1)All of the following examples are taken from data collected by Fivush (Note 4).

children use more conditionals and optionals in their event narratives.

This might suggest that event representations develop with age or general cognitive development. However, virtually all of this research has used a cross-sectional approach. Since scripts assess world knowledge and older children generally have more experience with the world than younger children, age and experience with the event are confounded. In a preliminary study addressing this problem, Nelson (1978) found that children who just began attending a day care center reported fewer acts than children of similar ages who had attended the center longer. Moreover, all the children reported more acts three months later. These findings suggest that experience with the event may be as important a factor as age.

The purpose of this research is to examine in more detail the development of an event representation by using a mini-longitudinal design. Children entering kindergarten were followed through the first three months of school. The school day was chosen as the event to be studied for several reasons. First, it is a highly routinized event. Second, experience with the event can be determined. Third, the school day can be conceptualized as one continuous event or as several discrete, temporally ordered events, such as lessons, procedural meetings, lunch, and so on, and thus would be likely to show large changes in organization over a relatively short period of time. Finally, children's

representations of the school day may have implications for their academic performance. As mentioned earlier, there are many rules and regulations which children must learn in order to successfully participate in academic activities. Children might learn these rules within the context of the daily routine of the school day. In order to more fully explicate this relationship, the next section discusses some of the work on classroom interaction.

Learning the Rules of the Classroom

As Jackson (1968) points out, children spend more time in school than in any other single environment, but researchers have generally overlooked what goes on inside of classrooms and have focused instead on the cognitive consequences of schooling (see Sharp, Cole & Lave, 1979, and Cole & Scribner, 1974, for reviews). Yet more is learned in school than academic subject matter (see also Dreeban, 1968). Much of what children must learn in school is the implicit structure of the classroom, or what Jackson calls the "hidden curriculum". In a theoretical analysis of the classroom structure, Jackson proposes four qualities that contribute to the implicit or hidden curriculum of the classroom.

The first quality is delay. Children spend much of their time in school simply waiting; waiting on line, waiting when they've finished their seatwork, waiting to be called on, etc. The second quality is denial of the child's

own goals and the adoption of the teacher's goals. Both of these are related to the third quality, power. The teacher is the ultimate source of authority in the classroom because the student is not free to leave. Only environments such as prisons and mental hospitals have this quality in the adult's world. In addition, while parents are basically restrictive, teachers are also proscriptive. That is, they not only tell children what they can't do, they also tell them what they must do.

The teacher's power further derives from the fourth and most important quality of school life, evaluation. Jackson argues cogently that the teacher's evaluation of students is not based solely on academic performance, but on how this performance is expressed. The teacher rewards "good" students -- those students who do what the teacher says, sit quietly, work neatly and generally follow the institutional regulations. An example is the practice of rewarding a student for trying. What this means in the context of the classroom is that the student is following established procedures even though his academic performance is poor. The non-academic basis of evaluations is especially evident in negative sanctions. As Jackson points out:

> "Why do teachers scold students? Because the student has given a wrong answer? Because, try as he might, he fails to grasp the intracacies of long division? Not usually. Rather, students are commonly scolded for coming into the room late or for making too much noise or for not listening to the teacher's directions or for pushing while on line. The teacher's wrath is more frequently triggered by violations of institutional

> regulations and routines than by signs of the students' intellectual deficiencies." (page 35)

According to this analysis, a large part of the educational experience consists of learning the regulations and routines of the classroom, and, more important, it is only within the context of the classroom structure that academic performance is expressed and evaluated.

Few empirical studies have examined children's knowledge of the implicit structure of the classroom. A notable exception is Mehan's work on how classroom lessons are accomplished (1974, 1976, 1979). Lessons are jointly constructed from the teacher's plans and student responses. Using videotapes of typical lessons, Mehan analyzed the implicit rules children must know in order to participate in this construction.

According to Mehan's analysis, lessons are built up from three part interactional sequences. The teacher initiates a sequence, a student replies and the teacher evaluates the reply. A sequence can be one of several types: elicitation, informative or directive. A specific type of initiation calls for a specific type of reply from the student and is evaluated accordingly.

The interactional sequences comprise phases of the lesson, such as opening, instructional or closing phases, each of which serves a particular function in the classroom. For example, an opening phase initiation might consist of

the teacher rearranging chairs in a certain way and saying, "Ok, class", which will inform students that a particular lesson is about to begin and they should respond in kind. There are also several types of instructional phases, each with its own normative rules, especially about how the student is expected to respond to initiations. Some initiations are "invitations to bid" and call for the student to raise her hand in order to gain the floor, while others are "individual nominations" in which the teacher specifically calls on certain students. Children must learn the implicit verbal and non-verbal cues governing the turn allocation procedures in order to participate in the lessons.

In general, both Jackson and Mehan draw attention to the complex organization of the classroom which children must learn in order to display their academic knowledge. Moreover, academic knowledge not expressed according to the normative rules will be negatively sanctioned. In fact, Leiter (1974) has argued that teachers' judge students' abilities more on the basis of their classroom behavior than their academic ability, especially in the lower grades. His research indicates that kindergarten teachers tend to label their students as particular social types, such as immature or insecure, based on social interactions and observations during free play. Once the child is labelled, her academic performance is judged accordingly. He further suggests that these labels may have long lasting effects since the teacher

also uses the label in deciding which first grade classroom the child will be placed in.

It is therefore crucial for the child to learn the implicit rules governing behavior in the classroom in order to successfully participate in academic activities. The rules include knowledge about how to engage in classroom lessons and appropriately display academic information, as well as the behavioral regulations and routines of the school day which must be followed in order to be labelled a "good" student. Yet very little is known about how children learn these rules. One possibility is that they are learned in the context of the daily routine of school. The spatial-temporal organization of the school day may provide a framework for anticipating and predicting what behaviors are expected. A first step in understanding this process is to examine how children represent school.

This is the approach taken by Lancy (1976, 1978), who has looked at the social construction of school in fourth and fifth graders. He argues that children construct "cognitive maps" or shared understandings about school and that rules are inferred from these representations. These rules then become prescriptions for future behavior.

Lancy taped random conversations between students as well as interviewing students more extensively about school, and found that students talked about school in terms of activities. There were a small number of named activities

and these were hierarchically organized. Activities generally fell into two clusters, work and play, and varied along three dimensions: "work play", "interactive noninteractive", and "objects words". So, for example, work includes "working on" and "getting". "Working on" includes "learning a skill" and "listening to" among others, and "getting" includes materials, such as "a booklet" or "a tape". When asked more specifically about various activities there was high agreement among students about what the activity was, and how it related to other activities, and its value to the student. Lancy concludes that students share a common representation of school life, and, in particular, a taxonomy of hierarchically organized school activities.

In summary, an important dimension of schooling is learning the implicit structure of the classroom. Although the research indicates that children do know the normative rules guiding academic performance and share a common representation of school, there is no data on how this representation develops. One possibility is that the classroom structure is learned within the framework of the daily routine of the school day.

Purpose and Predictions

Two major problems have emerged from this review. The first concerns the development of an event representation and the second focuses on children's knowledge of the rules and regulations of the classroom. In order to investigate these problems and the relationship between them, this research examines the development of school scripts. The study focuses on three issues: 1)the formation and development of a general event representation; 2)the relationship between the general representation and specific event memories, and 3)the relationship between children's knowledge of the classroom routine and their knowledge of the rules and regulations of the classroom. These issues are explored by interviewing kindergarten children during the first three months of school.

Although this is basically an exploratory study, several predictions can be made about the development of school scripts. First, a general event representation is assumed to be formed on the basis of the first encounter with a new event. Thus, children interviewed on the second day of school are expected to give a general account of the school day using the second person pronoun and the timeless present tense. Further, the general representation incorporates routine occurrences of the event. Therefore, children should have difficulty recalling what happened at school yesterday. Since the first experience is a general representation, rather than a specific episodic memory,

children should have difficulty recalling what happened yesterday even on the second day of school.

Second, children's scripts should become more elaborate over time. Children are expected to report more acts, and more complex acts, with increasing experience. It is not clear whether the organization of the representation will change over time.

Finally, it is suggested that the rules and regulations of the classroom are learned in the framework of the school day routine. As children's school scripts develop, they are expected to learn more about the institutional rules and regulations that must be followed. In addition, it is assumed that a child's knowledge of the classroom rules will be reflected in the teacher's evaluation. Children who evidence greater knowledge will be judged "good" students by their teachers. That is, they will be seen as well-adjusted, motivated, and perhaps even academically superior.

Method

Subjects

Thirty children participated in this study, fifteen from each of two kindergarten classes in an elementary school in Manhattan with a mixed racial and socio-economic population. The mean age at the beginning of the school year was 5,1 (range = 4,9 to 5,6); seventeen of the children were female and thirteen were male.

Measures

Two measures were used to assess children's knowledge about the classroom environment: a standardized interview was used to elicit children's event representations, specific event memories and their knowledge of the classroom rules and regulations, and a story task was used to gain more specific information about children's knowledge of the classroom rules. In addition, the two kindergarten teachers were asked to evaluate their students along various dimensions in order to provide information on the relationships between children's knowledge of the classroom and their performance in the classroom.

The interview. The interview questions (shown in Appendix A) were designed to assess three dimensions of interest: the general event representation, specific event memories and knowledge of the rules and regulations of the classroom. The event questions were based on previous work

using a script elicitation paradigm (Nelson, 1978; Nelson & Greundel, 1981). In addition to being asked about the school day as a whole, children were also asked about a daily work activity, reading, and a daily play activity, minigym. These questions were included in order to explore the relationship between the larger context of the school day routine and knowledge about component activities of that routine.

Specific memories were assessed by asking an open-ended question as well as more direct probes. Children were first asked what happened at school yesterday; they were then asked to recall the book that the teacher had read during snack the day before in order to determine whether routine occurrences of a daily event would be remembered. If they could not remember the book, they were given the title of the story and asked if they could remember anything about the story. At the last interview, children were also asked to recall the first day of school. It was thought that because this is a first occurrence of what becomes a routine event, children might be better able to remember the first day of school than any other particular day.

Finally, children were asked about the rules and regulations of the classroom. Some of these questions were adapted from an interview developed by Halperin (1976) and were refined in preliminary investigations for this study. As noted in the appendix, these questions were of two types, positive and negative. Positive questions were phrased in

such a way as to elicit those behaviors which are expected in the classroom, and negative questions were phrased to elicit those behaviors which are not permitted in the classroom.

Story Task. In addition to the interview questions, a story task was included to assess children's knowledge of the classroom rules. Children were told about two new children in their class, Billy and Sally, who had never been in school before and didn't know anything about it. The child's job was to tell Billy and Sally whenever they did something wrong. Children were then read 15 story vignettes describing Billy or Sally's behavior and were asked after each one if the character did something wrong, and if so, what. The story vignettes, which are shown in Appendix A, focus on 6 classroom rules, 3 behavior rules and 3 performance rules. These rules were selected from Jackson's (1968) and Mehan's (1979) analyses of classroom structure. For each rule, there was one story vignette about Billy and one about Sally. In 3 of the stories no rules were violated in order to determine whether there was a response bias such that children were simply responding "Yes" to all stories.

Teacher Evaluation. After the last interview, the two kindergarten teachers were asked to evaluate their students along 12 dimensions on a scale of 1 to 5. These dimensions are listed in Appendix A. They were adapted from several previous investigations (Biemiller, 1981; Marjorebanks, 1978; Pedulla, Airasian & Madaus, 1980), and include

classroom behaviors, adjustment to the school environment, and academic performance.

Procedure

Children were interviewed 4 times during the first three months of the school year: on the second day, during the second week, during the fourth week, and during the tenth week.

One group of 20 children, 10 from each of the two classrooms, were interviewed at all four time intervals. Of these children 11 were female and 9 were male; 13 had attended the nursery class at the school the year before. Because the act of verbally reporting an event may affect subsequent verbal reports, an additional group of 10 children, 5 from each of the 2 classrooms, were interviewed during the tenth week. The possible effects of repeated interviews were determined by comparing this control group to the repeated interview group.

The general school day question, specific memory questions and the rules and regulations questions were asked at all 4 interviews. Questions about the daily activities, reading and minigym, were only asked during the second week and the tenth week. The interview questions were asked in 4 predetermined orders such that the general event questions and the specific memory questions were always asked together, but half the time the general questions were asked

first and half the time the specific questions were asked first. The rules and regulations questions were asked before the event questions half the time, and half the time after the event questions. Although all the rules and regulations questions were interspersed, the positive questions were asked before the negative questions half the time and half the time the reverse. Children in the repeated interview group were asked the questions in a different order at each interview; children in the control group were randomly assigned to one of the orders.

Children were interviewed individually by one of three female experimenters in a quiet room in the school library. The experimenter told the child that she was interested in what children knew and thought about school and that she was going to ask the child some questions. Children in the repeated interview group were told at the first interview that the experimenter would be talking to them several times during the next few months.

For the general event questions, after the child responded to the "What happens?" question, the experimenter encouraged the child to continue by asking "And then what happens?" until the child indicated nothing else happened. For the specific memory questions, if the child remembered something that happened the day before, the experimenter asked the child to elaborate until she could be reasonably sure that the child was recalling a specific occurrence. The same type of probes were used for the question about the

book read yesterday. Probes for the rules and regulations questions were simply "Anything else?" until the child stopped responding. The interviews were tape recorded and transcribed for analysis.

The story task was given in a separate session during the second week and during the tenth week. At the second week, 15 of the 20 children in the repeated interview group participated in the story task. At the tenth week, the remaining 5 children in the repeated interview group and the 10 children in the control group participated in the story task. In this way, no child participated more than once in the story task and a direct comparison could be made between the child's performance on this task and the interview. To insure random selection of the story vignettes, each story was typed on a separate slip of paper and placed in a container. The child was asked to select one slip of paper from the container, the experimenter read the story vignette, asked the child to respond and the procedure was repeated. The experimenter recorded by hand the childrens' responses. The sessions were also tape recorded and the tapes were referred to when the experimenter's record was incomplete or ambiguous.

Results

The results are presented in four sections. First, the organization and content of children's general event representations are discussed. This section includes data on both the representation of the school day and the daily activities, reading and minigym. Second, children's specific event memories are reported. Third, children's knowledge about the rules and regulations of the classroom is presented. Both the interview data and the results of the story task are reported in this section. Finally, in the fourth section, the relationships among these measures as well as the teacher evaluations are discussed.

General Event Representations

Coding and Analysis. Each event protocol was broken down into its component acts. An act was defined as a single action or activity that can occur, such as "And then you have lunch". Within this category, an act could be further categorized as a conditional or an optional. A conditional specifies an action or a state which must be met in order for an act to occur, such as "Then I do art project if I have time", or specifies the time or duration of a particular act, e.g., "At snack, the teacher reads us a story". An optional specifies either an alternative action which can occur in the same time slot, such as "And then you go to the playground or to minigym", or an act which may occur at a particular time, e.g., "Sometimes we have

French." Eighty-five per cent of all statements across the four interviews were captured by this definition. The remaining statements were either descriptions of the physical environment, such as "There's a water fountain near the sink", or an affective state, such as "It's fun there", or repetitions of already mentioned acts, and were not included in the analysis(2). Two judges independently coded 25% of the protocols and acheived 90% agreement in coding individual statements as acts, optionals, conditionals, descriptions or repetitions. The remaining protocols were coded by one of the judges.

Linguistic analyses focused on the type of pronoun and tense used and the level of abstractness of the language of the event narratives. Event narratives structured in the first person plural pronoun or the second person pronoun, and the timeless present tense, "We do x" or "You do x", suggest a general representation, while event narratives structured in the first person singular and the past tense, "I did x", suggest a specific episodic memory. The relative abstractness of the language used when reporting the event was assessed by Flesch's (1950) coding scheme. This scheme quantifies the language used from abstract (0) to concrete (+1) as the ratio of definite words to the total number of

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(2) Preliminary analyses performed on the number of descriptions and repetitions mentioned in the event narratives showed no change in either type of statement over time. Descriptions accounted for 8% of all statements, and repetitions accounted for 7% of all statements across interview times.

words used. Definite words include proper nouns, finite verbs, present participles, personal pronouns, reflexive pronouns and interrogative pronouns. Changes in the relative linguistic abstractness of the event narrative might indicate changes in the concreteness or abstractness of the underlying representation.

The temporal organization of the event narrative was determined by comparing each protocol to a standard temporal sequence and calculating the percentage of missequenced acts. This analysis allows an examination of how closely children's event narratives reflect the sequence of the event in the real world. Finally, the commonality and consistency of children's reports were examined. Commonality refers to whether children agree with each other on which acts are reported and indicates the degree to which children share a similar event representation; consistency refers to whether each child reports the same acts across interviews and indicates the degree to which children's representations remain stable over time.

The data were analyzed in an analysis of variance design. Inadvertent differences between subgroups in the experimental procedure resulted in the loss of data on the general school day question for 8 children at the third interview. For this reason, interview time was treated as a between subjects factor. In order to control for possible violations of the assumptions underlying the analysis of variance model, the Greenhouse-Geisser correction for

degress of freedom was used in evaluating the F statistic (Winer, 1971). The number of children included in the analysis was 20, 19, 11 and 19 for each of the interview times respectively, and the degrees of freedom used for determining the critical F value were (1, n-1), where n is the harmonic mean, or 16 in this case.

Preliminary analyses were carried out on all measures between children in the two different classrooms, between males and females, and between the repeated interview group and the control group. Unless otherwise noted, these analyses revealed no significant differences on any measure.

Organization. Organization was conceptualized as how children structured their event narratives and was measured as the type of pronoun and tense used, the relative abstractness of the language used, and the sequence in which acts were mentioned.

The mean proportion of type of pronoun and tense used at each interview time is shown in Table 1. Separate analyses with pronoun (I/We/You/3d) and tense (past/present/future/conditional) as repeated measures revealed main effects for both type of pronoun, $F(1,15)=13.01$, $p < .05$, and tense used, $F(1,15)=13.22$, $p < .05$, but not interview time and no interactions. Newman-Keuls post-hoc comparisons confirmed that children at all four interviews reported the school day in the present tense more than the other tenses, which did not differ from

Table 1

Mean proportion of type of pronoun and tense used at each interview time for the general school day question

	Interview time			
	Day 2	Week 2	Week 4	Week 10
Pronoun				
I	.51	.27	.33	.31
We	.23	.42	.37	.52
You	.21	.23	.26	.11
3d	.06	.03	.05	.01
Tense				
Past	.07	.01	.01	01
Present	.85	.94	.95	.97
Future	.00	.09	.00	.00
Condl	.08	.04	.04	.02

each other ($p < .05$). This suggests that they were accessing a general representation rather than a specific memory. Children also tended to use "I", "We", and "You" with equal frequency but did not use the third person pronoun ($p < .05$). Examination of the protocols revealed that only 18% of the children used "I" exclusively in reporting the school day; 35% used only "You" and "We" and 46% of the children used all three pronouns in their reports. Of 154 acts reported in the first person singular across interview times, 116 were individual or free time activities (such as", "I put my stuff in my locker, or, "I play") and 38 were group activities (such as, "I eat lunch", or, "I do reading"). Thus, children tended to use the first person singular only to mark those activities which the class did not perform as a group. This suggests that children were aware of the differing social structure of various activities of school.

The relative abstractness of the language children used in reporting the school day, as measured by Flesch's (1950) coding scheme, did not differ significantly over time. The mean abstractness scores at each interview time were .49, .47, .41 and .40 respectively. Children reported the school day at the same relative level of abstactness at all 4 interviews.

In order to determine whether children were reporting acts in their correct temporal order, standard temporal sequences were constructed for each of the classrooms. These sequences included all acts mentioned by at least two children at any interview. Using this criterion, the standard sequences included 83% of all acts mentioned across the four interviews. The two classrooms shared a similar temporal routine. For classroom A, the standard sequence was: come to school ⟶ put stuff away ⟶ do art project ⟶ play in minigym ⟶ enter classroom ⟶ play ⟶ ring bell ⟶ clean up ⟶ have meeting ⟶ (do work, reading, social studies, math) ⟶ play ⟶ have meeting ⟶ have snack ⟶ go to minigym ⟶ do handwriting ⟶ eat lunch ⟶ play ⟶ have rest ⟶ (have meeting, go to special class) ⟶ play outside ⟶ go home, where ⟶ indicates the order in which the acts occur and parentheses indicate that any or all of those acts can occur in that time slot. Each event narrative was compared to the standard and the mean proportion of missequenced acts was calculated. An act was not considered missequenced if it was mentioned in response to a non-directive, "Anything else?", probe, but it was considered missequenced if it was mentioned in response to the temporal, "And then what happens?", probe. The mean sequencing errors for each of the 4 interviews were .07, .08, .08, and .05. Analysis confirms that these are not significant differences. Even at the second day of school, children reported acts in their correct temporal order and continued to do so for all interviews.

In sum, children's event narratives were organized in the same way at all 4 interviews. Children almost always reported acts in their correct temporal order using the present tense. Although they often used the first person singular pronoun, they tended to use this pronoun only to mark individualized activities. Further, their language was always at the same relative level of abstractness. These findings indicate that children have a general representation of the school day even after experiencing only one episode of the classroom routine, and the organization of this representation remains stable over time.

Content. Three measures were used to capture the content of children's event narratives: elaboration, or the number of acts mentioned in the narratives, commonality, or which acts children tended to include in their event narratives, and consistency, or the extent to which each child reported the same acts in each of the interviews over time.

Table 2 displays the mean number of each act type mentioned at each of the interviews. Analysis revealed that the number of acts and conditionals increased significantly over time, for acts, $F(1,15)=4.74$, $p < .05$, and for conditionals, $F(1,15)=4.68$, $p < .05$, but the number of optionals did not(3). Post-hoc comparisons showed that the number of acts mentioned increased from the fourth week to the tenth week ($p < .05$), while the number of conditionals

Table 2

Mean number of each type of act reported at each interview time for the general school day question

Act type	Interview time			
	Day 2	Week 2	Week 4	Week 10
Act	7.00	9.32	10.27	12.00
Optional	1.85	1.84	1.75	2.16
Conditional	.40	1.90	2.37	2.26

mentioned increased from the second day to the second week ($p < .05$). This indicates that children's event representations became more elaborate and more probabilistic over time.

All acts mentioned by at least two children at any interview are shown in Table 3, along with the percentage of children who reported each act. As mentioned earlier, this accounts for 83% of all acts mentioned across interview times. A Kendall's coefficient of concordance performed on these percentages showed that children mentioned acts with the same relative frequency across interviews, $W=.71$, $p < .01$. That is, certain acts, such as play, meeting, minigym and lunch, were mentioned more frequently than other acts, and the frequency of mention followed the same pattern across interviews. This suggests that there may be certain defining acts within the daily routine which children tend to mention most often when reporting the school day.

This suggestion is supported by the commonality of acts mentioned. Commonality was defined as those acts which were mentioned by at least 50% of the children for each interview. Although only 2 acts, come in and play, were mentioned by at least 50% of the children on the second day, at the second week, 6 acts were commonly mentioned and by the tenth week, 8 acts were commonly mentioned. Thus there

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(3)Analyses were also performed on the proportion of each type of act used across the four interviews and the results of these analyses were the same as for the number of each type of act.

Table 3

Percentage of children mentioning particular acts at each interview time for the general school day question

Act	Interview time			
	Day 2	Week 2	Week 4	Week 10
come in/put stuff away	50	37	42	32
ring bell/turn name	--	47	59	58
play	85	89	67	100
art project	15	16	33	21
meeting	35	68	58	100
work[a]	40	68	67	79
clean up	15	21	17	11
snack	20	42	58	58
minigym	20	53	42	89
lunch	45	63	50	84
rest	--	47	58	47
go home	40	58	67	63

[a]This includes children mentioning particular work activities such as handwriting or reading, as well as general references to doing school work.

was an extremely high degree of agreement, both between children at each interview time and across interviews in which acts are mentioned, suggesting that children quickly build up and share a remarkably common representation of the school day routine.

Children not only agreed with each other in which acts they mentioned, they also tended to be consistent over time in which acts they individually reported. Consistency was calculated as the number of times an act was mentioned at more than one interview divided by the total number of acts mentioned on all 4 interviews. The mean consistency score was .70. A one-sample t-test confirmed that this is significant, $t(15)=24.81$, $p < .001$. Thus children reported the same acts as they had in previous interviews, along with incorporating new, additional acts into their reports.

One unexpected aspect of these findings is the low frequency of mentioning academic activities. Although most children mentioned some type of academic work, there is little agreement in mentioning any particular work activity. Most of the acts which were commonly mentioned seem to be associated with a change of place. That is, the activity begins with the children moving from one part of the classroom to another (or outside). To explore this impression further, transitions between acts were categorized as involving spatial movement or not. Spatial movement could be either explicitly stated, as in, "We have rest and then we go outside to play", or implicit, such as,

"We have minigym. And then we have lunch", where the second act clearly occurs in a different spatial location. As shown in Table 4, more than half of the transitions between acts involved a change of place at all four interview times. Thus, the component activities of the school day seem to be marked at least partly by spatial cues. Activities are not only defined by when they occur, but also by where they occur.

This may help explain why academic activities are not mentioned more frequently. Most academic activities are initiated by the teacher calling a general meeting and then the particular lesson begins. Both because meetings are clearly defined by a change of place while academic lessons are not, and because various academic lessons might occur during a meeting, children may be subsuming academic activities under the heading of meeting. That is, academic tasks may be conceptualized as a group of possible activities, or slot-fillers, that may or may not occur during the routine activity, "meeting".

In summary, while the organization of the event narratives did not change over time, the content of children's reports did change. The increase in the number of conditional statements from the second day to the second week indicates that children's representations became more probabilistic with just a few experiences with the event, and the increased number of acts mentioned from the fourth week to the tenth week indicates that the representation

Table 4

Number of transitions between acts involoving spatial movement at each interview time

Transition between acts	Interview time			
	Day 2	Week 2	Week 4	Week 10
Spatial movement	70	109	67	130
No spatial movement	37	56	31	78

continued to become more elaborate with continued experience. However, the reports were general even at the second day. The general organization, as well as the high consistency and commonality of children's reports are striking when reading the protocols. In order to give the reader a better sense of how children report the school day routine, several protocols are given in Appendix B.

It is worth emphasizing that children in the control group, who were only interviewed at the tenth week, reported the same acts, both quantitatively and qualitatively, and organized their reports in the same way as the children in the repeated interview group. This indicates that the changes in the verbal reports over time were not due to extraneous effects, such as the development of rapport between the interviewers and the children or the effects of previously reporting the school day event, but rather reflect changes in the underlying event representation. Further, comparisons between those children who had attended the nursery class at this school the year before and those who had attended other nursery programs revealed no differences in their reports on the second day of school on any measure. This indicates that the generalization of the routine from only one experience is not necessarily dependent on previous experience with a similar routine.

Daily Activities

During the second week and the tenth week of school, children were asked about a daily work activity, reading, and a daily play activity, minigym. These protocols were coded in the same way as the school day narratives.

Neither the organization nor the content of children's reports about reading changed over time. Table 5 shows the mean proportion of type of pronoun and tense used at each interview. Separate analyses with pronoun and tense as repeated measures revealed main effects for type of pronoun, $F(1,15)=4.52$, $p < .05$, and tense used $F(1,15)=144.96$, $p < .05$, but not interview time for either variable. Post-hoc comparisons showed that children used the second person plural more than any other pronoun ($p < .05$) and the present tense more than any other tense ($p < .05$) when reporting this activity. The mean level of abstractness of the language used was .61 at the second week and .52 at the tenth week, which is not a significant difference as determined by a t-test. The number of acts, conditionals and optionals also did not change over time, as shown by separate t-tests. These data are displayed in Table 6. However, children in the control group who were interviewed only during the tenth week mentioned more acts in their reports than children in the repeated interview group. This was the only significant difference found between children in the repeated interview group and children in the control group on any measure for any question, and it is not clear

Table 5

Mean proportion of type of pronoun and tense used at each interview time for the daily activities questions

	Interview time	
	Week 2	Week 10
	Reading	
Pronoun		
I	.12	.19
We	.44	.46
You	.08	.19
3d	.19	.12
Tense		
Past	.00	.07
Present	1.00	.85
Future	.00	.03
Condl	.00	.05
	Minigym	
Pronoun		
I	.20	.30
We	.54	.50
You	.00	.05
3d	.26	.15
Tense		
Past	.03	.00
Present	.95	.99
Future	.02	.00
Condl	.00	.01

Table 6

Mean number of each type of act reported at each interview time for the daily activities questions

Act type	Interview time	
	Week 2	Week 10
	Reading	
Act	2.25	2.11
Optional	.50	.72
Conditional	.08	.33
	Minigym	
Act	2.14	2.11
Optional	.43	1.63
Conditional	.36	.53

what this difference may mean.

The pattern of results for children's reports about minigym were essentially the same as for reading. There were main effects of both type of pronoun, $F(1,15)=9.06$, $p < .05$, and tense used, $F(1,15)=119.25$, $p < .05$, and post-hoc comparisons showed children predominantly used the first person plural ($p < .05$) and the present tense ($p < .05$) when reporting this activity as well (see Table 5). The mean abstract score was .57 at the second week and .53 at the tenth week, which is not a significant difference. The number of acts and conditionals mentioned did not change over time, but the number of optionals did increase from the second to the tenth week, $t(16)=2.81$, $p < .05$ (see Table 5).

Sequence analyses were not performed on these narratives because children did not report these activities as a series of actions. Instead, children tended to give a list of examples of what the activity as a whole could be. The only act commonly mentioned for reading was "We read", and for minigym, "We play." The typical protocol began with this common act and then listed one or two examples of the activity. For example:

> "Well we read and find out letters and do riddles." (Reading, Week 2)
>
> "Play. You play army. We have water guns and we squirt water from them." (Minigym, Week 2)
>
> "Well, we have to do it, reading. And then we, like, have to cut the thing out and paste it."

(Reading, Week 10)

"Play a lot. And W. chases us. Sometimes we play house. Sometimes I play by myself." (Minigym, Week 10)

Children's reports of these activities are essentially lists. Even the increase over time in the number of optionals reported for minigym reflect the list-like nature of the reports, rather than an organizational change. Optional acts for minigym were lists of possible games which could be played or children who could be played with. This is analogous to how children seem to conceptualize academic activities. That is, certain routine activities, such as meeting and minigym, seem to subsume a group of possible actions which may occur during the activity. The school day seems to be a temporally organized framework of component activities while the component activities seem to be categories of possible actions.

Specific Event Memories

The number of children who were able to recall events of the day before is shown in Table 7 for each type of question. Although memory for the story read yesterday could be clearly categorized as yes or no, responses to the open-ended, "What happened?", question were more ambiguous. Many children responded with general information to this question but were unable to supply any details when probed. For example, several children said they had lunch yesterday but could not recall what they had eaten. These responses

Table 7

Number of children who recalled events of the day before at each interview time

Question	Interview time			
	Day 2	Week 2	Week 4	Week 10
What happened yesterday?				
Yes-Specific	9	8	7	6
Yes-General	8	8	7	5
No	3	3	5	8
Do you remember the book?				
Yes	14	4	4	9
No	6	14	15	8
Do you remember (book title)?				
Yes	4	11	9	4
No	1	3	5	4
Do you remember the first day?				
Yes-Specific				8
Yes-General				7
No				4

were categorized as general recall.

Separate χ^2 analyses on each response category for each type of question were performed. Only the number of children able to recall the book read yesterday decreased significantly over time, $\chi^2 = 7.84$, $p < .05$, and this decrease appears to occur from the second day to the second week. Although there are no other significant changes in these data over time, several things should be noted about the pattern of responses.

First, even at the second day of school, less than half of the children were able to recall a specific event of the day before, and this pattern was the same whether children were asked the specific event questions before or after the general event questions. Yet children could report the general school day routine, again suggesting that the representation is general rather than episodic after only one experience. The information seems to be coded as an open framework of expectations, not as a specific memory.

Second, the decrease in children's ability to recall the book read yesterday suggests that specific occurrences of a daily event become difficult to remember even after few experiences with the event. However, most children were able to recall the book when given the title. This indicates that the information is available in memory but is not easily accessible when the school day routine is used as a retrieval guide. That is, the various books read are not

tagged in memory by when they were read, but by what they were about.

Finally, during the tenth week of school, both classrooms went on a trip to see a puppet show about Thanksgiving. Although about 10 children were interviewed the following day, only about half recalled this event. (This was the event recalled by all 6 children who recalled something specific.) Even a novel and exciting diversion from the school day routine was difficult to recall within the framework of the general event representation.

At the last interview, children were also asked what happened on the first day of school. Again, fewer than half of the children were able to recall anything specific (8 of 19). This is not too surprising considering that fewer than half of the children could recall anything about the first day on the second day of school. What is surprising is that only 3 of the children who recalled something specific at the tenth week had recalled something specific on the second day. In fact, children were generally inconsistent in their ability to recall a specific event across time. No child recalled something specific on all 4 interviews. Only 5 children recalled something on 3 interviews, and 4 children recalled nothing on any interview. The remaining children recalled something on 1 or 2 interviews.

Thus, all children had difficulty recalling specific events of the day before even on the second day of school. Further, routine occurrences of a daily activity quickly become difficult to remember. This is not to say that children do not have specific memories. They clearly do, as evidenced by children's ability to recall the book read yesterday given its title. Rather, it seems to be difficult to access specific event information from a general event representation. This suggests that general and specific information may be coded and accessed in different ways.

Rules and Regulations

Interview Data. Children were asked open-ended questions about the rules and regulations of the classroom at all four interviews (see Appendix A). Their responses to these questions were divided into 2 major categories, behavior rules and performance rules. Behavior rules were further categorized as either restrictive or proscriptive behavior rules. Restrictive rules specify those behaviors which are not allowed in the classroom and include: 1)physical constraints, such as no hitting, no screaming and no fighting, and 2)leaving the room without permission. Proscriptive rules are those behaviors which are expected or required in the classroom, and include: 1)attention behaviors, such as listen, pay attention and sit quietly, 2)routines, or specifying when particular activities are permitted or should occur, as in you have to have rest after

lunch, 3)housekeeping rules, such as clean up and put things away, and 4)general reference to required behaviors, such as you have to do what the teacher says.

Performance rules focus on the expression of academic knowledge, and include: 1)academic tasks, or specifying particular tasks which must be performed in the classroom, such as handwriting, reading and math, 2)turn-taking procedures, such as raise your hand and don't call out, and 3)evaluation, or referring to the fact that academic work will be evaluated by the teacher, as in, you have to do your reading right. Two judges independently coded 25% of the protocols and achieved 92% agreement in assigning children's responses into these categories. The remaining protocols were coded by one of the judges.

The number of responses falling into each of the response categories along with the number of children making responses in each of these categories are shown in Table 8. Children were easily able to verbalize rules of the classroom and gave many rules and regulations in response to these questions at all four interviews.

For the behavior rules, children knew both restrictive and proscriptive rules from the second day of school, as evidenced by the large number of responses in these categories. In particular, most children gave responses in the physical constraint and the routine categories. Girls seemed to know the behavior rules better than boys, as shown

Table 8

Number of responses to the rules and regulations questions and number of children giving responses in each category for each interview time

Category	Interview time			
	Day 2	Week 2	Week 4	Week 10
		Behavior rules		
Restrictive rules				
physical constraints	41[a](17)[b]	39 (18)	54 (17)	65 (18)
leave room	3 (3)	5 (3)	6 (5)	10 (8)
Proscriptive rules				
attention	6 (6)	15 (10)	4 (3)	7 (5)
routines	22 (12)	20 (12)	23 (11)	39 (12)
housekeeping	10 (8)	9 (7)	15 (9)	11 (9)
general	10 (6)	9 (7)	11 (6)	18 (11)
		Performance rules		
Academic tasks	40 (18)	35 (17)	25 (11)	47 (19)
Turn taking	1 (1)	3 (3)	7 (4)	7 (4)
Evaluation	12 (8)	4 (4)	9 (6)	3 (3)

[a]Number of responses in each category

[b]Number of children giving responses in each category

in Table 9 which breaks down the number or responses given in each category by sex. More girls gave more responses in the "physical constraint" and the "routine" categories than boys. However, all the children seemed to give more rules with increasing experience. In addition, the increase in reference to routines suggests that children's knowledge of the rules and regulations of the classroom may be partly based on their knowledge of the classroom routine.

The pattern of responses for the performance rules was quite different. As Table 8 shows, almost all the children mentioned many academic tasks in response to these questions even on the second day of school. Further, girls mentioned more academic tasks than boys (see Table 9). These findings are particularly interesting in light of the fact that children tended not to mention academic tasks when reporting the school day routine. This indicates that children do know that various academic activities are expected to be performed in school, but these activities do not seem to be integrated into the spatial temporal framework of the event representation. In contrast to academic tasks, few responses fell into either the turn-taking or the evaluation categories at any of the interviews, and there did not seem to be any increase in knowledge of the performance rules over time. Further, there appeared to be no differences between boys and girls in either the number or the type of performance rules given in the interview, as shown in Table 9. Thus, children did not seem to learn the more implicit

Table 9

Number of responses to the rules and regulations questions in each category for each interview time by sex

Category	Interview time							
	Day 2		Week 2		Week 4		Week 10	
	M	F	M	F	M	F	M	F
Behavior rules								
Restrictive rules								
physical constraints	18	23	14	25	19	35	29	35
leave room	1	2	1	4	4	2	3	7
Proscriptive rules								
attention	3	3	6	9	1	4	1	6
routines	11	11	7	13	6	17	21	18
housekeeping	6	4	4	5	11	4	5	6
general	2	7	3	6	2	8	4	14
Performance rules								
Academic tasks	17	23	13	22	4	21	20	27
Turn taking	1	0	1	2	2	5	1	6
Evaluation	5	5	2	2	2	6	1	2

performance rules of the classroom as well as the behavior rules.

Story task. The story task assessed children's knowledge of the behavior and performance rules of the classroom by requiring children to correct rule violations. Fifteen of the 20 children in the repeated interview group were given the story task during the second week and the remaining 5 children in this group plus the 10 children in the control group were given the story task during the tenth week.

As indicated in Appendix A, the behavior rule stories focused on leaving the room without permission, sitting quietly, and paying attention. The performance rule stories focused on raising your hand, initiation of topic, and evaluation. After hearing each of the story vignettes children were asked if the character did something wrong, and if so, what. If the child responded no, it was scored as 0. If the child responded yes, but gave the wrong reason it was scored as 1. If the child simply repeated part of the story in giving a response, e.g., saying that you're not supposed to bang your pencil on the table for story 2a, it was scored as 2, and if the child gave the underlying reason, e.g., saying that you're supposed to sit quiet and/or not disturb the other children in response to the same story, it was scored as 3. Thus, children received a score ranging from 0 to 3 for each of the 12 stories. (For the distractor stories, children claimed no violation had

occurred 84% of the time, indicating that children were not simply responding yes to all the stories. The distractor stories were excluded from the analysis.)

The proportion of use of each response level was calculated for each child for the behavior and the performance rules separately. The mean proportion of response level used is shown in Table 10 for both rule types at each interview time. Preliminary analysis showed no effect of sex of character in the story vignettes; the data were collapsed and entered into a 2(interview time) by 2(rule type) by 4(response level) analysis of variance, with interview time as a between subjects factor and rule type and response level as within subject factors. There was a main effect of response level used, $F(3,84)=20.05$, $p < .001$, but not time or rule type. However, there was a rule type by response level interaction, $F(3,84)=17.01$, $p < .001$, and post-hoc comparisons showed that for behavior rules, children responded at the highest response level, 3, more that at any other response level ($p < .05$), while for the performance rules, children responded at the highest response level, 3, and the lowest response level, 0, equally often, but tended not to respond at the intermediate levels ($p < .05$). Thus, children knew the behavior rules and could easily correct a violation, but had more difficulty with the performance rules.

Table 10

Mean proportion of responses at each response level by rules type for the story task at each interview time

Response level	Interview time	
	Week 2	Week 10
	Behavior rules	
0	.18	.16
1	.09	.11
2	.31	.23
3	.42	.50
	Performance rules	
0	.41	.42
1	.09	.11
2	.06	.04
3	.44	.42

A further 2(sex) by 2(rule type) by 4(response level) analysis of variance collapsed over time revealed a three way interaction between sex, rule type and response level, $F(3, 84)=3.99$, $p < .05$. Post-hoc comparisons showed that while girls and boys responded in the same way to the performance rules, girls knew the behavior rules better than boys ($p < .05$). Boys tended to repeat part of the story vignette (response level 2) while girls gave the underlying rule (response level 3).

These results corroborate the interview data. Children knew the behavior rules of the classroom quite well. They could both verbalize them in an interview situation and correct rule violations in an experimental task. Further, girls seem to know the behavior rules better than boys. They not only mentioned more restrictive and proscriptive behavior rules in the interview than boys, but they also responded at a higher level on the story task.

Performance rules seem to be less well known. Children tended not to refer to the turn taking procedures or the evaluative nature of the classroom in the interviews, and had difficulty correcting a performance rule violation on the story task. Although almost half of the responses were at the highest response level for the performance rules, almost half were at the lowest level, claiming that no violation had occurred. Moreover, children did not evidence better knowledge of the rules on the story task over time. Children already knew the behavior rules by the second week,

but continued to have difficulty with the performance rules at the tenth week. This supports the argument that the performance rules are difficult for children to learn. The next question is whether those children who have more elaborated representations of the school day routine have also learned the rules better, and whether this is related to the teacher evaluations.

Relationships among the measures

In order to determine the relationships among the measures, Spearman rank order correlations were computed between children's scripts, the types of rules and regulations they gave in the interview, their story task performance and the teachers' evaluations. Correlations were computed on data collected during the tenth week and included children in the control group.

Scripts were ranked according to the degree of elaboration, with the child giving the fewest acts, optionals and conditionals ranked 0 and the child giving the most acts, optionals and conditionals ranked 29. Types of rules given in the interviews were combined into three major categories, restrictive behavior rules, proscriptive behavior rules and performance rules. The proportion of each rule type reported was calculated for each child and the three rule types were ranked independently from the lowest to the highest proportion. Children's performance on the story task was ranked according to the mean response

level used for the behavior and the performance rules separately(4). Finally, the teachers' evaluations on each of the 12 dimensions from 1 to 5 were added, giving each child a possible score from 12 to 60. The 3 dimensions assumed a priori to be negative, distractibility, dependence on adults and disruptive classroom behavior, were reversed for scoring, and the actual scores ranged from 32 to 60.

Table 11 shows the Spearman rank order correlations between all the measures. Children who evidenced better knowledge of the performance rules, both in the interview and on the story task, were judged to be better students by their teachers. Knowledge of the behavior rules on the story task was related to knowledge of the performance rules on the story task, but not in the interview. In addition, teacher evaluations were related to knowledge of the behavior rules on the story task but not to behavior rules given in the interview. Further, the negative relationships between the rule types given in the interviews indicates that children tended to give either behavior rules or performance rules. That is, children who gave behavior rules tended to give only behavior rules and children who gave performance rules tended to give only performance rules. This suggests that behavior rules and performance rules are distinct categories of knowledge.

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(4) Since only 15 of the children interviewed during the tenth week participated in the story task, rankings were determined again on all measures for these 15 children in order to compute these correlations.

Table 11

Spearman rank order correlations between measures at Week 10

	Event narratives	Restrictive rules	Proscriptive rules	Performance rules	Story task Behavior	Story task Performance	Teacher evaluations
Event narrative	1.00						
Restrictive rules	.37*	1.00					
Proscriptive rules	-.10	-.49**	1.00				
Performance rules	-.22	-.32*	-.51**	1.00			
Story task Behavior	.29	.58**	-.27	.05	1.00		
Story task Performance	.40*	.65**	-.53**	.15	.79**	1.00	
Teacher evaluations	.15	.12	-.25	.33*	.75**	.72**	1.00

*$p < .05$
**$p < .01$

Turning to the relationships with children's knowledge of the school day routine, children who gave elaborated narratives also knew the performance rules as assessed by the story task, but not the interview. However, children who gave many restrictive behavior rules in the interview gave well elaborated narratives.

Thus, teachers' evaluations are clearly related to knowledge of the performance rules but inconsistently related to knowledge of the behavior rules. Knowledge of the performance rules may be related to knowledge of the school day routine, although this relationship is also inconsistent, and teachers' evaluations are not related to knowledge of the school day routine. Overall, the pattern of correlations is confusing. In order to clarify these relations, correlations were computed between all measures on the data collected during the second week. These correlations are shown in Table 12. Here, children who gave elaborated scripts also evidenced better knowledge of the performance rules both on the interview and the story task. Behavior rules and performance rules again seem to fall into distinct categories of knowledge; children tended to give either behavior rules or performance rules, and knowledge of the classroom routine is related to knowledge of the performance rules but not behavior rules. By the tenth week, these relations have become muddled.

Table 12

Spearman rank order correlations between measures at Week 2

	Event narrative	Restrictive rules	Proscriptive rules	Performance rules	Story task Behavior	Story task Performance
Event narrative	1.00					
Restrictive rules	-.32	1.00				
Proscriptive rules	-.07	-.01	1.00			
Performance rules	.33*	-.58**	-.71**	1.00		
Story task Behavior	.19	.03	-.26	.24	1.00	
Story task Performance	.37*	.04	.06	.08	.27	1.00

*$p < .05$
**$p < .01$

In an attempt to disentangle the developmental pattern, correlations were computed between children's scripts during the second week and all other measures during the tenth week, and between children's scripts at the tenth week and other measures at the second week(5). Children who gave elaborated scripts during the second week gave many proscriptive behavior rules, $r=.45$, $p < .05$, and few restrictive behavior rules, $r=-.35$, $p < .05$, during the tenth week. There were no significant correlations between children's scripts at the tenth week and other measures at the second week. Thus, there is some suggestion that knowledge of the proscriptive rules may partly stem from knowledge of the classroom routine.

In summary, knowledge of the classroom routine and knowledge of the performance rules are clearly related early in the school year but by the tenth week this relationship has been attenuated. Teachers' evaluations are not directly related to knowledge of the classroom routine at either the second week or the tenth week, but those children who evidence better knowledge of the performance rules during the tenth week are judged to be better students. In fact, children who report more performance rules in the interviews at the second week are judged to be better students at the

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(5) These correlations included only the 19 children who were interviewed at both the second and the tenth week. In addition, correlations could not be computed for the story task since most of the children who participated in the story task during the tenth week had not been interviewed during the second week.

tenth week, r=.38, p < .05. Thus, although the relationship between children's knowledge of the classroom routine and the performance rules of the classroom remains unclear, the relation between knowledge of the performance rules and the teachers' evaluation is straightforward. Children who know the performance rules of the classroom are judged to be better students.

Discussion

Three major issues were addressed in this study: 1)the formation and development of a general event representation, 2)the relationship between a general representation and specific event memories, and 3)children's knowledge of the rules and regulations of the classroom and how this might relate to knowledge of the school day routine.

The Development of a General Event Representation

Even on the second day of school, kindergarten children reported the school day in a general form. They structured their event narratives in the present tense, using the first person plural, "We", or the generalized "You", although they often used the first person singular to mark individualized activities. As the protocols in Appendix B indicate, children rarely included idiosyncratic information in their reports at any of the interviews. Further, children always reported the school day at the same relative level of abstractness and the reports were always well sequenced.

The most striking aspect of these data was the stability of the organization over time. Children already had a well organized representation of the school day after experiencing the school day routine only once. It should be noted that the school day was not a completely novel event, as all of these children had some previous school

experience. However, the kindergarten classroom was a new and different routine in several important respects. Aside from the obvious facts that the kindergarten teachers were different, the other classmates were different, and the physical room was different, kindergarten was a full day of school, while most of these children had attended nursery school on a half day schedule. The kindergarten day was not only longer, but also involved activities which were not a part of the nursery routine. Moreover, these activities occurred in a different temporal sequence than the schedule of activities in nursery school. The fact that children's kindergarten scripts were temporally organized on the basis of only one experience indicates that the organization of their reports was specific to this particular classroom routine.

In addition, several of the acts mentioned on the second day of school, such as "putting your stuff away" and "ringing the bell", were new to the kindergarten routine, while other acts, such as "rest", were not mentioned on the second day although they were a part of the nursery routine. What is interesting about this particualr activity is that children did not have "rest" on the second day of kindergarten, but they subsequently had "rest" every day, and "rest" was a commonly mentioned activity in later interviews. In fact, no child intruded nursery school activities into their reports on the second day of school. This strongly suggests that their kindergarten reports were

based on their first experience with the kindergarten routine.

Thus it seems that children do form a general event representation on the basis of one experience with an event, and the organization of this representation remains stable over time. The event representation seems to be constructed both from previous experience with a similar event and from the first experience with the new kindergarten routine. In addition to the experiential basis of the representation, there are probably a host of social factors which influence the organization of children's reports. First, the teachers announce the routine. Not only on the first day of school, but almost everyday, the teachers tell the children what they are going to be doing during the day. How the teachers talk about the routine undoubtedly influences how children come to understand the routine and the component activities of the routine. Second, parents probably prepare their children for the first day of school by telling them what to expect, as do older siblings and the children's nursery school teachers from the year before. Children also learn a great deal about school from television and books. Surely, all of these sources effect children's expectations and representation of school. Unfortunately, in studying a real world phenomenon, it is not always possible to ascertain the affects of all possible sources of influence. However, this is clearly an important area for future research.

Two areas of investigation can be suggested here. First, it would be interesting to interview parents and teachers about the school day event in order to compare their expectations and representations of school with the child's. This kind of data would provide information on how others' representations of school influences children's developing event representation. Along these same lines, it would be important to interview children before the first day of school about their expectations and to compare this information to their subsequent reports about the school day in order to explore how expectations about an event affects the kind of information picked up about that event.

A second area of study focuses on aspects of the school day routine. Observations in the classroom of how teachers announce the day's activities, and how various activities are talked about and labelled could be compared to how children talk about these activities when reporting the school day routine. More controlled experiments could also be done, where children are exposed to new routines under various conditions of verbal explication. These kinds of data would allow an investigation of the effects of labeling activities on how children subsequently report those activities.

Although further studies are important for a fuller understanding of the various sources influencing the construction of an event representation, the results of this study are still impressive. Children were able to integrate

and coordinate all of the various sources of information and construct a general event representaion after one experience with the classroom routine.

While the organization of children's event representations remained stable over time, the content of their reports did change. Although it is not surprising that children reported more information about school with increasing experience, the way in which the reports changed present an interesting developmental pattern.

First, children were highly consistent in which acts they mentioned across interviews. At any given interview, each child tended to report the same acts she had reported in the previous interview plus some additional ones. These findings, along with the stability of the organization, suggests that the event representation is an organized framework from the outset, and with increasing experience more information is integrated into this framework. Not only does the representation become more elaborate, as indicated by the increase in the number of acts mentioned, it also becomes more probabilistic, as evidenced by the increase in conditional statements.

In some sense, conditionals are on the border between content and organization. Statements which express causal conditions (if/then relations) and temporal conditions (when, before and after relations) not only provide information on what actions may happen, but also on when

they may happen. Reporting acts in their correct temporal order indicates that children understand the sequence of events in a beginning to end framework. Their ability to augment this framework with conditional statements suggests that the temporal framework is more complex. Children's use of before and after statements to modify when actions may occur indicates an understanding of temporal reversibility, and their use of when, and if/then relations suggests an understanding of causal and temporal prerequisites. These uses suggest that the temporal organization of the event representation is not a sequential chain linking action to action. Rather, the organization seems to a temporal whole; each action is related to the entire daily routine and a temporal change in any one activity may affect any or all other activities.

Another aspect of these reports was the high level of agreement between children in which actions were mentioned. That is, the particular actions within the real world event which children tended to report were the same. This suggests that certain component actions within the school day routine may be the defining activities of the event. Further, these activities seem to be at least partly marked by spatial cues. Those activities which begin with a change of place either within the classroom or from place to place within the school tend to be the ones mentioned in common.

This should not be a particularly surprising finding. The classrooms were set up in such a way as to encourage this kind of spatial representation; particular areas of the classroom were reserved for particular activities. Moreover, this kind of spatial arrangement is not peculiar to the school environment. Almost all environments contain these kinds of spatial definitions. A good example is the home environment, where particular activities occur in particular rooms. An interesting area for future research would be to more fully explore the relationship between the spatial and the temporal representation of events.

In addition to being spatially defined, these commonly mentioned activities appear to be "header" acts; each of these acts seems to encompass a collection of possible actions. For example, children generally did not mention particular work activities when reporting the school day. Yet they did report many academic tasks when asked about the rules and regulations of the classroom. Children did know that academic activities are a part of what is expected in the classroom, but these activities are not integrated into the spatial temporal framework of the daily routine. Rather, as argued earlier, they seem to be subsumed under the header activity, "meeting".

The same relationship seems to hold for the daily activities which children were asked about, reading and minigym. Children did not give spatially temporally organized narratives for these events. Instead, they

reported a list of possible activities which these events might include. Thus, the school day event seems to be hierarchically organized, with the general event representation providing the spatial temporal framework of header acts, and each header act subsuming a list of possible activities which might comprise that act. Header acts seem to be defined as those acts which occupy a particular time and place in the routine, and these are the acts which children tend to mention when asked about the school day. The possible actions which comprise these acts are the variables of the routine and tend not to be reported. Further, the increase over time in the number of optional acts reported for minigym suggests that, although the header act might be established in the spatial temporal framework early on, the list of activities it subsumes continues to develop.

In summary, children seem to construct a general, spatial temporal framework of the school day routine after just one experience. The organization of this representation remains relatively stable, although the increase in conditional statements suggests that children's event representations become more probabilistic and temporally complex. Further, the spatial temporal framework seems to include those acts which occupy a particular time and place in the routine, and these acts seem to encompass a list of possible actions which might comprise the activity, in a hierarchic fashion. Thus, children do not simply

report more acts over time. Both the temporal and the hierarchic organization of the event representation seems to become more complex with increasing experience with the event.

The General Event Representation and Specific Event Memories

Perhaps one of the most intriguing findings of this study was the difficulty children had remembering what they did in school yesterday, even on the second day of school. This strongly supports the argument that the event representation is general from the outset, rather than constructed on the basis of several discrete event memories. Further, although children could not easily recall a specific routine activity (the book read yesterday during snack) when provided with a cue, children could provide specific information. Thus it is not that the information is "lost" or unavailable; only that it is difficult to recall using the general event representation as a retreival guide. Even when a novel activity occurred the day before, such as the Thanksgiving puppet show, most children did not spontaneously report this episode when asked to recall what happened yesterday.

These findings suggest that there may be two memory processes; one to code general information about events and one to code specific event episodes. General event information seems to be coded in a spatial temporal

framework, as discussed above, but the difficulty of accessing specific information using a temporal cue suggests that specific event information is not coded this way(6).

There are at least two possible explanations for this difference. First, if an activity routinely occurs in a particular place and time, then any one occurrence of that activity would not have a distinctive spatial or temporal cue. Previous research on the relation between encoding and retrieval cues has shown that the more distinctive the cue for an item, the easier it is to recall (see Bobrow & Norman, 1975, for a discussion). Thus the worst possible cue for recalling a particular occurrence of a routine event would be a spatial or temporal one. This would also explain why the title of the book was such a successful cue. The title would provide enough information to allow the child to distinguish this one occurrence from all other occurrences.

The second possibility is that "yesterday" is a poor retrieval cue because children first have to recall when yesterday was, and then reconstruct that day's events. The temporal cue "yesterday" is relative to when the question is

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(6) This contrasts with Tulving's (1972) dichotomy between episodic and semantic memory, where he argued that episodic memory retained its spatial and temporal links while sematic memory does not. The distinction between general event information and specific event information however, cuts across Tulving's distinction in that general event representations are neither episodic nor semantic memory in Tulving's sense. Unlike episodic memory, they are generalized knowledge, but they are not necessarily abstract as is sematic memory, in that they are clearly based on real world experience and have a definite spatial and temporal frame.

being asked; it is not part of the organization of the event to be recalled (see also Hudson & Nelson, Note 6). For the general event representation, the temporal sequence is an integral part of the organization. These really seem to be two different kinds of temporal memory codes. This would explain why children still had difficulty recalling an unusual occurrence of the day before even though it had a distinctive time and place associated with it.

Probably neither one of these explanations is wholly correct, but rather each contributes to making this a particularly difficult memory question. Further, it is not only children who have difficulty recalling specific event memories given a temporal cue. In a study of her own autobiographical memory, Linton (1982) also found that temporal cues were almost useless for recalling past events, and she even had difficulty recalling whether a given event occurred before or after other events. Specific event memories simply do not seem to be coded by when they occurred for either children or adults.

Thus, the general event representation does not incorporate routine occurrences of the event, as had been predicted. Children were able to report both general and specific event information, but these two types of information seem to be coded and retrieved in different ways, and, in fact, may be organized independently in memory. While general event representations are temporally organized, specific event memories do not seem to be. This

difference, however, may reflect different kinds of temporal organizations. The temporal organization of a general event representation is not when an event occurred in the past, but rather when an action can be expected to occur in a given event sequence. Although these results suggest that general event representations and specific event memories reflect separate memory processes, more research is needed to explicate these differences and clarify the relationships between them.

Knowledge of the Classroom Rules

The third issue addressed in this study was children's knowledge of the rules and regulations of the classroom, and how this might relate to their knowledge of the classroom routine. Both the open-ended interview and the story task indicate that children knew the behavior rules of the classroom quite well from the second day of school on, but had more difficulty with the performance rules. In fact, behavior rules and performance rules seem to fall into two distinct categories of knowledge. Children tended to give either behavior rules or performance rules in the interview, and behavior rules and performance rules were inconsistently related in the story task. Whereas all children knew the behavior rules, fewer children seemed to know the performance rules.

One reason why children were easily able to learn and verbalize the behavior rules may be because these rules are taught explicitly. Teachers announce both restrictive and proscriptive rules from the beginning of the school year and continue to correct behavior violations. Because these rules are clearly labelled, they may be particularly easy for children to learn. Further, girls always gave more behavior rules than boys, and they also responded at a higher level to the behavior rule stories. That girls knew the behavior rules better conforms to the generally accepted view that girls behave better in the classroom than boys. Another possibility is that girls are actually exposed to different rules than boys. For example, girls may give more physical constraints than boys because girls are subject to more physical constraints in the classroom than boys. However, this sex difference should not overshadow the fact that all the children knew the behavior rules quite well and gave more behavior rules with increasing experience with school.

In contrast to the behavior rules, performance rules seem to be taught more implicitly; they often have to be inferred from ongoing interactions in the classroom, and this may be why they are more difficult for children to learn. This, of course, is the position argued by Mehan (1979). Most important, children who best knew the performance rules were judged to be better students by their teachers. This relationship strongly supports the position

that students are evaluated not only by what they know but also on how they express this knowledge.

Of course, these data are correlational and must be interpreted with caution. While it is tempting to argue that children who easily and quickly learn the behavior rules of the classroom are judged to be better students because of this knowledge, the data do not permit so strong a statement. However, two aspects of the data support this interpretation.

First, teachers' evaluations were more consistently related to children's knowledge of the performance rules than to their knowledge of the behavior rules. Thus, teachers are not simply evaluating "obedient" children as better students; their evaluations are more related to the ways in which children have learned to express their academic knowledge. The distinction between behavior rules and performance rules has not always been clearly delineated in previous research. These results suggest that they might not only be learned independently, but they are also differentially related to how students are perceived and evaluated in the classroom.

Second, those children who best knew the performance rules during the second week of school are judged to be better students at the tenth week. This suggests that teachers' subsequent evaluations are at least partly based on how children have previously learned to express their

knowledge, although more research is needed to clarify this relationship. Perhaps most provocative, even at the kindergarten level, teachers seem to be differentially evaluating their students on the basis of how well they know the performance rules. This extends Leiter's (1974) argument that kindergarten teachers differentially evaluate their students on the basis of their social interactions.

Another one of the hypotheses of this study was that children might learn the rules of the classroom within the framework of learning the school day routine. If this were the case then those children who had well elaborated representations of the school day would also evidence better knowledge of the rules. Children's knowledge of the school day routine does not seem to be related in any sytematic way to their knowledge of the behavior rules but may be related to knowledge of the performance rules. Although the relationship between children's school day narratives and their knowledge of the performance rules was clear at the beginning of the school year, by the third month this relationship was equivocal. Further, there was no relation between children's school scripts and their teacher's evaluation.

One possible reason for the confusing pattern of relationships is that by the third month of school virtually all of the children had well elaborated representations of the routine. The limited variability suggests that children's school day scripts are not really a

differentiating variable.

Another, and more problematical factor is the nature of the relationship between children's narratives of the school day and their behavior in the classroom. One of the assumptions underlying the script model is that scripts are procedural knowledge, and would therefore be reflected in behavior. To date, however, almost no research has addressed this issue. This is clearly a crucial area for future investigations.

In any case, the relationship between children's event narratives and their knowledge of the performance rules early in the school year, and the more limited relationship found during the third month suggests that knowledge of the school day routine may play a role in learning the performance rules, although this relationship is by no means clear from these results. However, the clear and strong relationship between knowledge of the performance rules and teachers' evaluations suggests that children may be evaluated at least partly by how they have learned to participate in classroom activities and express their academic knowledge.

Summary and Conclusions

This research examined the development of children's school scripts during the first three months of kindergarten, and explored the relationship between children's knowledge of the school day routine and their knowledge of the rules and regulations of the classroom.

The results indicate that children construct a general event representation on the basis of only one experience with the school day routine, and with increasing experience, this representation becomes more elaborate and temporally complex. The event representation is organized as a spatial temporal framework of those acts which occupy a particular time and place in the daily routine and each of these acts appears to subsume a collection of possible activities which might comprise that act. Both the spatial temporal and the hierarchic organization of children's event representations seems to develop over time.

While children were easily able to report the general school day routine, they had difficulty recalling what happened the day before. Only when provided with a more direct cue could children report more specific information about yesterday's activities. These results suggest that general and specific event information is coded and retrieved in different ways, and may be organized independently in memory.

Moreover, children knew the behavior rules and regulations of the classroom from the second day of school on, but had more difficulty learning the performance rules. Those children who reported more elaborate school day narratives also evidenced better knowledge of the performance rules early in the school year, but by the third month of school this relationship was uncertain. In addition, teacher evaluations were not related to children's knowledge of the school day routine, but they were strongly related to knowledge of the performance rules. Those children who evidenced better knowledge of the performance rules were judged to be better students.

Three major conclusions can be drawn from the results of this research. First, a generalized event representation is constructed on the basis of the first experience with an event and this representation becomes more elaborate and complex with continuing experience. Second, the general event representation is coded and retreived independently from specific event memories. Third, whereas all children knew the behavior rules of the classoom, the performance rules are more difficult to learn. Although the relation between children's knowledge of the school day routine and their knowledge of the performance rules was unclear, those children who best knew the performance rules were judged to be better students by their teachers.

Appendix A:

Measures

Interview Questions

General event representation:

1. What happens when you go to school? When you get to school in the morning, what's the first thing that happens? And then what happens?
2. What happens when Ms. X gives you a reading assignment?
3. What happens when you go to minigym?

Specific event memories:

4. What did you do in school yesterday? Can you remember anything you did yesterday in school?
5. Do you remember the book that Ms. X read during snack yesterday? Can you tell me what that story was about?
6. Do you remember it was a story about (cue)? Can you tell me a little bit about that story?
7. (Asked only at the last interview) Do you remember the first day of school? What did you do on the very first day in Ms. X's class?

Rules and regulations:

Negative questions:

8. Does Ms. X ever get sad? What kinds of things make Ms. X sad?
9. Does Ms. X ever get angry? What kinds of things make Ms. X angry?
10. Are there some things that you're not allowed to do in school? What are they?

Positive questions:

11. What kinds of things make Ms. X happy?
12. What kinds of things does Ms. X ask you to do?
13. Are there some things that you have to do in school? What are they?

Story Vignettes

Behavior rules: Maintenance of order in the classroom:

1. Leaving the classroom:
   a. One day during handwriting, Billy was very thirsty. So he got up and went out into the hall to the water fountain.
   b. The other day, Sally saw a friend of hers out in the hallway. So she got up and ran out into the hall to say hello.
2. Sitting quietly:
   a. The other day, Billy finished his arithmetic before all the other kids. So he started banging his pencil on the desk and talking to all the other kids around him.
   b. One day, while the class was doing reading, Sally called out to her friend across the room and asked if she wanted to play together later.
3. Paying attention:
   a. One day the teacher was asking all the kids questions about letters. But Billy was thinking about playing ball after school, so when the teacher called on him, he couldn't answer the question.
   b. The other day, Sally was playing around during meeting time. So when the teacher asked her a question, she didn't know the answer.

Performance rules: the expression of academic knowledge:

1. Initiation:
   a. One day the class was talking about words that rhyme with "bat". So Billy said, "Ok, now can anybody think of a word that rhymes with "ball"?

b. The other day the teacher called the students together. When they were all sitting in a circle, Sally said, "Ok, today let's talk about animals."

2. Response:

a. One day during a meeting, a lot of children were raising their hands, and the teacher called on Jimmy. But before Jimmy could say anything, Billy called out the answer.

b. The other day the class was talking about colors. The teacher asked, "Who can think of anything that's purple?" and Sally called out an answer.

3. Evaluation:

a. The other day, the teacher was asking about words that start with the letter T. Billy asked if truck started with the letter T and the teacher said yes. Billy said, "That's right, good. Truck starts with the letter T."

b. One day Sally was reading a story about animals and she asked the teacher what animal has a trunk. The teacher said elephants have trunks and Sally said, "Yes, that's right, very good."

Distractors:

1. One day Billy and his friend were building with blocks when the teacher called a meeting. So they put the blocks away and went to sit in the square.

2. The other day the class was talking about numbers and the teacher asked how much 2 plus 2 was. Sally raised her hand and when the teacher called on her, she said 4.

3. One day the class was working with letters in their seats. Billy finished before everyone else, so he played quietly until everybody else finished too.

Teacher Evaluation Dimensions

1. Motivation to learn
2. Distractibility
3. Initiation of activities
4. Ability to work with limited supervision
5. Following instructions
6. Academic ability
7. Adjustment to achool
8. Dependence on adults
9. Disruptive classroom behavior
10. Following school routines
11. Participation in class
12. Performance on school tasks

Appendix B:

Sample school day narratives

Day 2

Play. Say hello to the teacher and you do reading or something. You can do anything you want to...Clean up, and then you play some more, and then clean up, and then play some more, and then clean up. And then you go to the gym or playground. And then you go home.....You have your lunch and you go home. You go out the school and you ride on the bus or train and you go home.

I just go to school. Then we do stuff. And then we have lunch and snack and then we go home. ...We play a little and then we go to the gym sometimes, or else we can go to the playground. And then we have snack and then, in an hour, we have lunch. And then we can draw a picture or read and then we go home.

I play a lot. Handwriting and color. We play with the bricks over there and the puppet thing over there. And then we could paint. They go outside. Then my mother takes me home.

I take the school bus and then I, we go to somebody else's house and I go to Hunter. And then I go to my class. Then I play and play and play and play. We learn things. And I would have lunch. And I think, maybe, I would go home. But we would have a few meetings.

You play. And then you clean up. And then you go in a circle for meeting. And you do things. You do, write things. Like you do things that you copy your name and you put the capital letters andthe lower case letters.

Week 2

We play. And then you have meeting. Then you have some more play. And then you have another meeting. And then you go to the minigym or the playground. And then you go home. ...Sometimes I read books and sometimes I draw. Sometimes I write and sometimes I get a drink of water. And there's snack time and lunch time.

We, I have to do my handwriting again after I did it the other day, 'cause it's not so good. And then we play; everyone, even the teachers. And then the kids ring the bell and the teacher's put away whatever they were playing with...And then it's time for a meeting. And then after meeting, I go here, and after going here, I go back to my classroom. And next we go to the minigym. And then it's handwriting time, and then it's lunch time, and then it's rest time. And then we're going to Central Park, if it's not raining. And then we go to the playground, maybe, if it's not too late. And then we'll go home at night time.

Well, we have to turn our name over. And then all you could do your handwriting, or something like that. But the really first thing, you have to turn your name over. I mean, the really first thing, you have to put your stuff in your locker. And then you have to turn your name over. That's the first thing. And then we could start playing, or doing our handwriting. And then after we do our handwriting, we could play again. And then she tells us to clean up. And then we have to sit on the blue line (for meeting). And then we have snack. And then we, after that we can play again. And then after we play, you have to clean up. And go to lunch. Then we could write stuff after that. And then we go to nap time. I mean after that, we go to nap time. And then after we wake up, Then we could play for a few minutes or play outside or something like that. And then our mothers take us home.

I play a lot. I have lots of fun. We put our things in our locker. Then you go into the classroom and say hello to the teachers. There's this thing on the board that has our name and we turn that over. Then we play a game. We play something, we have a meeting, then we play again, have another meeting, play again, we go like that for a little while, until we have another meeting. Then we have snack. Then we play outside or in the minigym. And we come back, eat lunch, have nap and go home.

We do art things. You go back in the class. Then we play. Then when the bell, we have a little bell in there, and when the bell rings, we go in the meeting. Like you sit in the square. Then we have snack. Then we go out to the minigym and then we come back. And we do some math. And then we have lunch. Then we play a little bit. We have nap. No, we don't, we don't play a little. After lunch, we have nap. And then we get our stuff. Then we go on the bus or someone picks us up, but I always go on the bus.

Week 4

First you have meeting. Then you have, no, no, no. First, someone rings the bell for meeting, then you go to meeting. Then you go back to what you were doing. Then you clean up. Then you have a meeting. No, then you have snack time. Then you go somewhere and I went today to the park, but not everyday. And if you didn't go somewhere, you would be doing play again. Then meeting, then clean up and then go home. Open the door of home and go home.

You play. Meeting, handwriting. Gym, and then handwriting. And then lunch, and then rest, and then courtyard, and then home. Or club first and then home.

You have to put our stuff in the locker. And then we have to turn over our name. And then sometimes, we can play. And then we have to sit on the blue line. And then we have, or we could do our handwriting. Then we have snack. Then after snack, we can play again. At snack, we have to, the teacher reads us a story. And then after that, we play again. And then after that, we eat lunch, and then after that, we take a nap, and then we take our reading jobs. And then after that, we go home.

The very first thing is we put our things in our locker. Then we go in and turn our name over and we start playing something. And we have one meeting and another meeting and another meeting, and it keeps on going like that until lunchtime. Then we have rest and we go home. We have snack during the day.

Week 10

Have meeting, social studies, then you have snack. Then you have minigym. And then you have lunch. No, handwriting, then you have lunch. And then after lunch, you get a little play. And then it's time to go home.

Play, meeting, have math, social studies, snack, minigym, handwriting, lunch, rest, then we go to the park. And then go home and watch TV.

First, turn our names over. We can play or do our handwriting. And after that, we have to do our reading jobs. And you have to go to meeting. And after that meeting, another meeting. And then we eat snack. Then we eat lunch. You could draw.

Turn over our names. And the very first thing, is put my things in my locker. I come in and turn over my name. I play a game or something, and then we have our first morning meeting. And I keep on going like that. Probably we go back to playing. The second morning meeting, we have snack. Then we probably go to minigym. Then we come back and have lunch. Then we have lunch. We probably have another meeting and then we go home.

We play. After I finish playing, when it's clean up time, I get in a square for meeting. I do social studies. We play again. Then it's clean up time. You go to another meeting. We do our homework, I mean our school work, in our notebooks. It's a tough day in school. We eat lunch, we do our handwriting and we go to the minigym. And we have rest time and we go back home.

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