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Urban preschool children's understanding of temporal and causal relations

Flores, Roseanne L., Ph.D.

City University of New York, 1993

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URBAN PRESCHOOL CHILDREN'S UNDERSTANDING OF TEMPORAL AND CAUSAL RELATIONS

by

ROSEANNE L. FLORES

A dissertation submitted to the Graduate Faculty in Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York.

1993

@1993

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This manuscript has been read and accepted for the Graduate Faculty in Psychology in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

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Abstract

URBAN PRESCHOOL CHILDREN'S UNDERSTANDING OF TEMPORAL AND CAUSAL RELATIONS

by

Roseanne L. Flores

Adviser: Professor Katherine Nelson

How children learn to organize their activities in the world is important to our understanding of development. This study explored the effect of home and school environments on urban preschool children's ability to organize and represent their daily routines. The purpose of this study was twofold: (1) to evaluate urban preschool children's temporal understanding, and (2) to examine the effect of homelessness and poverty on their ability to represent events.

Thirty-six preschool children participated in this study. Twelve were from a homeless Head Start program, 12 were from a housed Head Start program and 12 were from college campus daycare programs. Each child was given a standardized language test, two nonverbal tasks which assessed sequencing skills and cause/effect relations and three verbal tasks which assessed sequencing skills, temporal relations, and general understanding of temporal concepts. Both verbal and nonverbal tasks were separated into familiar and nonfamiliar events.

Results indicated that urban inner city preschool

children attending college campus daycare performed significantly better on both verbal and nonverbal tasks than either their homeless or housed Head Start peers. In addition, the results revealed that homeless and housed Head Start preschool children did not perform significantly differently on tasks that required school-based knowledge. However, contrary to the original prediction, homeless and housed Head Start children also performed similarly on items requiring knowledge about the home, thus indicating a possible similarity between the home environments of homeless children and housed poor children living in overcrowded conditions. The data suggest that homelessness is the extreme manifestation of poverty, which affects cognitive and linguistic abilities in preschool children.

To the women in my life who
have inspired me to become the
person I am today, my mother,
my grandmothers, and my heavenly
mother. I love you all dearly.

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I also wish to thank the other members of my dissertation committee. I thank Dalton Miller-Jones who encouraged me to pursue my ideas in working with children from the urban inner city and who has played a significant role in my graduate training.

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My sincerest gratitude to all of my friends who are to numerous to list by name but who have spent endless

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Finally, I thank God for all of my successes and my failures.

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Chapter 1 - Introduction

"Erica: When we happy and don't have no food we borrow from each other.... In the mornin' when we wake up we have a banana or a cookie. If the bus ain't late we have our breakfast in the school....9 year old girl (Kozol p.65).

The above excerpt is a description of a homeless 9 year old girl's understanding and experience of a daily event. For the average American child breakfast is a routine event that happens pretty consistenly from one day to the next. For the homeless and/or chronically poor child, however, breakfast as well as other daily routines are often chaotic and vary from one day to the next, due to the lack of consistency within the environment. Two of the most salient environments in the life of a child are the home and school environments. These environments provide a sense of stability for the child and have an important impact on their intellectual as well as psychological functioning (Rivlin, 1990). Very early in their lives children develop a sense of attachment to place. The stability or instability within that environment will either provide the child with a secure or insecure attachment. Attachment to place

defines the world in terms of both its physical and psychological space, which prevents the child from experiencing alienation from his/her surroundings (Rivlin, 1990). Homelessness threatens a child's attachment to place. The loss of home not only physically displaces the child from a familiar dwelling but also disrupts the child's social/emotional, linguistic and cognitive development (Molnar, Klein, Knitzer, Ortiz-Torres, 1988). The loss of home, in turn, usually leads to a loss of schooling. That is, when children are no longer housed in their communities, they are frequently unable to continue their education in the community school because their shelters are not often located within the same school district. For the child this means leaving peers, teachers, and familiar routines behind. This lack of continuity between home and school environments disrupts not only the child's education, but also other areas of their lives, including their mental and physical health.

Thus far, the difficulties faced by homeless children and their families have been documented from the point of view of the health and welfare services, (Bassuk & Rubin, 1987; Molnar et.al., 1988; Molnar, Rath, & Klein, 1990; and Molnar, Rath, Klein, Lowe & Hartman, 1991). However, the impact of homelessness on these children's cognitive development has not been adequately

assessed. The main purpose of this research is to evaluate the effect of homelessness on the preschool child's ability to understand and represent daily routines in their lives. In general, the majority of theoretical views support the notion that both the physical and social environment have a profound impact on children's understanding of their experiences and the knowledge structures they co-construct (Vygotsky, 1978, Nelson, 1986, Valsiner, 1983). From these perspectives it can be argued that the environments of both homeless and chronically poor children may have a negative impact on the development of their cognitive structures. The present research is designed to evaluate one area of the homeless child's conceptual understanding that is (1) important to all children's general cognitive growth, and (2) might suffer in environments that are temporally and spatially disorganized, such as those of many homeless and chronically poor children. The domain that I focus on in this research is that of temporal concepts.

Prior research (see Nelson, 1986 for a summary of the research) has demonstrated that children as young as three years of age have structured knowledge centered around everyday events. According to these findings, the young child's knowledge is a "schematic representation" of the event. This schematic representation or script is sequentially or temporally organized and becomes more

integrated and hierarchically organized over time. Event knowledge is influenced by the social, cultural and physical milieu of the child.

To date the majority of the research examining the development of children's event representations has focused on predominantly middle to upper middle class preschool children who live and go to school in well-structured environments. But what about the event representations of children whose environments are impoverished and temporally/spatially disorganized? How will their understanding of temporal and causal relations develop?

In the following sections I will (1) review the literature on the overall effect of the physical and social environment on cognitive development; (2) examine the experience of the homeless/chronically poor child in both the school and home environment; and (3) review the research concerning children's understanding of temporal concepts.

Physical and Social Environments

In order to evaluate how children conceptualize the

world it is important to understand the impact of the physical and social environment on their cognitive development (Wohwill, 1983; Valsiner, 1983,1985, 1987). According to Wohlwill (1983) the difference between the social and physical environment becomes blurred when one begins to examine them closely. The traditional distinction drawn between the social and physical environment is that the social is responsive whereas the physical is nonresponsive. According to this view, in the social environment people engage the child in an interaction which is dependent to some extent on the child's response. In the physical environment, however, there is always the presence of stimulation, irrespective of the child's response. For example, the level of noise in a nursery has an impact on the infant irrespective of its behavior.

Wohlwill maintains that even though these distinctions may hold true early on in the life of the individual they soon cease to be adequate when the infant begins to have control over his/her environment and can avoid or change certain aspects of the environment. Furthermore, he argues that even physical objects can take on a responsive quality creating feedback loops and a "kind of social" interaction. For example, children's interaction with a computer calls for a response from the

computer which in turn triggers a response from the child.

At the social level, Wohlwill argues that the social environment is not always interactive and tends to function in a nonresponsive manner quite often. He argues that crowding in the home, which is social in nature, tends to have a similar effect on an individual as noise in the environment, that is, crowding affects the individual irrespective of the individuals behavior.

Norton (1990), in an attempt to understand the impact of the social and physical environment on early developmental experiences, followed a group of inner-city, low income, Black children from birth through the first grade. The mothers of these children were all adolescents with a mean educational level of 11.5 years. At age three, all children were administered the McCarthy Scales of Children's Ability in order to assess their cognitive functioning. Mothers' intelligence was assessed by the Weschler Adult Intelligence Scale. Each child was videotaped in the home every six weeks during the first year of life and thereafter over regular intervals, no longer than six months apart. In addition, each mother's life, medical and work histories were obtained. One focus of the study was to examine how

differences in early socialization practices affected preschool children's temporal concept development. Several significant differences were found between mothers' socialization practices and their children's sense of time. First, it was found that children whose families talked more about time during daily routines scored higher on seriation tasks, which measured beginning temporal concepts. Second, the type of language spoken by mothers to their children had an impact on the child's development of a sense of time. According to the author most mothers made statements concerning social rather than physical time. However, children whose mothers made more physical time statements scored higher on standardized cognitive questions concerning time. Norton argued that because physical time language is the language used most often in our culture, children who hear physical time language at home may be better prepared for the school environment.

In her examination of the home environment Norton (1990) also found that many of the mothers did not appear to observe time. Accordingly, they did not talk to their children about clock time, social time, or events that would occur in the future.

In short, Norton's findings support the argument

that early socialization has an impact on young children's development of early cognitive functioning, in particular their acquisition of temporal concepts. The findings suggest that if young children are not socialized to a "time dimension" (p.6) they will experience great difficulty in the classroom when they try to decode the teacher's temporal language and translate it into meaningful concepts and behavior.

Following Norton's study, recent research (Citizen's Committee For Children of New York, 1988; Boxill & Beaty, 1990) has demonstrated that the majority of environments for homeless children are disorganized and chaotic. Thus, because the home and school environments of these children have been disrupted and are often disorganized it is plausible to believe that homeless children's socialization experiences may vary from those of children whose environments are more structured and organized, and therefore their acquisition of temporal and causal relations may be represented differently.

Thus far I have examined several areas of research which discuss the global role of the physical and social environment in children's development. In the following section I will describe the home and school environment and their impact on cognitive development.

The Home Environment

The research on home environments indicates that the physical structure as well as the occupants of that structure have an impact on the development of the child. Heft (1985) describes the effects of residential density (i.e. crowding and noise) in the home and its effect on cognitive development. For the purpose of this research I will be primarily concerned with crowding.

Heft (1985) argues from his review of the literature that there are several dimensions that should be considered when studying the relationship between density and cognitive development. These dimensions are: (1) the physical and social objects in the environment; (2) focal and background information in the environment; (3) temporal order versus disorder of home based events; and (4) free versus constrained exploration of the environment. Because this study is specifically concerned with temporal order in events only the third dimension will be discussed in detail.

Physical and Social Objects

According to Heft the objects in the child's environment include toys, books, furniture, that is, any physical object in the environment, as well as sounds from inanimate sources. The social environment includes parents, siblings, teachers and all others who have a social impact on the child's life. Through the interaction with people and objects in the environment children learn the extent to which they can manipulate and control both their physical and social environments. Their freedom to move about in the environment and the actions which are promoted by the social other in the environment will have an impact on the development of their cognitive structures (Valsiner, 1987).

Temporal Order and Disorder in Home Based Events

Heft (1985) states that "in order to understand the structure of an event it is necessary to perceive the event as it unfolds over time" (p.47). According to his argument if the perception of the event is disrupted by (1) interruption in the child's ability to follow the event (eg. background noise in the home), and (2) insufficient structure within the event (e.g.

disorganization in the environment), then the child's understanding of the event will be altered.

The literature to date demonstrates conflicting results with respect to the impact of order and regularity in daily routines on cognitive development. For example, Wachs (1979) found that children who were reported to have regular naptimes and mealtimes scored higher on certain indices on the Uzgiris and Hunt scales, which are based on Piagetian concepts. More recently, however, Gottfried & Gottfried (1984) examined the development of 130 infants beginning at 12 months of age from middle class families in a longitudinal study. They found that cognitive development, as measured with the Bayley Scales of Infant Development at 12, 18 and 24 months and the McCarthy Scales of Children's Abilities at 30, 36, and 42 months, did not correlate with organization of the physical environment as measured by the Home Observation Measurement of the Environment (hereafter HOME) scale. It should be noted however, that the statements used to elicit information on the HOME scale are limited in the assessment of the home environment, which may have contributed to its lack of correlation with the cognitive development measures. For example, the statement "Child gets out of the house four times a week" does not provide a full description of the

child's routine. A typical answer to this question provides either a yes or no response, with little or no elaboration as to where the child goes, if the child gets out of the house more than four times a week, and so on.

In short, further research needs to be conducted in order to provide more information on the impact of organization and structure within daily routines on cognitive development.

Free and Constrained Exploration

In order for children to acquire knowledge about the physical and social objects in their environment they must have the opportunity to explore the environment. The general trend within the research literature (see Wohlwill & Heft, 1987 for a review) indicates that home environments which provide children opportunities to explore their environments tend to have children whose environments correlate positively with their cognitive development. Wachs (1976), again utilizing the Uzgiris and Hunt scales, found that children who were allowed to explore their environments freely obtained object permanence earlier than those who had not.

Crowding and the Experience of Event Ordering

Heft (1985) defines person density as "an index referring to the number of people situated within some spatial unit (p.50)." Crowding on the other hand refers to an experience within a space (Baum & Paulus, 1985). It is an evaluation of particular settings. As suggested earlier by Heft (1985), when children experience lack of structure within an event, such as when the event is disorganized, or when there are too many interruptions or distractions following an event, for example constant intrusions during mealtime, the child's perception of the events is disrupted. He argues that crowding or high person density can lead to disorganization and distractions in the environment. Heft states that the larger the number of persons in the child's environment the greater the difficulty the caretaker may have in maintaining a routine. As stated by Dovey (1985), predictable order in the home plays a role in our understanding of the environment; that is, it gives us control over our environment. If children are unable to anticipate regular events this may lead to learned helplessness (Gross & Singer, 1972). In general, learned helplessness exists when a person perceives they do not have control over their environment, when for them all past experiences have led to failure. According to Heft

(1985) learned helplessness may be associated with disorder in the environment and the unpredictability of events due to crowding.

In short, it may be concluded from this research that crowded, disorganized home environments can be expected to negatively affect children's experiences.

Environmental Factors

The average child will spend a large portion of their waking hours in school. Thus for most children the social and physical aspects of the school environment will contribute to both their cognitive and social functioning. For the purposes of this study I will examine the impact of the preschool environment on development.

Weinstein (1987) has suggested that the physical structure (classroom space and materials) and social structure of preschool the classroom can lead to enhanced self esteem, self control, greater peer interaction, symbolic play and cognitive and motor coordination if it is designed to support development. She argues that the design of the preschool classroom setting is crucial to the development of the aforementioned skills and suggests

that it is only when educators begin to see the environment as a tool for the enhancement of education that they will begin to use the environment to strengthen the skills of the preschool child.

Clarke-Stewart and Fein (1983), in their review of the literature on preschool programs have argued that in general, early childhood programs may have an effect on cognitive development in several quantitative ways: (1) They provide stimulating environments: that is, in comparison to the home environment they tend to have a greater variety of toys and objects to explore. (2) Because teachers in school environments have more time they tend to provide more attention and interaction than children are likely to experience at home. (3) Children in preschool programs experience greater social interaction with their peers which tends to lead to more advanced social and cognitive functioning. It should be noted that although all children experience factor three, factors one and two may only be relevant to children who come from an environment in which there are few toys and adults/older siblings who are either unwilling or unable to play with them.

As well as differing from some home environments in a number of quantitative ways Clarke-Stewart and Fein

also offer the view that early childhood centers differ from homes in a number of qualitative ways; the physical environment, the curriculum, the routines, and the teaching environment.

Clarke-Stewart (1987), as part of a longitudinal study, observed 150 children ages 2-4 years. The sample consisted primarily of middle-class families with more than one-half of the mothers either working full or part-time. She observed and recorded the children's experiences two times in the morning, two times in the afternoon and two times at dinnertime. She also assessed the physical and social environment in terms of the number of toys, the educational equipment, and the number of adults and children present in any given situation. Information was also obtained about each child's parents and/or caregiver.

To evaluate the preschool environment further, Clarke-Stewart (1987) examined the relationship between the child care environment and social/cognitive development. Each child was assessed by a number of standardized test measures and observed within their home environments. She found that children who performed well on cognitive and social cognitive tests, including language tests, verbal fluency, knowledge of concepts and

perspective taking tasks, exhibited greater verbal ability, were less aggressive and had more social interaction with adults. When comparisons were drawn between children and type of daycare arrangement, that is, daycare centers/nurseries, family daycare and in home care, children who attended daycare centers/nurseries scored much higher (six to nine months) on cognitive ability, social skills and social interaction with adults than their peers who attended family daycare or had in home daycare . These results are consistent with previous research (see Clarke-Stewart & Fein, 1983) which has demonstrated that children who attend day care tend to exhibit more advanced cognitive functioning than those who do not.

Finally, within day care centers Clarke-Stewart found that children's performance on cognitive assessments was influenced by their ability to explore materials freely, the amount read to them by the teacher and their freedom to make choices. She also found that the more directive, demanding and controlling the teachers were the worse children performed on cognitive and linguistic tasks.

In summary, the qualitative and quantitative factors just described appear to indicate that a change in the

intellectual development of the child may be in part due to the teaching styles, and structure of the preschool environment.

Homeless Children and the Environment

Who are the homeless children and where do they live? According to Rivlin (1990) the experience of homelessness and its effects on children is not uniform. There are many forms of homelessness and its impact is different for different people. She describes four types of homelessness: (1) **Chronic** homelessness which in general is accompanied by drug abuse or alcoholism; (2) **Periodic** homelessness which includes homelessness that arises from personal or financial loss and traveling from work place to work place as in the case of migrant workers; (3) **Temporary** homelessness which arises from natural disaster or perhaps relocation to a new area;[1] and finally (4) **Total loss of home** which arises when all support systems have been depleted, i.e the family, in general, is left totally on their own.

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[1] It should be noted that although in most cases all resources are not depleted, many people experience difficulty in adjusting to their new circumstances. For them, there is that lack of representation of "home" as described by Dovey (1985).

The present research is concerned with the effects of total homelessness on children's understanding of events in their environment.

The "Home" Environment of Homeless Children

According to the Citizens Committee for Children of New York (1988), hereafter (CCC), when a family loses its place of residence, they usually double-up with relatives or friends which renders them temporarily homeless. However, when living with friends and relatives becomes unbearable due to crowding and other stressors the family usually turns to shelter systems.

Recent research (Advocates for Children of New York,1989; CCC,1984; Coalition for the Homeless,1984 and Kozol,1988) indicates that New York City's shelters for the homeless fall into three categories: Tier I shelters, Tier II shelters and hotels. Tier I shelters are city operated barrack-style shelters in which large numbers of families share sleeping, bathing and dining facilities. Tier II shelters are non-profit shelters that provide private sleeping quarters for families and sometimes private kitchen and bathroom facilities. Welfare hotels are privately operated commercial hotels which generally provide families with a room and a private or shared

bathroom. There are usually no kitchen facilities, (stoves or refrigerators) and families are not allowed to cook in their rooms. Thus this causes a problem for parents who strive to maintain a sense of normality in the lives of their children. Referrals to shelters are often made by a centralized placement office to the first vacancy available. In New York City this can mean any borough, regardless of the family's original dwelling. This displacement in turn, not only disrupts the home environment but the school environment as well. It also tends to disrupt contacts with family members and friends. For families living in shelters, whether they be Tier I, Tier II, or commercial hotel settings life is often very chaotic. They are often required to live for long periods of time in very crowded environments which allows them little privacy in carrying out the routine events of everyday life -- sleeping, eating, bathing, dressing, and even the discipline of their children. According to the CCC (1988) some shelters have sleeping quarters which can accommodate up to 125 beds. Such conditions lead to crowding, chaos and noise which can often last throughout the night. In general, bathrooms and shower stalls are crowded and are often the place where men, women, and children are forced to change their clothes.

For most families mealtime is normally an organizing activity. However, for homeless families living in shelters mealtimes are often chaotic with the parents having no responsibility for planning, cooking or shopping for their families (CCC, 1988). Dining areas are overcrowded and families are often unable to sit together during mealtime. Because most shelters do not provide cooking facilities, carrying out basic daily routines such as cooking dinner and eating with the family around the dinner table is impossible for the homeless family (Vanderborg & Christofides, 1986).

Although families living in shelters experience disruption in their environments, families living in hotels experience different stressors which may be more detrimental to the children. Here families often have little contact with other families. Hotel families experience relatively little structure and routine in their daily lives. There is often no common community or recreational space which renders these families virtually alone (Bassuk and Gallagher, 1990). Parents often prepare meals on hot plates and family members tend to eat in shifts due to lack of space, thus making mealtime a stressful and disorganized event.

In short, whether homeless children live in doubled-

up apartments, barrack-style shelters, private shelters or hotels, their environments tend to be overcrowded and disorganized, lacking structure and routines which may be familiar to them. As mentioned previously, when environments are disorganized and chaotic they tend to have a negative effect on how the child experiences the world; this negative experience in turn may affect the child's cognitive development.

The School Environment for the Homeless Child

Homeless children who live in shelters, hotels or in the apartment of relatives often live a life which is very disorganized and without routine. They are deprived of a basic human right, a right to a "home." Too often these children are not only deprived of the right to a home but also to an education because of residency requirements. It should be noted however, that some parents do make heoric efforts to keep their children in their original schools or enroll them in schools close to their shelter. However, these efforts are often thwarted by the politics of the educational system.

Schools provide homeless children with a sense of place and continuity which they often lack in the shelter, but because they do not have a permanent address

they are often not allowed to attend the school in the district in which the shelter is located. Even when this barrier is overcome the homeless child's encounter with the school environment is still often inadequate because families tend to be moved from shelter to shelter, which, as mentioned previously, does not guarantee that the child will continue to attend the same school. Constant moves and changes in schools tend to eat away at the child's attachment to place, and educational progress, as well as their sense of continuity.

It should be noted, that even when homeless children attend school on a semi-consistent basis conditions within the shelter may prevent them from studying which impedes their progress in school. Because the shelters are noisy, most homeless children do not get adequate sleep and thus are not alert when they arrive at school in the morning. Lack of sleep in turn leads to inappropriate behavior in the classroom. Gerwirtzman and Fodor (1987), found because the homeless child lives in an environment which is often crowded and chaotic, they are often not permitted to play in their facilities. Many of the shelters do not allow children to play in the hallways and do not provide adequate recreational space. Parents do not permit their children to play on the sidewalks for fear of their safety, and thus the only

time children can play is in school. Many Tier II facilities prohibit children from playing in front of the buildings and prohibit parents from standing in front of the building to socialize with their peers. The authors therefore contend that adequate recreational facilities should be provided within the schools.

In summary, for the homeless child school provides contact with a stable world. It provides the child with the skills to interact with others in their environment and to improve their self esteem (National Coalition for the Homeless, 1987). When homeless children are deprived of a stable school environment they miss the opportunity to participate in activities and events that would provide them with routine and continuity.

The Environment of the Chronically Poor Child

Who are the chronically poor children and where do they live? Children who are labeled chronically poor are children who's parent's incomes fall below that of the poverty line year after year. These children tend to live in one parent households run primarily by women. Like the homeless children these children although they live in apartments, often tend to live under overcrowded conditions. Although there tends to be more stability

in the lives of these children, that is, they are not forced to move from place to place or attend various schools throughout the course of their educations, their neighborhoods are often very poor and lack the resources necessary to provide enriching experiences children. Like homeless children, chronically poor children often lack adequate food, clothes, play space, reading materials and toys. All of these inadequacies appear to have a negative impact on the development of the child.

The Construction of Temporal Sequences

Thus far, I have discussed the organization of the physical and social environment and its role in the development of the child. In this section I will discuss how children acquire knowledge about the world through everyday experiences, specifically their understanding of the temporal sequence of events.

Piaget (1969) in his early work suggested that because preoperational children do not possess reversible operations they are incapble of seriating events in time. Contrary to Piaget's position, Bullock and Gelman (1979), using a simple sequence of mechanical events, found that preschool children were capable of understanding that causes precede consequences in time. Brown (1975), in a

series of four studies, examined kindergarten and 2nd grade children's ability to reproduce the order of events expressed in narrative form. She found that kindergarten children were able to reconstruct a sequence of four pictures, when the sequence was connected to a meaningful narrative. She argued, that unlike the Piagetian experiments which utilized meaningless and arbitrary tasks, her tasks were meaningful and provided the child with the context to reconstruct events. Similarly, Mandler and Johnson (1977) found in their research that when 6 year old children were asked to recall stories which were well structured, that is each story's temporal and causal connections followed a familiar pattern, children performed better than when the stories were not well structured.

John, Horner, and Berney (1970) examined the retelling of stories by Black urban inner city children ranging in age from four to seven years. They asked each child to listen to a story while looking at a sequence of pictures that corresponded to the text. When the story was completed each child was shown the set of pictures in the correct sequence and asked to retell it. Pictures were used to cue the children because the researchers found that the children could not retell the stories without cues. The authors found that these

children fell into one of four developmental stages of discourse: (1) sequential picture labeling, which involved one word labels such as "hat"(p.252); (2) the skeleton story where children tended to utter one phrase per card, for example "and he in the bag" (p.252); (3) the embroidered story where children introduced new elements into the story, for example, "he put his hat on and look for a cowboy" (p.253) when a cowboy had not been included in the original story; and (4) accurate and concise story retelling where children are capable of recalling the story in a complete and direct sequence. John, et al. found that the youngest children fell within the first developmental stage of labeling. According to their findings these children were unable to remember the story even in the presence of the pictorial cues whereas older children were able to retell the stories with some accuracy and consistency. John et al. also found class differences among children in the production of their stories with older middle class Black children reporting stories, that were thematically sound and utilizing words that were relevant to the original text. These findings are important because they suggest that preschool children require photographic representation prior to obtaining the highest developmental level of discourse which occurs around the age of seven. However, at the age of seven children are capable of utilizing both implicit

and explicit temporal markers as is evidenced in their speech, suggesting the presence of causal connections.

Similar work has been recently conducted by Sharp (1982). She examined the understanding of temporal/causal relations by Black preschool children from a low income population. In a pilot test using picture sequences obtained from Lucia French, she found that when low income preschool children were presented with a sequence of four pictures they were overwhelmed by the task, thus causing her to establish a task using three pictures in each sequence which all children found easier to handle. In the first experiment she asked children to find either the first picture or the last picture of a three-picture sequence of events. In addition, she asked the children to tell the story indicated in the pictured sequence. This was done to determine if the children understood the task. Sharp argued that cultural familiarity of the events would have an impact on the children's performance. She found that preschool children demonstrated competency in completing sequences which involved temporal and causal relations, however, their competency was dependent on procedural conditions. According to her results preschoolers had difficulty completing the three picture sequence task. However, examination of their verbal descriptions

indicated that the children had difficulty interpreting the events in the picture, as well as systematically inspecting and looking for the correct picture to complete the sequence.

In the second experiment, Sharp described the content of each picture to the children. She argued that by describing the content of the pictures she could obtain a more sensitive measure of the children's temporal/causal comprehension because she would decrease the effort children had to expend in describing the content themselves. The results from the second study indicated that the children did not necessarily have problems scanning the pictures but rather experienced difficulty in understanding the theme portrayed in the pictures. When the children did not have to figure out the theme of the picture that is, the experimenter read sentences which described the theme in each picture, the children's performance on the task improved.

In order to examine further the influence of temporal comprehension and causal relations on the sequencing of three event pictures, an informal investigation was performed in which Black, low-income preschoolers were again asked to seriate a set of three pictures. Sharp found that when the content of the

picture was simple and familiar, children experienced no difficulty and were able to sequence the pictures correctly. These results indicate that understanding of temporal and causal relations are affected by the difficulty of the task.

In short, Sharp's research shows that 4 and 5 year old children do understand temporal/causal relations, but that their ability to demonstrate such understanding is dependent on the nature and structure of the task.

In summary, the research described thus far, has demonstrated that the Piagetian model, which argues that children's development of temporal and causal concepts is based on their underlying logical structures has been challenged (John, Horner, & Berney, 1970; Brown, 1975; Mandler & Johnson, 1977; and Sharp, 1982). In general, these studies have shown that young children can sequence events based on temporal and causal relations even though they cannot reverse the sequence, (Fivush & Mandler, 1985).

Moving away from the Piagetian model, Nelson and Gruendel (1981) have proposed that generalized event knowledge, which is structured in the form of an event schema organizes the young child's knowledge. In the

following section I will describe event representation and the role it plays in children's acquisition of temporal concepts.

Event Representation and the Script Model

How does the child in the real world represent events in time? According to Nelson (1986) the child's cognitive processes are contextualized in everyday experience and the child's understanding of the world is based on their ability to represent the world from their own experiences. Nelson (1986 argues that:

> Cognitive processes operate on representations, and although the processes available may be very powerful, if young children are unable to represent and thus operate on information that is not in some way part of their own prior

experience, they will be limited in their performance on abstract tasks. With time the child's cognitive system subjects the initial representations of everyday experience to further analysis, yielding more abstract cognitive structures. These abstractions make it possible for children to construct novel representations of events, ones not previously represented through experience; the children then become able to perform in novel abstract tasks at the same level that they do in

the familiar everyday world (p.4).

It should be noted that Nelson does not claim all knowledge is based on experience, but rather other cognitive operations can create structures that do not exist in the real world.

If children acquire knowledge from their representation of experience how does this occur? Again, Nelson (1986) argues that "events involve people in purposeful activities acting on objects and interacting with each other to achieve some result (p.11)." Events are considered to be centered around goals and are said to exist within certain boundaries. They are temporally organized and causally connected. They are hierarchically organized with smaller segments being embedded in the larger event. And finally, events are expressed through verbal descriptions called scripts.

Scripts

According to Hudson and Nelson (1983) a script is defined as "spatially and temporally organized frame that organizes a sequence of actions around a central goal or act (p.626)." Nelson and Gruendel (1981) outline several characteristics which are important to the underlying

structure of children's scripts. They propose that (1) scripts represent a temporal and causal sequence of actions, (2) they consist of general frames that are made up of slots, with requirements concerning what can fill a slot, and (3) scripts form integrated wholes.

In summary, the model described here asserts that children come to understand and develop knowledge about their world based on their everyday experiences. These experiences are represented in a temporally organized form and may be verbalized as scripts.

In this section I will describe some research which addresses children's ability to sequence events based on temporally and causally connected scripts. According to Schank and Abelson (1977) from whose theory this model is derived, there are two types of scripts: (1) strong scripts and (2) weak scripts. "Strong scripts are based on events that include constraints on order as well as on occurrence of particular actions" (Nelson,1986,p.5). For example, a restaurant script, in which one gets a menu, orders, and pays would be considered a strong script in that there is a constraint on the order of the event. Weak scripts on the other hand lack consistent sequencing properties and are based on cultural practices. For example, a birthday script is dependent on the practices

of the culture and its sequence may vary from culture to culture and even within the culture. Its components may occur in different orders on different occasions.

Nelson (1978) examined the influence of causal and temporal ordering by evaluating sequential organization in children's understanding of familiar events. She found that some children gave an ordered description without probing and they used temporal order terms such as before, after, and, then, and when. She concluded from these findings that children's knowledge of familiar events, seemed to follow the script model which according to Schank and Abelson is temporally organized.

Hudson and Nelson (1983), also found that causal structure was important in guiding preschool children's memory for stories. These researchers studied the recall of stories by preschool and first grade children, manipulating the amount of goal information and temporal structure present in each story. Recall was compared on a story which was causally constrained, a strong script, i.e. "making cookies" and a conventionally organized birthday party script, a weak script. They found that both groups of children recalled more information when the story was causally constrained, indicating the presence of causal structure in the event representations

of children as young as four years. In the same study children were also asked to recall misordered versions of the two stories in which the canonical event sequences were changed. The authors found that all children sequenced units more accurately when the event was logically organized. In general, children failed to recall information that was logically inconsistent with respect to canonical sequences within the event, that is children had greater difficulty in recalling logically inconsistent sequences without deleting the misordered segments. Although both preschoolers and first grade children performed similarly on these tasks, preschoolers were more influenced by the misordered version than first graders. In general, preschool children deleted misordered acts more frequently than first grade children rather than recall them in a misordered sequence. Hudson and Nelson concluded, that in general, younger children are more constrained by the organization of their event schema than older children. They argue that the younger children's difficulty in recalling logically misordered sequences is an indication that they are more dependent on the causal structures of their event knowledge than older children.

Another factor that influences the organization of an event is familiarity with the event. According to Nelson (1986) a familiar event becomes better organized with

repeated exposure. The repetition of the experience leads to a stable core around which the representation is constructed.

Following this argument, Fivush and Mandler (1985) examined the ability of 4, 5, and 6 year old children to construct temporal sequences of familiar and unfamiliar events. In the first experiment children were asked to generate picture sequences of familiar and unfamiliar events in a forward and backward order without having viewed the pictures in the correct sequence. In the second experiment the children were asked to reconstruct sequences that had been previously viewed. In the final experiment the children were shown forward and backward sequences and asked to reconstruct them in the opposite direction. Fivush and Mandler found across all experiments that children sequenced familiar events in a forward order more accurately than unfamiliar events in a forward order and that unfamiliar events in a backward order were the most difficult to sequence. They argued that taken together these experiments present a developmental pattern of children's ability to sequence events and furthermore, that in order to accomplish these tasks children need to comprehend and deduce the logical relations between actions. Finally, Fivush and Mandler found that familiar events in a backward order are the

most difficult to sequence. According to the authors sequencing familiar events in a backward order is not merely a retrieval of information about a familiar event but rather the manipulation of an event representation. These authors maintain that because children reconstruct forward event sequences whether they are familiar or unfamiliar, better than backward event sequences, children can only remember and use an event organization they are capable of understanding. Thus they conclude that what develops are organized event representations and the ability to manipulate these representations becomes less constrained over time.

Bauer and Shore (1987) in line with Mandler and Fivush's study examined 17.5 - 23.0-month-old children's immediate and delayed recall of event sequences, characterized by degree of familiarity and causal relations. Each child was exposed to one familiar event, one novel-causal sequence and one novel-arbitrary sequence. Their results indicated that children of this age can imitate familiar events and novel-causal sequences but that they have difficulty sequencing events that lack causal and enabling relations.

In short, these studies support the claim that familiarity with an event contributes to its organization

and the causal connections between the segments of the event provides for a more stable organized event than do arbitrary ones.

Cognitive Development and Event Representations

Thus far I have discussed the nature of event representations and the relevant research that supports this model. In this section I will briefly describe the relationship between event representations and cognitive development.

According to Nelson and Gruendel (1981) generalized event representations (GER's) are the basic building blocks of cognitive development. To summarize, they argue that what is represented from experience is an incomplete schema based on the experience. This schema based on experience provides the basis for further cognitive processing as well as context for the child's overall "cognition and action in similar situations" (p.152). According to the authors, in the mature system there are several levels of representations along a continuum, ranging from direct and specific to general and abstract representations. At first, the representation is a fairly direct reflection of the actual event. However, with time, the representation changes and becomes more

generalized. The GER thus becomes the basis for the understanding and interpretation of future events. At a more abstract level, categories based on GER's are constructed, for example social roles, problem solving strategies, and so on. These representations in turn rely on a wide continuum of cognitive mechanisms for explanation and interpretation. Furthermore, they maintain that young children's event structures are generalized from the beginning with the initial experience leading to the expectation that future experience will consist of similar elements and relations between elements. The question which arises is how are abstract systems formed? Nelson and Gruendel argue that where other cognitive theories claim that children obtain knowledge by acting on objects in the world, for them the child's abstract system of knowledge is derived from their initial representation of experience, i.e. cognitive processes operate on representations of events. In short, children do not acquire knowledge about the world primarily through actions on objects in the environment but rather by their representations of experience in the world.

The Role of Language and Event Representations

Thus far I have described event representations and

their role in children's cognitive development. However, what I have not discussed is the use of language as the medium through which we obtain information about children's cognitive processes. As mentioned earlier, children appear to have very complex and highly organized event representations early in their lives, and script knowledge can be obtained from young children by asking them to verbally describe familiar events, for example, "What happens when you get up in the morning?" According to French, Lucariello, Seidman and Nelson (1985) the language that young children use in reporting scripts is fairly complex and appears more advanced than children's everyday use of language in other situations. They argue that when children are asked to produce scripts of particular events over a period of time their scripts remain stable, that is, children report the same component acts as well as the same sequence of acts. Moreover, French et. al (1985) maintain that preschool children's use of relational terms (i.e. but, because, so, if, or, before, and after) indicate knowledge of temporal and logical relations that were originally thought to occur much later in development. It should be noted however, that the use of relational terms by preschoolers appears to be dependent on the familiarity of the event. When preschool children have prior experience with an event they appear to have little

difficulty understanding relational terms. However, when the events are unfamiliar preschool children experience greater difficulty in their comprehension of terms (Carni & French, 1984).

Another important feature of children's scripts which is reflected in the language of the child is temporal organization, and bidirectionality of temporal relations within the event representation. As mentioned previously, Piaget has argued that young children are incapable of temporally sequencing events because they do not possess the necessary logical operations namely, reversibility. French, et.al. (1985) have suggested that, in fact, young children in reporting scripts do demonstrate temporal knowledge by providing an accurate ordered recall of a sequence of events. Furthermore, the authors demonstrate that young children are capable of self-correcting their descriptions of an event. That is, children can reverse within the event to insert an omitted act. According to French and her colleagues, "temporal repairs seem necessarily to involve both internal representations of correct temporal sequence and the ability to move bidirectionally within the sequence" (pp. 7-8). This statement is in direct contradiction to Piaget indicating that in fact young children do have the necessary structures for understanding temporal

relations.

Finally, in reporting scripts children tend to use general terms such as "you eat" rather than "I ate cake" indicating a generalized representation of knowledge rather a specific memory of the event.

In summary, young children's use of language when reporting scripts appears to be much more advanced and complex than it appears in other contexts. Children are capable of sequencing events in time, indicating a stable and organized temporal structure, self correcting, and reversing within their scripts, indicating the logical operation of reversibility: understanding and utilizing relational terms as long as the events are familiar, and finally using general terms indicating a generalized event representation.

It should be noted that, although I have talked of language as the medium through which events are described, I in no way wish to imply that language reflects all the child's knowledge of an event but rather what I would argue is that language is only one way thus far devised of getting at the organization of children's event knowledge.

The Physical/ Social Environment and Event Representations

According to Nelson (1986) both social interaction and physical objects within the child's environment are important to how they organize events. She argues that the objects with which children interact only take on meaning within the event.

Nelson also suggests a process called "participatory interaction" to describe the impact of the physical and social environment on the development of event representations. She states that children participate in an activity with the assistance of an adult and this participatory activity enters into the child's representation. Although she does not deny that children are capable of representing events based on observations alone she asserts that the social interaction facilitates the acquisition of temporal and causally organized event structures.

In short, Nelson suggests that the child's knowledge of the world is not divided into segments, but rather is an integration of its component parts the social and physical world.

Summary and Goals of the Present Research

Throughout the introduction I have suggested, drawing from several areas of research, that both the physical and social environment play a crucial role in children's organization of everyday experience. I have demonstrated that crowding and noise within the home environment can have an impact on cognitive development, that the physical and social structure within day care settings can affect both the linguistic and cognitive skills of preschool children, and that finally children's experience of events can be influenced by not only the objects in environment but also the social others in the environment.

Taking into consideration the physical and social environment, the purpose of the present research was to explore the use of event knowledge by homeless and urban inner city preschool children and to examine the relationship between home and school environments and children's ability to temporally organize and sequence events. It was hypothesized that (1) children from impoverished, structurally disorganized environments will have less well defined event representations for home based events than their housed peers who live in environments in which the home routines are relatively

stable; (2) homeless and housed children will perform similarly on tasks involving school based knowledge because their classroom environments share common features; and (3) children from relatively structured environments in which adults use temporal language will have a better understanding of conventional temporal concepts than children from environments in which the daily routine is relatively unstable and the use of temporal language by adults is sparse.

Because language is the primary medium through which events are expressed, this study utilizes the script model as well as other measures based on language. However, in addition, this study also utilizes nonverbal measures in

order to obtain further information concerning inner city preschool children's ability to temporally sequence events. As mentioned earlier, scripts, although they provide us with information about children's knowledge, do not necessarily reflect all of the child's knowledge. In order to obtain further information about the children's linguistic skills a standardized language test was administered. Children's physical and social environments were assessed through the use of observations and interviews.

In order to examine the above hypotheses the acquisition of temporal sequences and conventional time concepts were

studied in three groups of children ages 4 and 5. One group consisted of homeless children, the second group consisted of housed children from a neighboring community, and the third group consisted of children who attended day care centers on college campuses. The verbal activities were based on script theory as described by Nelson (1986) and the nonverbal activities were based on a set of picture cards which when ordered told a story. The following research questions were formulated:

1. Do homeless preschool children differ in their performance on standard measures of language from housed children within the same age range? It was predicted that because of the lack of resources in the homeless environment as well as the fluctuation of attendance in school homeless children would differ from their housed peers in their use of language.

2. Do homeless preschool children use temporal and causal terms in talking about their routines ? Is there a difference between the use of temporal and causal terms for preschool homeless children and housed children? It was predicted that the organization and use of temporal markers used by homeless children when describing daily routines focusing on home based events would be less frequent and less well organized than that of their housed peers.

3. Do homeless children and housed children describe

home and school-based events differently, using different organizing schemas ? It was predicted that there would be no difference between the homeless and housed children in description of school based events given the similarity between the school environments. However, on tasks involving home based knowledge it was predicted that the children would differ.

4. Are there differences between how preschool children perform on verbal versus nonverbal tasks? Are preschoolers better able to sequence a set of pictures than verbally to report a script? It was predicted that homeless children might perform better on tasks that required little or no language whereas their housed peers would perform equally well on both tasks.

5. Do preschool children perform better on nonverbal tasks based on familiar events or those based on unfamiliar events? Are there differences between homeless children and housed children on these tasks? Based on research which shows familiar events are easier to sequence for young children it was predicted that both the homeless and housed children would perform better on tasks involving familiar events.

6. Do homeless and housed children perform similarly on a task requiring recall of audiotaped stories for familiar events? If experience determines how children organize events which leads to generalized event

representations then the structure should be in place and both groups of children should perform similarly? Based on Hudson and Nelson's (1982) research studying the effect of script structure on story recall it was predicted that both homeless and housed children would perform similarly on the story recall task.

7. Is there a relationship between preschool children's ability to sequence events in time and their overall understanding of conventional time concepts? It was predicted that those children who were able to sequence events would understand more conventional time concepts than those who could not.

In addition, other possible influences on the child's representation of temporal sequencing and the acquisition of conventional concepts were examined. These included parents and teachers use of temporal concepts in their daily routines.

Chapter 2 - Methods

A combination of interviews, standardized tests, audio recordings and games were used to obtain data to test the hypotheses of the present research. All instruments and procedures were piloted with six children from the Hunter College daycare center (See Appendix A for results of pilot study).

A. Research Settings

Selection of the Head Start programs was based on (1) the fact that children attending both urban inner-city schools were of similar ethnic and racial backgrounds, including children of African-American and Latino decent; (2) the children were of similar socioeconomic backgrounds; and (3) the homeless children and the children from the neighboring community received similar classroom experiences. Selection of the 12 children from the three college campuses within the City University of New York system was done in order to include children in the study who were of similar racial and ethnic backgrounds. Parents of these children attended class on one of the campuses and it was felt that parents who themselves attended school would provide more organization for their children due to their own daily schedules than was the case with the Head Start

children. The day care settings in the City University of New York system were chosen because they were considered representative of public day care in New York City.

Sites

A total of 5 classrooms in 5 centers were selected. Both of the Head Start classrooms were full time (8 AM - 4 PM) programs, whereas the classrooms at Hunter, Lehman and Queens college were part-time in nature. That is, because of the parents' varying academic schedules the children either attended the program for a few hours in the morning or in the afternoon, or on some days for the full day. Thus, although all of the centers were open from 8 AM until 7 PM, 5 days a week, all of the children were not always present at these times. Both of the Head start programs serviced low to moderate income families. All families involved in City University of New York day care centers had to be currently enrolled as a student on the campus. All campus day care facilities were primarily for students. Faculty were not permitted to enroll their children in the programs.

All of the day care sites were chosen because (1) they were located in the New York City area; (2) they had appropriate age groups; (3) directors and teachers were willing to cooperate; and (4) families were willing to cooperate.

Description of Classrooms

Homeless Head Start

The classroom within the homeless Head Start program was located in a facility designed primarily for daycare and afterschool programs. The classroom had the capacity to hold up to 15 children. However, at the time of the study only 8 children had been enrolled with fluctuations in this number occurring on a weekly basis,thus allowing me access to more children during the course of the study. Three teachers were assigned to this classroom, one head teacher and two assistant teachers. Within this classroom a daily schedule was posted which listed the activities the children were supposed to participate in. However, the schedule was not always adhered to. Calendars and weather charts were also located on the walls of the classroom. The classroom was structured to include a library area, a house keeping area, a music and art area, and a general play area which contained manipulable toys. There were a number of plants and a fish tank which the children were allowed to take care of under the supervision of the teachers. The children ate all meals in the classroom (breakfast, lunch, and snack). An outdoor play area with swings, slides and see saws was located in the back of the building.

Community Head Start

The classroom within the Community Head Start program was one of four classrooms in part of a housing project that had been set aside for daycare, afterschool care and other community functions (i.e. teaching English as a second language). The classroom had the capacity to hold 22 children at any given time although at the time of the study there were 15 children enrolled. Two teachers were assigned to this classroom, one head teacher and one assistant teacher. Parents also assisted in helping out in the general running of the classroom on a day to day basis. Within this classroom a daily schedule was posted which contained all the activities the children were supposed to participate in. According to the teachers the schedule was not always adhered to. The classroom had a book corner, a housekeeping corner, and a general play area with manipulable toys. A birthday chart was also located on a wall within the classroom. The children ate all of their meals in the classroom (breakfast, lunch, and snack). The children used the gymnasium for recreational and gross motor play.

College Campus Day Care

Each of the three classrooms within the City University system was located on campus. Two of the

classrooms (Hunter and Lehman college) had a similar organization. Each classroom accommodated only 3, 4 and 5 year old children. The Queens college classroom on the other hand accommodated 2,3,4, and 5 year old children. The classroom however, was split into sections so that the younger children had different teachers and a separate space from the older children. All three classrooms had the capacity to hold up to 20 children. On the average 19 children attended these programs each day. Three teachers were assigned to each classroom, one head teacher and two assistant teachers. Within each classroom a daily schedule was posted which listed the various activities the children were to participate in. Each activity was listed next to a time to indicate the duration of each event. All teachers reported that they followed their daily schedules but that some flexibility was necessary due to unforeseeable occurrences in the day. Each classroom was structured to include a library area, an art and music area, a computer area, a housekeeping area, a science area, and a general play area that contained manipulable toys. All of the classrooms had birthday charts, calendars, and weather charts. All of the centers had either plant or animal life which the children were allowed to take care of under the supervision of a teacher. All of the children ate their meals in the classrooms. Each campus had

separate outdoor play areas that were created specifically for the children.

Thus campus daycare centers differed from Head Start centers on many dimensions, providing more adult supervision and educational opportunities.

B. Subjects

The participants in this study were 36 four and five year old preschool children from the New York City area. Twelve of the children were selected from three different college campuses within the City University of New York (Hunter College, Lehman College and Queens College). There were 3 girls and 9 boys, ranging in age from 3 years 11 months to 5 years. The mean age for this group of children was 4 years, 4 months. The remaining 24 children were selected from two Head start programs run by the Children's Aid Society in the Manhattan area. Within the group of children selected from the Head start programs, 12 children were from a homeless shelter and attended a Head start program specifically for homeless children. There were 6 girls and 6 boys, ranging in age from 3 years 9 months to 4 years 11 months. The mean age for this group was 4 years 2 months. Twelve children were from the neighboring community and attended an ordinary Head start program. There were 9 girls and 3

boys, ranging in age from 4 years 1 month to 5 years of age. The mean age for this group was 4 years, 4 months.

C. Design and Procedure

Prior to working with the children each parent was asked to sign a consent form indicating whether or not they would allow their child to participate in the study. Attached to each form was a daily schedule chart which asked parents to provide information on what a typical weekday and weekend would be like for the child. Each parent was asked to complete these charts and return them with their signed consent forms. Teachers were also asked to fill out a similar daily schedule providing information concerning daily activities (See Appendix B). This task appeared to be redundant, as the teachers in all 5 classrooms had daily schedules posted.

A sample of 7 parents from each group of children were chosen to be interviewed in order to obtain a survey of the daily activities that occurred in the home, (See Appendix C). Seven out of 7 housed Head Start parents, 6 out of 7 homeless Head Start parents and 4 out of 7 college campus day care parents participated in the interviews. Teachers were also interviewed in the classroom, in order to obtain information about activities that occurred in school. There were two versions of the teacher interview, one pertaining to the

versions of the teacher interview, one pertaining to the homeless children and one pertaining to the non-homeless children (See Appendix D).

Prior to interviewing each child, the investigator spent one full day in the classroom. During this time the investigator interacted with the children as well as observed their daily classroom activities. During each observation the investigator manually recorded the children's daily activities.

Parent and Teacher Interviews

Parent Interview. In order to obtain information about the children's housing history and parent's use of language pertaining to temporal concepts in their homes a total of 17 parents were interviewed. The interview was divided into two sections. The first section pertained to housing history and the second section dealt with the parents' use and understanding of time concepts. The overall summary of the interview will be discussed in that order.

Housing History

Homeless Families. At the time of the study all families living at their present residence, a Tier II shelter, had been residing there for an average of 7 months. All families, prior to moving into the shelter had either been homeless, living in a barrack style shelter, or doubled up with a relative. Those who had lived under doubled-up conditions, eventually left due to overcrowding. According to these parents even though they felt they did not have enough space, the Tier II residence provided them more freedom in the management of their everyday activities than their previous accommodations. Parents were also asked to describe mealtime routines in their home. All parents said that their mealtime routines had become easier since they had kitchen facilities, which allowed them to prepare and eat meals when they wanted to as opposed to when they were living in barracks or under doubled up conditions where mealtimes were often chaotic. The following statements are summaries taken from actual interviews with the mothers.

According to one mother:

> Prior to becoming homeless she had doubled with her her relatives for 2 weeks. However, since she has moved to the Tier II shelter she feels her children are more independent and mealtimes have become easier. Although living conditions are somewhat cramped they are better than how she has lived in

the past.

Another mother described her situation as follows:

> Although she felt that the constant moving around had negatively affected her children's behavior living in the Tier II shelter provided them with more stability. Mealtime had become much easier now that she could cook in her own kitchen and regulate when her children would eat their meals. She felt that the Tier II shelter provided her with more space and better living conditions than what she and her children had been used to.

Housed Head Start Families. All families interviewed in this group had said that they had never been homeless. However, 3 out of the 7 parents acknowledged that they did live under doubled up conditions, that is, they were often living with more than one family in an apartment. All 3 of the parents living with relatives felt as if they were homeless. Only 2 out of 7 parents felt as if they had adequate space. All others felt that they were living in overcrowded conditions. Many of the routines for the families living in inadequate space were disrupted. For those families mealtimes were often hectic due to lack of space and privacy. The following statements are summaries of some of the mother's experiences.

One mother described her situation as follows:

> She was living doubled up with her sister, mother, nephew, grandmother and three preschool age children. The apartment had been a home to her for 26 years. She felt that she was homeless because the apartment where she lived did not belong to her but to her mother and because she was the youngest child in her family she did not have the same

> freedom as the other members in her family even though she was a parent.

Another mother reported her living conditions to be intolerable:

> She lived with her sister and her sister's four children, her own two children and her mother in a 6 room apartment with three bedrooms. She considered herself homeless because the apartment was not hers but her mother's. She felt that the negative changes in her children's behavior were due to the overcrowding of the apartment as well as the fact that they had to listen to the conflicting advice of to many adults.

College Campus Daycare. All of the families who participated in the interview lived in apartments or private homes. At the time of the study one parent had been recently divorced and was living with her parents until she completed her college degree. None of the parents had ever been homeless. All of the parents felt that they had adequate space, with the exception of the divorced parent who had been used to living in her own home. She felt both she and her daughter were restricted because she had to follow certain rules in her parents' home. All parents reported following a set schedule and routine during mealtimes. The following summaries provide a description of some of the mother's experiences.

One mother described her living conditions as follow:

> She lived in a garden apartment with two bedrooms. Even though her child has his own bedroom she did not feel that she had enough space because she had grown up in a house and was used to more space to

move around in. For this mother mealtimes were very calm with everyone eating around the table family style.

Time Concepts

Coding. Appendix E provides both the codes and breakdown of questions for the parent interview.

Homeless Head Start Families: All parents said that they owned either a clock and/or watch. The majority of parents reported that they followed a daily schedule. All parents said that they tended to talk to their children about time. More than half of those interviewed reported that they did not own or use a calendar. When asked about transition from one activity to another, all parents reported that their primary mode of motivating their children to move from one activity to another was through language. In general, most parents claimed that their children already knew the routines and did not require much coaxing.

Housed Head Start Families: The majority of housed Head Start families reported that they owned a clock and/or watch. More than half of the families reported that they did not follow a daily schedule. All parents said that they talked to their children about time with the majority of families reporting the ownership and use of a calendar within the household. Many of the parents

reported using language as their primary mode of transition from one activity to another. In general, most parents did not require a special routine to get their children to transfer attention from one activity to another.

College Campus Daycare: All parents in this sample reported owning a clock and/or watch. Half of the parents reported following a daily schedule and one half did not. All parents reported talking to their children about time. They also reported both the ownership and use of calendars with their children. The majority of parents reported using language as their primary mode of transition from one activity to another, with half of the parents using special routines, that is singing songs to get their children to move smoothly into another activity.

Summary

In general, the majority of parents reported that they followed some type of daily schedule and there were no apparent differences between groups. More interestingly, however, half of the housed Head Start and college daycare parents reported not following any particular routine on a regular basis whereas the homeless Head Start families reported adherence to a daily routine.

Most parents either owned a clock or a watch, and had access to a calendar, even if they did not always use it with their children.

Teacher Interview

In order to obtain information concerning the children's daily routine in the classroom and their general knowledge of time concepts a total of 5 teachers were interviewed: One teacher from the homeless Head Start program, one teacher from the housed Head Start program, and three teachers from the college campus daycare centers. Appendix F, provides the code for the questions.

Of the 5 teachers interviewed, all reported that they had an analog clock in their classrooms. The majority of teachers reported referring to the clock during the day. All teachers reported that some of their children owned watches, with an even split between those who wore digital watches and those who wore analog watches. The majority of the teachers reported having and using calendars in their classrooms. All teachers reported having other time charts posted in their classrooms, for example, birthday charts, holiday calendars, trip charts, and so on. Again most of the teachers reported talking about time concepts on a daily basis. Two classrooms had daily schedules posted with the remaining classrooms

posting schedules on a weekly basis. Only one classroom had clocktimes listed on their schedules. Two teachers reported referring to the schedules in their interactions with the children. The majority of the teachers reported explicitly teaching time concepts to the children. Only three classrooms specifically taught sequencing tasks (Housed Head Start, Lehman College, and Hunter College programs). The Homeless Head Start and Queens College day care centers did not. Both centers reported that they would have liked to teach sequencing concepts to the children and would try to implement them into their curriculum in the future. Most of the classrooms had some type of display of past events and the majority of teachers reported talking about future events with their children giving at least one week notice before the actual event was to occur. All classrooms had access to plant and animal life. In the majority of the classrooms the children were allowed to feed the plants and/or animals with the teachers offering assistance as needed. Growth and development of both plants and animals was discussed in all classrooms. The majority of teachers used a combination of techniques in guiding students from one activity to another, that is, the mention of the next event, the mention of time (5 more minutes left), singing and/or turning out the lights. Finally, all teachers reported using various other activities,such as, music,

art, books, when explaining concepts of time to the children.

It should be noted that although teachers appeared to be adhering to similar routines within the classroom, implementation of these routines were not always the same. Within both the homeless and housed Head Start programs teachers were often left without the help of their teaching assistants and parents which made implementation of their daily routines sometimes impossible. All of the classroom environments had access to similar materials that is, toys, books, and play space. However, the differences occurred in the amount and type of adult supervision and interaction that the children engaged in with the college campus children experiencing more adult supervision and interaction than either of the two Head Start programs.

Children's Procedure

Each child was seen for either one 45 minute session or two 30 minute sessions, in a quiet area within the school. When the session lasted 45 minutes the tasks involved in session one and two were collapsed into one session. It should be noted that the majority of children were assessed during two sessions. In order to

establish rapport, each child spent 5 minutes with the investigator engaged in play before administration of any of the tasks. Table 1 provides an overall scheme of the study.

Table 1

Methodological Overview

Group 1 Homeless Children n=12	Group 2 Housed Children n=12	Group 3 College Campus Day care n=12
I. Parent daily schedule	I. Parent daily schedule	I. Parent daily schedule
II. Teacher daily schedule	II. Teacher daily schedule	II. Teacher daily schedule
III. Parent Interview	III. Parent Interview	III. Parent Interview
IV. Teacher Interview	IV. Teacher Interview	IV. Teacher Interview
V. Classroom Observation	V. Classroom Observation	V. Classroom Observation
VI. Session 1 * A. TELD B. Scripts C. Sequencing Card Game	VI. Session 1 * A. TELD B. Scripts C. Sequencing Card Game	VI. Session 1 * A. TELD B. Scripts C. Sequencing Card Game
VII. Session 2 A. Cause and Effect Card Game B. Story Recall C. Time Questionnaire	VII. Session 2 A. Cause and Effect Card Game B. Story Recall C. Time Questionnaire	VII. Session 2 A. Cause and Effect Card Game B. Story Recall C. Time Questionnaire

*Test for Early Language Development

Session 1. During the first session each child's expressive and receptive language skills were assessed using the Test of Early Language Development (TELD). The TELD was chosen because it was deemed the test most appropriate to assess both the receptive and expressive language skills of the preschool child. In general, all other preschool language measures either test receptive or expressive language but not both.

Each child was then interviewed using twelve unstructured and structured event representation probes. On the unstructured interview questions the child was asked to describe a particular event without probing. On the structured interview task the child was asked to describe the same events, as in the unstructured interview, however, probes such as "What's the first thing that happens?" and " What happens next?" were used to elicit information. (See Appendix G).

After completion of the interview each child was asked to play a sequencing card game, called "Put Us In Order" utilizing a set of sequence cards from the American Guidance Service. (See Appendix H for a description of the game). During the game three cards were placed on an 8 1/2 x 11 inch sheet of white paper with a set of three 3 x 4 inch boxes equidistant from each other, in a standard misordered sequence. Each child was asked to

first order three familiar events and then to order three unfamiliar events. Familiarity of events was determined by a survey completed by 15 parents whose children attended Head Start programs in the New York area. Parents were asked to rate events as unfamiliar, mildly familiar, moderately familiar, and very familiar. The categories of unfamiliar/mildly familiar and moderately familiar/very familiar were collapsed into two categories, familiar and unfamiliar events. (See Appendix I). All picture sequences were chosen from this group. Each card had a number and/or letter placed on the back to indicate the correct order for laying out the cards as well as the response. On the first trial the child was told to place the cards in an order so that they told a story that made sense. The child was not verbally instructed to describe the story on the first trial. On the second trial the cards were placed in front of the child in the order that the child had originally arranged them. However, this time the child was asked to verbally describe the story they thought accompanied the pictures. Each child was given two practice trials to ensure that they understood the goal of the task. Each child's responses were recorded on separate answer sheets (See Appendix J for coding sheet).

Session 2. During the second session, each child spent

the initial 5 minutes engaged in play with the investigator. Each child was then asked to play a cause and effect game called "Making Predictions" utilizing a cause and effect card deck from the American guidance Service. During the game each child was presented with a picture that portrayed a particular event. The investigator placed a picture on an 8 1/2 x 11 inch sheet of white paper with a set of two 3 x 4 inch boxes equidistant from each other and described it to the child. The child was then presented with two pictures at the same time and asked what happened after the scene in the first picture. The child was then asked to place the picture next to the original picture on the white sheet. The printed number on the back of the card indicated the order for laying out the cards from the child's left to right. After the child chose the card she was then asked to tell why the event in the second picture was caused by the first event (See Appendix K for a full description of the game). Each child was asked to establish cause and effect relations for three familiar events and three unfamiliar events. All events represented in the pictures for the cause and effect task were then chosen from the survey. Each child was given two practice trials to ensure they understood the goal of the task. Each child's response was recorded on a separate answer sheet (See Appendix L).

After completion of the "Making Predictions" game each child was asked to listen to two stories which were previously audiotaped. One story was about a boy/girl having a birthday party and the other story concerned a boy/girl making a chocolate cake. Each child was instructed to listen carefully as they would be asked to recall each story. Each child heard the first story and was asked to recall it immediately, then they heard the second story and were asked to recall it immediately. Each version of the child's story was audiotaped (See Appendix M for written version of the story).

Finally, a time questionnaire was administered in order to evaluate each child's overall understanding of conventional temporal concepts (See Appendix N for time questionnaire).

Chapter 3 - Results

The results will be presented in six sections. The first section will focus on children's performance on the language scale. The second section focuses on various nonverbal tasks. The third section reports the performance on the story recall task. The fourth section involves the analyses of script protocols. In the fifth section, the analyses of children's understanding of conventional time concepts are presented. And in the sixth section an overall summary of the children's performance is presented.

Analysis of Child Performance Tasks

The following result sections include all analyses and results regarding language performance, story recall, script performance and conventional time concepts. The core analyses for each of these areas involved a one-way analysis of variance (ANOVA) in combination with Scheffe post hoc tests and ANOVA's controlling for language and age using the TELD language scores and language age as covariates.

Section 1. Language Performance

Overall language was analyzed by computing for each

child a language quotient and language age score. A one-way analysis of variance (ANOVA) showed significant differences among the three daycare groups, in both expressive and receptive language performance, F (2,33) = 6.16, $p < .005$. Scheffe comparisons indicated that college campus daycare children were significantly different from the housed head start children in their performance on the TELD at the .05 level. The group means are presented in Table 2, with both homeless and housed head start children performing below average norms for this age.

Table 2

Mean (and Standard Deviation) TELD Language Quotients, Language Age and Chronological Age by Daycare Group

Daycare Group	TELD LQ Scores	LA[1]	CA[2]
Homeless Head Start	M		
	81.58a	3.1a	4.2
	(7.42)	(.59)	
Housed Head Start			
	76.00a	2.8a	4.4
	(8.98)	(.56)	
College Campus			
	90.33 b	4.2b	4.4
	(13.00)	(1.2)	

Note: Average LQ score = 100

Standard deviation = 15
131-145 superior
116-130 above average
85-115 average
70-84 below average
55-69 poor

Means that do not share subscripts differ at the .05 level.

[1]LA = age equivalents for TELD raw scores.
[2]CA = chronological age in years and months.

A one-way ANOVA was performed to determine differences across daycare groups in language age. Results showed significant differences among groups $F(2,33) = 9.21$, $p < .001$. Scheffe comparisons indicated that college campus daycare children were significantly more advanced than homeless and housed Head Start children in language performance. The group means of overall language age and chronological age are presented in Table 2, with both homeless and housed Head Start children functioning below their average age group.

Section 2. Nonverbal Tasks

Sequencing Game: Overall understanding of sequencing was analyzed by computing two scores, one score for familiar picture sequences and one score for nonfamiliar picture sequences. A score of one was given if a sequence was correctly completed and zero if incorrectly completed. A maximum of 3 points on both tasks was possible. Actual test scores ranged from 0 to 3 points on the familiar items and 0 to 2 on the nonfamiliar items. A one-way ANOVA showed significant differences across groups F (2,33) = 7.72, $p < .001$, on the picture sequencing task involving familiar items. Scheffe comparisons revealed that the college campus daycare children differed significantly from both the housed and homeless Head Start children on this task at the .05 level. On the picture sequencing task involving nonfamiliar items, a one-way ANOVA revealed results among groups that approached significance, F (2,33) = 2.40, $p < .10$. Group means for overall performance on sequencing tasks are presented in table 3, with college campus daycare children showing a higher level of performance than both Head Start groups on both familiar and nonfamiliar tasks with performance decreasing for all children on the nonfamiliar task.

Table 3

Mean (and Standard Deviation) Sequencing Game Scores by Familiarity/Nonfamiliarity and Daycare Group

Daycare Group	Sequencing Game	
	Familiar Task	Nonfamiliar Task
Homeless Head Start	M	M
	.33a	.17
	(.65)	(.57)
Housed Head Start		
	.58a	.50
	(.67)	(.80)
College Campus		
	1.42b	.83
	(.79)	(.83)

Means that do not share subscripts differ at the .05 level.

In order to assess whether children comprehended the actions taking place in the pictures, each child was asked to tell the story that went along with the pictures they had originally sequenced. A score of 1 was given if the child had some ability to correctly state that the theme of all three pictures or two out of three pictures. A score of 0 was given if the child's response did not represent the theme of the three pictures. This coding scheme was adapted from Sharp (1982). A maximum of 3 points was possible on both the familiar and nonfamiliar tasks.

An ANOVA controlling for language and age using the TELD language scores and language age as covariates revealed significant differences across the three groups in ability to articulate stories for the familiar story telling task F (2,31) = 9.94, $p < .005$ as well as the nonfamiliar story telling task F (2,31) =3.84, $p < .01$. The group means of overall performance are reported in Table 4, with the college campus daycare group performing better than their housed and homeless Head Start peers. These results indicate that the differences among the children in their ability to articulate stories about both the familiar and nonfamiliar events are not the result simply of age differences or of language abilities as assessed by the TELD.

Table 4

Mean Story Telling Scores by Familiarity/Nonfamiliarity and Daycare Group

Daycare Group	Sequencing Game/Story Telling Task	
	Familiar Task	Nonfamiliar Task
Homeless Head Start	M	M
	.66a	.17a
	(1.07)	(.39)
Housed Head Start		
	.41a	.17a
	(.79)	(.57)
College Campus		
	1.17b	.58b
	(1.11)	(.99)

Means that do not share subscripts differ at the .05 level.

Cause/Effect Game. Overall understanding of cause and effect was evaluated by computing two scores, one score for familiar cause/effect and one score for nonfamiliar cause/effect items. A score of one was given if a sequence was correctly completed and zero if incorrectly completed. A maximum of 3 points on both tasks was possible. Actual test scores ranged from 0 to 3 on the familiar task and 0 to 3 on the nonfamiliar task. A one-way ANOVA revealed significant differences among groups F (2,33)=6.43, $p < .005$ on the cause/effect items that involved familiar events. Scheffe comparisons revealed that both the housed Head Start and college campus daycare children were significantly different from the homeless Head Start children at the .05 level. On the cause/effect task involving nonfamiliar items, a one-way ANOVA revealed results across groups that approached significance F (2,33) = 2.59, $p < .10$. The group means of overall performance are presented in Table 5 with both housed Head Start and college campus daycare children performing at a higher level than their homeless Head Start peers.

Table 5

Mean (and Standard Deviations) Cause/Effect Game Scores by Familiarity/Nonfamiliarity and Daycare Group

Daycare Group	Cause/Effect Task	
	Familiar	Nonfamiliar
Homeless Headstart	M	M
	1.17a	1.50ns
	(.83)	(1.17)
Housed Headstart		
	2.25b	1.75ns
	(1.05)	(.87)
College Campus		
	2.50b	2.32ns
	(1.00)	(.65)

Means that do not share subscripts differ at the .05 level.

ns = nonsignificant

In order to assess whether the children could reason successfully about events depicted in the pictures, each child was asked to explain why they had chosen a particular sequence of pictures. A score of 1 was given if the child showed the ability to state the correct causal action. For example, shooting a bow and arrow: Reason for selection of the picture with the arrow: because it's silly to shoot with a carrot. A score of 0 was given if the child's response did not represent the correct causal response. A maximum of three points was possible for both familiar and nonfamiliar tasks. A one-way ANOVA indicated a significant difference among groups in reasoning about familiar items F (2,33) =3.52, p < .05. Scheffe comparisons revealed that college campus daycare children were significantly better at reasoning about cause and effect than homeless Head Start children at the .05 level. Further analysis controlling for language and age revealed no significant differences among groups. Additional analysis controlling for language and age independent of one another revealed no significant differences. These results indicate that both language and age are contributing to children's ability to reason. A one-way ANOVA revealed no significant differences among groups in reasoning about nonfamiliar items. (See Table 6 for group means).

Table 6

Mean Reasoning (and Standard Deviation) Scores by Familiarity/Nonfamiliarity and Daycare Group

Daycare Group	Cause/Effect Game/Reasoning Task	
	Familiar	Nonfamiliar
Homeless Head Start	M	M
	.58a	1.16
	(.66)	(1.19)
Housed Head Start	1.00a	.83
	(.95)	(1.02)
College Campus		
	1.66b	1.58
	(1.30)	(1.08)

Means that do not share subscripts differ at the .05 level.

Pearson Product Moment Correlations were computed to assess the relationship between nonverbal sequencing and cause/effect tasks and their verbal counterparts, story telling and reasoning. Positive correlations were found between the sequencing of familiar items and story telling concerning familiar items, between sequencing of nonfamiiar items and story telling concerning nonfamiliar items and between choosing the correct causal action and reasoning about an event. (See Table 7, for correlations).

Table 7

Correlations between Nonverbal and Verbal Subtasks with Sequencing and Cause/Effect Scores for All Children

N=36

	Verbal (Story/Reasoning)	
	Familiar	Nonfamiliar
NonVerbal Sequencing	.469*	.598**
Nonverbal Cause/Effect	.384	.745**

*p < .01

**p < .001

The results indicated significant correlations between children's ability to sequence pictures and tell a story for both familiar and nonfamiliar items and their ability to choose the correct cause/effect card and reason correctly about their choice. No significant correlation was found between children's ability to choose the appropriate response on the familiar cause/effect task and reason about the choice.

These results suggest that children who are capable of

sequencing familiar and nonfamiliar event pictures are capable of generating an accurate story about the pictures and moreover, if they understand a causal action, they are capable of articulating a correct reason.

Section 3. Verbal Tasks

Story Recall. The purpose of the story recall task was to examine children's underlying event representation structures. Each child was asked to listen to two stories, one involving a birthday party and the other involving the making of a chocolate cake. A score of 1 was given to all items that were mentioned in the story and a score of zero to those that were omitted. A maximum of 10 points on both stories was possible. Actual scores ranged from 0 to 5 on story 1 (Birthday party) and 0 to 3 on story 2 (Making Chocolate Cake). On story 1, a one-way ANOVA revealed results that approached significance , F (2,33) = 2.50, $p < .10$. Further analysis controlling for language and age revealed significant differences among groups F (2,31) = 16.69, $P < .05$. These results indicate that college campus children recalled more segments of the birthday party story than either of the Headstart groups independent of their age or language facility. There were no significant

differences across daycare groups on recall of story 2. The group means of overall story recall are presented in Table 8, with all college campus children performing better than their housed and homeless Headstart peers on the recall of story 1 but equally as poorly on story 2.

Table 8

Mean (and Standard Deviations) Story Recall Scores by Story and Daycare Group

Daycare Group	Story Recall	
	Story 1	Story 2
Homeless Headstart	M	M
	1.58 a	.50ns
	(1.68)	(1.00)
Housed Headstart	.75a	.08ns
	(1.21)	(.29)
College Campus	2.25b	.25ns
	(1.96)	(.70)

ns = nonsignificant

Means that do not share subscripts differ at the .05 level.

Story 2 (Making Chocolate Cake) because it was considered a strong script was also coded for sequencing error. A score of 1 was given for each item that adhered to the sequence and a score of 0 to those that were omitted. A maximum of 10 points was possible. Actual scores ranged from 0-6. A one-way ANOVA revealed no significant differences across groups. All children performed simililarly in their ability to recall and order events within this script.

Section 4. Script Protocols. In order to assess children's understanding of everyday events, each child was asked a set of six questions concerning morning, lunch, afterschool, birthday parties, church and restaurants. All questions were asked with structured probes. Each script was analyzed for script length based on component statements and temporal reference. (See Appendix O for codes).

Component Statements. The analysis was carried out in terms of number of acts for each event within the structured and unstructured context. Separate analyses of variances were performed for each event type within the structured and unstructured context. Tables 9 and 10, provide means for each event by topic for both unstructured and structured contexts respectively.

Table 9

Mean Component Acts by Unstructured Event Topic and Daycare Group

Event Topic	Daycare Group		
	Homeless Head Start	Housed Head Start	College Daycare
Morning	2.75	1.16	3.58
Lunch	2.25	1.08	2.41
Afterschool	1.00	1.42	2.75
Birthday	2.50a	1.25a	3.58b
Church	.75	.50	.50
Restaurant	.50a	.16a	1.66b

Means that do not share subscripts differ at the .01 level.

Table 10

Mean Component Acts by Structured Event Topic and Daycare Center

Event Topic	Daycare Group		
	Homeless Head Start	Housed Head Start	College Daycare
Morning	2.50a	1.16a	3.33b
Lunch	1.50	1.08	2.41
Afterschool	1.92	.58	2.16
Birthday	.83a	.75a	3.58b
Church	.33	.41	1.25
Restaurant	.08a	.25a	2.08b

Means that do not share subscripts differ at the .05 level.

Unstructured Context. The results revealed significant differences across daycare groups on morning [F (2,33) = 2.97 $p < .06$], birthday [F (2,33) = 4.56 $p < .01$], and restaurant [F (2,33) = 6.58 $p < .003$] scripts. No significant differences were found on lunch, afterschool and church scripts. Further analysis controlling for language and age revealed significant differences for morning[F (2,31) = 2.94 $p < .06$], birthday party [F

(2,31) = 3.44 $p < .04$], church [F (2,31) = 4.12 $p < .04$] and restaurant [F (2,31) = 15.27 $p < .001$] scripts.

Structured Context. Results on the structured script tasks showed significant differences among the daycare groups on morning [F (2,33) = 3.60 $p < .03$], restaurant [F (2,33) = 5.18 $p < .01$] and birthday party [F (2,33) = 5.68 $p < .007$] scripts. No significant differences were found for the remaining event topics. Further analysis controlling for language and age as assessed by the TELD revealed no significant differences across groups on any of the script items.

Summary. As was predicted, all groups differed on morning scripts versus lunch scripts, with college campus children producing more component statements than either Head Start group. Contrary to the original prediction however, homeless children produced more mean number of acts than did their housed peers. This result suggests that perhaps the housed children's home environment may not be as structured, as it was originally thought to be or that homeless children's homes may be subject to many more rules imposed by the Tier 2 administrators, hence indicating a level of organization that goes beyond that of housed children.

In order to assess the relationship between children's ability to recall the birthday story and their general representation of a birthday party script a Pearson Correlation coefficient was computed. Significant correlations were found to exist between story recall and unstructured component acts ($r = 5821$, $p < .001$) and sequence length ($r = 5773$, $p < .001$) for the birthday party script, suporting the assumption that children who have a representation of an event will be able to recall a story about the event because of their underlying event schema.

Temporal Reference.In order to evaluate the language of each event topic, each script was scored for temporal reference. Temporal reference included sequence, location and frequency terms. The analysis was carried out in terms of the number of temporal terms used in each event topic within the structured and unstructured context for each group. Tables 11 and 12 provide overall means for temporal use by daycare group for both unstructured and structured contexts respectively.

Unstructured Context. The results revealed no significant differences across groups in the use of temporal markers in the event descriptions.

Structured Context. The results indicated significant differences among daycare groups in the use of temporal terms for structured event topics on birthday scripts, [F (2,33)=6.45, $p < .004$] and restaurant scripts [F (2,33) =5.32 $p < .009$] with college daycare children using temporal markers more often than their Head Start peers.

Table 11

Mean Number of Temporal Terms by Unstructured Event Topic and Daycare Group

Event Topic	Daycare Group		
	Homeless Head Start	Housed Head start	College Daycare
Morning	2.0	.75	2.17
Lunch	1.25	.50	1.75
Afterschool	.58	.17	1.25
Birthday	1.17	.58	1.66
Church	.17	.17	.08
Restaurant	_____	____	.58

Table 12

Mean Number of Temporal Terms by Structured Event Topic and Daycare Group

Event Topic	Daycare Group		
	Homeless Head Start	Housed Head Start	College Daycare
Morning	1.58	.92	2.33
Lunch	.66	.33	1.83
Afterschool	1.25	.42	1.92
Birthday	.75a	.17a	2.92b
Church	.08	.08	.67
Restaurant	.08a	____ a	1.67b

Means that do not share subscripts differ at the .05 level.

Because all children produced more temporal markers in the unstructured scripts, these scripts were further analyzed in terms of type of temporal markers used. The results revealed that all children used sequencing terms more often than either location or frequency terms with college campus daycare children using them more often than either of the Head Start groups. Location and frequency terms were used more often by college campus day care children. Table 13 provides for temporal markers for unstructured event topics.

Table 13

Mean Number of Temporal Markers by Unstructured Event Topic, Type, and Daycare Group

Event Topic	Daycare Group		
	Homeless Head Start	Housed Head Start	College Daycare
Morning			
Sequence	2.0	.75	2.0
Location	____	____	.08
Frequency	____	____	.17
Lunch			
Sequence	1.17	.50	1.42
Location	.08	____	.08
Frequency	____	____	.25
Afterschool			
Sequence	.58	.17	1.16
Location	_____	____	.08
Frequency	_____	____	___
Birthday			
Sequence	1.16	.42	1.67

Table 13 (continued)

Location	____	_____	.08
Frequency	____	.17	.08
Church			
Sequence	.08	.08	.08
Location	.08	.08	_____
Frequency	_____	_____	_____
Restaurant			
Sequence	.17	.08	.50
Location	____	_____	____
Frequency	____	_____	____

Interaction between Language and Script Length. In order to assess whether there was a relationship between children's overall language ability and script length Pearson Correlations were computed. Table 17 provides correlations for all children between their TELD LQ scores and each event topic for structured and unstructured contexts. The results indicate a positive correlation for morning and restaurant unstructured scripts and church and restaurant structured scripts.

Table 14

Correlations between TELD Language Quotients and Script Length for All Subjects

Events	Structured	Unstructured
Morning	.224	.458*
Lunch	.282	.338
Afterschool	.352	.447*
Birthday	.327	.383
Church	.456*	.345
Restaurant	.502*	.774*

$p < .01$, one-tailed

Section 5. Children's Conventional Time Concepts

In order to assess children's understanding of conventional time concepts all children were asked a set of questions concerning time. Appendix P provides the code used. Each child's time questionnaire was given a total score. A maximum of 36 points was possible. Actual scores ranged from 0 to 24. All scores were entered into a one-way ANOVA. The results revealed a significant difference across daycare groups, F (2,33) = 17.75, p < .001. Scheffe comparisons revealed that the college campus children were much more knowledgeable than either the homeless or housed Head Start children in their general understanding of conventional time concepts. Table 15, provides overall means and standard deviations for all daycare groups.

Table 15

Mean (and Standard Deviation) Time Questionnaire by Daycare Group

Daycare Group	Time Questionnaire Scores
Homeless Head Start	M
	5.92a
	(3.78)
Housed Head Start	6.17a
	(3.71)
College Campus	
	15.08b
	(5.16)

Means that do not share subscripts differ at the .01 level.

Further analysis of the data controlling for language and age revealed a significant difference among the groups F (2, 31) = 212.77, $p < .001$. Again these results indicate that the children's ability to respond to questions is not totally dependent on their actual language skill which in turn provides evidence for understanding of conventional time not dependent only on the child's

linguistic abilities.

The questionnaire was further broken down into five areas, questions pertaining to age, calendar time, clock time, experiential time (events) and conceptual time. (See Appendix P for a breakdown of the areas by question and number). Separate one-way ANOVA's were computed for each area.

Age. The results revealed a significant difference among groups F (2,33) = 5.35, $p < .01$. Scheffe comparisons showed a significant difference between the homeless children and the college campus daycare children at the .05 level in their ability to answer questions concerning age. Further analysis controlling for language and age revealed a significant difference among groups F (2,31) = 21.28, $p < .01$.

Calendar Time. Results indicated a significant difference across groups. F (2,33) = 20.78, $p < .001$. Scheffe comparisons revealed significant differences between the college campus daycare children and both housed and homeless Head Start groups. Further analysis controlling for language and age revealed no significant differences across the groups.

Clock Time. There were no significant differences among groups in this area.

Experiential Time. Results revealed significant differences across groups, F (2,33) = 4.90, p <.01. Scheffe comparisons revealed a significant difference between homeless children and college campus daycare children at the .05 level with college daycare children exhibiting a much higher level of event knowledge than their homeless peers. Further analysis holding language and age constant revealed a highly significant difference, F (2,31) = 80.13, p < .006, suggesting real discrepancies in event knowledge related to time. Table 16, provides a breakdown of the time questionnaire by factor and daycare group.

Table 16

Mean Time Questionnaire Scores by Factor and Daycare Group

Time Questionnaire	Daycare Group		
	Homeless Head Start	Housed Head Start	College Daycare
Age	1.58a	2.25a	3.67b
Calendar	2.33a	.91a	5.91b
Clock	----	----	----
Experiential	1.25a	2.92a	5.00b

Means that do not share subscripts differ at the .01 level.

Summary. In general, these findings strongly indicate that the college campus daycare children have a greater knowledge of conventional time concepts, in particular concepts relating to age, calendar time and experiential time.

Section 6. Overall Summary of Results

The results of this study indicated that overall college campus urban inner city daycare children perform significantly better on all tasks than either the homeless or housed Head Start groups. However, in contrast to the original predictions homeless and housed Head Start children do not differ significantly on most tasks. That is, their language skills are very similar, their performance on nonverbal tasks are similar, and more importantly their performance on home based tasks (ex. morning scripts) are quite similar, (see Table 17 for an overview of the results).

Table 17

Overall Summary of Results

(Significant differences between groups indicated by different letters)

Task	Homeless Head Start	Housed Head Start	College Daycare	p level
Language Quotient	a	a	b	**
Sequencing Familiar	a	a	b	*
Sequencing Nonfamiliar	ns	ns	ns	____
Sequencing/ Story/Familiar	a	a	b	*
Sequencing Story/Nonfamiliar	a	a	b	*
Cause/Effect Familiar	a	b	b	*
Cause/Effect Nonfamiliar	ns	ns	ns	____
Cause/Effect Reasoning Familiar	a	a	b	*
Cause/Effect Reasoning Nonfamiliar	ns	ns	ns	____
Story Recall 1/2	ns	ns	ns	____
Scripts Component Acts Unstructured				
Birthday	a	a	b	**
Restaurant	a	a	b	**

Table 17
(continued)

Structured				
Morning	a	a	b	**
Birthday	a	a	b	**
Restaurant	a	a	b	**
Time Questionnaire				
Total Score	a	a	b	**
TQ Age	a	a	b	**
TQ Calendar	a	a	b	***
TQ Experiential	a	a	b	**

*Note: There is no difference between groups that share the same subscript.
ns = nonsignificant

*p < .05
**P < .01
***P < .001

Chapter 4 - Discussion

The present research explored urban preschool children's ability to understand and represent their daily routines. The first issue addressed by this research was whether or not children from impoverished and structurally chaotic environments would have less well defined event representations for home-based activities than their peers who lived in environments where their routines were presumed to be much less unstable. A second point examined by this research was whether or not homeless children would perform similarly on tasks involving school based knowledge when all of the classrooms shared common physical and social features. And finally, the third issue dealt with children's understanding of conventional temporal concepts. It was suggested that children from environments with relatively stable routines would have a better understanding of temporal concepts than their peers from much less stable environments.

The results of this study clearly showed differences between children from the urban community who attended college daycare and those who attended Head Start programs with the college daycare performing significantly better on the majority of the tasks. However, contrary to the original hypotheses there were

few differences between homeless and housed children within the Head Start program. For example homeless and housed Head Start children scored similarly in the areas of language performance, sequencing tasks, understanding of conventional time concepts and description of salient events in their lives.

One prediction of this study was that homeless children, due to the lack of consistency in their environments, would have less access to stable school environments and therefore their performance would be below that of their housed peers on standardized language measures. The results of this study show a marked difference between homeless children and housed college daycare children in both their receptive and expressive language skills with college daycare children performing within range of their average linguistic abilities. However, contrary to the original prediction, the language skills of homeless children were very similar to those of the housed Head Start children with both groups functioning below average for their age group. These findings are consistent with previous studies which have found that housed poor children as well as homeless children fall below average in their linguistic performance (Whitman,Accardo, Boyert, & Kendagor, 1990; Molnar, et.al. 1991).

Another question raised by this research was whether or not homeless children would perform closer to peers on tasks that required little or no linguistic input on the part of the child. The results on the sequencing game task revealed no differences between the housed and homeless Head Start children. Both groups of children had difficulty in ordering both the familiar and nonfamiliar sequences portrayed in pictures. On the other hand, the college campus daycare children were much more successful in their ability to sequence both familiar and nonfamiliar pictures. On the one hand these findings support Sharp's (1982) conclusions that children understand temporal relations because the urban college daycare preschoolers were able to sequence both the familiar and nonfamiliar pictures. However, even though the task was simplified to include three pictures, both the homeless and housed Head Start children's performance was impaired compared to the daycare group. Do these children lack the cognitive capacity to perform these tasks or is their inability to perform the task a reflection of the lack of relevance of the task to their everyday experiences? These results may have been influenced by the apparent fact that neither the homeless or housed Head Start children fully grasped the instructions even though examples were given. This lack of understanding may have reflected their shared life

experiences of poverty which in essence does not allow them access to certain information that exists in the environment of the middle class child.

In order to examine cause/effect relations more thoroughly children played a nonverbal cause/effect game. The results from this task revealed that housed Head Start children and college daycare children understood cause/effect relations for both familiar and nonfamiliar pictures to a greater extent than their homeless peers. In order to further explore whether preschool children fully understood the temporal and causal relations implied in the nonverbal task children were asked to verbally describe the sequence that was portrayed in their original layout of the pictures. Similarly they were also asked to explain why they had chosen a particular picture in the cause/effect task. In general, college daycare children were more articulate in their descriptions of the pictures than either the homeless or housed Head Start children. For example on the sequencing task a homeless girl age 4.6 years when explaining the sequence of a child drying his hands said "Hands are dirty dry hands with towel." Similarly a housed Head Start daycare child age 4.5 years responded to the same question as follows " Putting hand in water and you have water and washing your hands." In contrast

a college daycare child age 3.11 years described the situation as follows " You wash your hands,then you put soap on and then you dry them."

All preschool children however, provided fewer well structured responses to nonfamiliar sequences. On the cause/effect task the college daycare and housed Head Start children provided more adequate responses for their choices than their homeless peers. The homeless children more often than not said that they did not know why they had chosen the picture in question. In short, these findings suggest that urban preschool children have temporal and causal structures which can be demonstrated when the tasks they are asked to perform are based on familiar nonverbal stimuli. However, for some children, due to their impoverished linguistic skills as is reflected in their language test scores, their performance appears to decrease when the demands of the task requires them to provide verbal descriptions. Because of their inability to express themselves clearly one could conclude that these children are unable to comprehend temporal and causal relations when in fact they can. It should be noted that the tasks used in this study were simplified based on Sharp's finding that urban preschool children had difficulty in sequencing more than three pictures. Thus, in order to demonstrate a better

understanding of temporal ordering and causal relations a more demanding task would be needed.

Hudson & Nelson's (1982) conclusions that children rely on their scripts when recalling stories based on familiar events in their lives are borne out by the results of this study. All children recalled more segments from the birthday party story than from the making chocolate cake story. Although children had experience with making cakes they were much more familiar with birthday parties. Again the college daycare children recalled more segments of the birthday party story than either the homeless or housed Head Start children; however, homeless children recalled more segments than their housed Head Start peers. This finding may be due to the fact that teachers in the homeless daycare programs tend to make birthdays a very special event for these children, whereas in the housed daycare programs birthdays are celebrated but not with the same amount of emphasis being placed on the event. The assumption is that children will probably celebrate their birthday at home.

These findings were supported by additional data which showed a positive correlation between the recall of the birthday party story and the children's actual

production of a birthday party script. These data support the assumption that all children have a general event representation which is borne out in their ability to recall stories and produce a script.

Another question addressed by this research was whether or not the use of temporal and relational terms would be less frequent for homeless children when talking about their daily routines, in particular, their home routines. The results of this study showed that for both unstructured and structured scripts, homeless children used fewer temporal and causal terms than the college daycare group. However, in comparison to the housed Head Start group they either did better (morning, lunch, birthday party) or the same (afterschool). In terms of type of type of temporal term utilized by the children, college daycare children tended to use terms that expressed sequence, location, and frequency, whereas, housed and homeless Head Start children used only sequencing terms. In general, the following are examples are of the type of scripts produced by the children in each group:

Morning Script

Homeless boy 4.11 years

"I go back to sleep and then my mommy tell me to wake up and then she calls my name and then I get up and then I go to the bathroom and then my mommy wash me up."

Housed boy 4.7 years

"Fighting in the house... Um, they was cooking ...wake up."

College Daycare girl 5 years

"I take a shower .. I go to the bathroom ... I eat breakfast ... I get dressed ... watch some TV..... yes, go back to bed because I get really lazy."

Contrary to the original prediction that homeless children would use fewer temporal terms than their housed Head Start peers the results of this study showed that the opposite was true. The idea that children from well-structured home environments report more organized scripts is borne out by the fact that college daycare children and even homeless children whose home environments tended to be stable used more temporal markers and reported more component acts when describing what went on in their morning routine than those children whose environments were not as stable.

These observations may be related to the following conditions of their experience: (1) the homeless children

who participated in this study were drawn from a population living in Tier II shelters, which provided adequate space for the families allowing them to establish routines; (2) homeless children in living in the Tier II shelters were subjected to many more rules and structuring routines due to administrative policies thus allowing them less freedom in establishing their own daily routines; (3) children living in Tier II shelters may share spaces with other families requiring stricter routines to enable daily activities to flow smoothly and/or (4) many of the housed Head Start children lived in apartments which often housed more than one family. These overcrowded and somewhat chaotic conditions may in fact account for the lack of organization in these children's home scripts.

Again on school based scripts college daycare children reported more component acts and also used more temporal markers in describing their school routines. Both homeless and housed Head Start children performed similarly on this task, although, homeless children used more temporal terms. In general, the following are examples of the type of scripts produced by children in each group.

Lunch Script

Homeless girl 4.2 years
"My milk spills .. I spill milk .... I ate .. I ate meat....I drunk my milk."

Housed boy 4.11 years
"Eat"

College Daycare girl 4.8 years
"First thing I eat my lunch .... I take my nap ..... I get my sleep ..... My mommy comes... I put on my shoes ..... I go home."

Following from the aforementioned results the question arose concerning how children's sequencing abilities related to their general understanding of conventional temporal knowledge. The findings indicated that children from college daycare facilities showed a greater awareness of conventional knowledge than either their housed or homeless Head Start peers. These children tended to produce well-formed and temporally organized scripts. Thus, these results support the assumption that well formed routines can lead to the mastery of conventional time systems (Norton, 1990;

Nelson, et.al 1991).

The parent and teacher data lend further credence to the underlying assumption that well structured environments (physical and social) provide an organized structure which allows children to master conventional time systems. Like Norton (1990) the results of this study showed that those families who did not adhere to time and scheduling had children who showed little mastery over conventional time. If children's environments are disorganized and impoverished with respect to everyday general functioning then one can conclude from these findings that they may in fact have difficulty in mastering conventional systems of time.

The parental interviews also provided information concerning the impact of the environment on their children's overall ability to represent events. For example within the homeless and housed Head Start groups, where the environments were overcrowded and disorganized children tended to describe events that were not well structured and contained few temporal terms. Like Nelson's work with middle class children these findings show that children's event representations are based on their general experiences within a physical and social context. Thus if the child's experience is somehow

confusing and impoverished then how the child comes to organize and represent the world will also be disorganized and confused in some sense.

Overall Cognitive Functioning

I began this research by arguing that most of the previous research looking at the functioning of homeless children did so with an eye on their mental health . The focus of this research was to examine some aspect of children's cognitive processes, in particular temporal organization within daily routines. The overall findings from this study strongly suggested that urban Head Start preschool children lag behind his college daycare peers on all dimensions examined in this research. These children's language abilities as tested by a standard measure are below average norms. Their abilities to sequence what were expected to be meaningful pictures containing content relevant information and to tell stories about those pictures fell behind that of their peers attending college daycare. Their abilities to sequence daily routines as well as recall stories also lagged behind that of their college daycare peers. And finally these children's general knowledge of conventional time concepts tended to lag behind that of their peers attending college daycare.

What does this mean for the Head Start preschool child who is predominantly from an economically impoverished background? Does it mean that these children's cognitive functioning will always fall below that of middle class preschool child? Although these children were unable to respond to the questions put to them by the varying tasks in this research I am still not convinced that the Head Start children as a group are unable to perform at a much higher level. As Brice-Heath (1984) has suggested in her work which looks at the use of language in both the school and home environments of southern black and white children from two communities in Trackton, the language that children use in their home environments may not be transferable to the classroom. Perhaps these Head Start preschool children may need to be exposed to the language of the classroom before they can be asked to participate in school based tasks which require school based knowledge. Similarly, as Brice-Heath has further suggested in her work black and white children in typical preschool environments with cues like "time for nap" and "time for drawing " and little attention paid to the completion of a task lower SES children who come from home environments with little structure related to time will become frustrated in the classroom situation because it has no relation to their everyday experiences. Moreover, perhaps the tasks need

to be modified in and of themselves to provide these children with a much more hands on approach as John, et.al (1970) did her study. Similarity, as had been found in other research (Molnar, et.al. 1984), another reason why these children may be unable to perform at a higher level on the tasks utilized in this study may be due to their lack of experience age appropriate toys, access to reading materials in their home environments and/or everyday availability of what we consider to be important in the life of the preschool child, i.e. regular mealtimes, play, etc. So the question that I come back to is do these children lack the cognitive capacity to carry out specific cognitive tasks or is their inability to complete the task due more specifically to their lack of experience with the concepts being tested? I would argue that it is the latter.

Summary and Conclusions

The overall rationale for this study stemmed from the assumption that a disorganized and impoverished environment would have a negative impact on cognitive functioning. The conceptual area under study was that of temporality. The overall results of this study have supported the original assumption. The major findings of this study have been twofold: (1) disorganized and

impoverished environments lead to what appears to be impaired conceptual functioning and (2) there are few differences between homeless children and housed children who are chronically poor.

One can draw conclusions by very cautiously considering several factors. Although it was shown that a disorganized environment can have a negative impact on cognitive functioning a larger sample of children from the urban inner city tapping into different types of shelters as well as homes would have to be sampled before we could firmly conclude the impact of the environment. Furthermore, more in-depth information would have to be obtained in order to get a better picture of each child's home environment.

In short, this research has just scratched the surface of our understanding of the impact of the environment on homeless and poor children's cognitive functioning. Future work will need to focus on more critical analysis of both the physical and social environments and a fuller understanding of poverty on the whole.

Appendices

Appendix A

Preliminary Data Analysis

Pilot Study. In order to evaluate the proposed methodology a pilot study was conducted with 6 children from the Hunter Child Care Center. All children scored within their average language age on the TELD with the exception of one child who scored below average.

When asked to describe a sequence of actions in different events all children performed better when structured probes were used. The children also used more temporal markers with structured probes.

On the sequencing card game the children scored better on the unfamiliar events than on the familiar event tasks. As a result of this outcome, the events were changed, based on a survey completed by 15 parents whose children attended Headstart programs in the New york area. All events were rated on their levels of familiarity to the children. On the cause and effect task all children performed equally well on both familiar and unfamiliar events.

The story recall task revealed a gap between what the children heard and what they actually recalled. The stories were coded to give a maximum score of 10 points. All six children scored below 5 points. The results indicated that perhaps children did not have the underlying general event representation.

Finally, the time questionnaire revealed that in general the children had some understanding of time concepts, although they had a tendency to misorder the days of the week and the months and incorrectly respond to questions involving the use of clocks. These results appear consistent with what we know of preschool understanding of time concepts in general, (1) that they have some understanding of calendar time and (2) that preschool children, even if they correctly respond to questions concerning clock time, have little understanding of the underlying meaning of their response.

Appendix B

Daily Schedule of Your Child's Activites

Weekday (Monday - Friday)

Name of Child:_____ Date:_____

Age: _____

Please fill in each column below, describing the typical daily routine of your child. Under column number 1 fill in the specific behavior that your child engages in during that time period. Under column number 2 fill in where the child participates in the activity and under column number 3 fill in who is with the child when they are engaged in the activity. If this schedule is different for Saturday or Sunday please fill out one form for the weekend and one form for the weekdays.

	(1) ACTIVITY	(2) LOCATION	(3) PARTICIPANTS
Morning	What your child does	Where they do it	With whom they do it
Example	Tanya washes her face	Bathroom	mother, sister, etc
6:00	combs her hair and gets dressed		
7:00			
8:00			
9:00			
10:00			
11:00			

12:00

1:00

2:00

3:00

4:00

Evening

5:00

6:00

7:00

8:00

9:00

10:00

11:00

Any important activities (events) which occur during the day.

Comments:

Daily Schedule of Your Child's Activites

Weekend (Saturday and Sunday)

Name of Child:_____ Date:_____

Age: _____

Please fill in each column below, describing the typical daily routine of your child. Under column number 1 fill in the specific behavior that your child engages in during that time period. Under column number 2 fill in where the child participates in the activity and under column number 3 fill in who is with the child when they are engaged in the activity. If this schedule is different for Saturday or Sunday please fill out one form for the weekend and one form for the weekdays.

	(1) ACTIVITY	(2) LOCATION	(3) PARTICIPANTS
Morning	What your child does	Where they do it	With whom they do it
Example	Tanya washes her face	Bathroom	mother, sister, etc
6:00	combs her hair and gets dressed		
7:00			
8:00			
9:00			
10:00			
11:00			
Afternoon			
12:00			

1:00

2:00

3:00

4:00

Evening

5:00

6:00

7:00

8:00

9:00

10:00

11:00

Any important activities (events) which occur during the day.

Comments:

Daily Schedule of Classroom Activities

School:_____ Grade:_____

Name of Teacher:_____ Age of Child:_____

Date:_____

Please fill in each column below, describing the typical daily routine for your classroom. Please pay particular attention to the times when different activities my occur on different days. If the schedule for your classroom changes daily please fill out more than one form.

	(1) ACTIVITY	(2) LOCATION	(3) PARTICIPANTS
Morning	Activity the child participates in	Where they do it	With whom they do it
Example	Anna makes breakfast	Kitchen corner	classmates teacher
8:00			
9:00			
10:00			
11:00			
Afternoon			
12:00			
1:00			
2:00			

3:00

4:00

Any important activities(events) which occur during the day.

Comments:

Appendix C
Parent Interview

Name of parent:_____ Date:_____

Age of parent:_____

Child's name:_____ Age of child:_____

Race/Ethnic Background:

Asian_____ Hispanic_____ Caucasian_____

African-American_____ Native American_____ Other _____

Primary language spoken at home_____

Participation in religious activities

Inactive _____

Infrequent participation (special occasions) _____

Occasional participation (monthly) _____

Regular participation (weekly) _____

Typical Day

1. Please describe a typical day for your child.

Morning	Afternoon	Evening
7:00	12:00	5:00
8:00	1:00	6:00
9:00	2:00	7:00
10:00	3:00	8:00

11:00	4:00	9:00
		10:00

What are some of your child's favorite activities eg. playing house, reading a book etc., that he/she likes to engage in during the day?

How long do these activities usually last?

2. Describe a typical weekend (Saturday/Sunday) for your child?

Morning	Afternoon	Evening
7:00	12:00	5:00
8:00	1:00	6:00
9:00	2:00	7:00
10:00	3:00	8:00
11:00	4:00	9:00
		10:00

11:00

What are some of your child's favorite activities eg. going to the movies, going to the zoo, etc., that he/she likes to engage in during the day?

How long do these activities usually last?

3. How much time does your child spend with you on weekdays?
Monday Tuesday Wednesday Thursday Friday

How many hours a day does your child spend with you on the weekends?
Saturday Sunday

4. How much time does your child spend with others (i.e. baby sister, grandmother etc.)?

Time Questions

1. Do you own a clock or watch?
If yes, what type is it (analog vs digital)?

Do you follow a daily schedule?

2. Do you talk to your child about time?
For example: future events _____ past events _____

clocktime _____ seasons_____ measurement (length)_____ days of the week_____ birthdays_____ months_____

If yes, what do you say to your child about time?

3. Do you have a calendar?

4. How do get your child to move from one activity to another, for example how do you explain to the child that after dinner they have to go to bed?

5. Do you have special routines that you use in order to get your child to change from one activity to another? What are they?

Housing History

1. Type Present of Residence

Tier 1 _____
Tier 2 _____
Hotel _____
Doubling Up_____
Apartment _____
Other _____

2. Length of stay in residence: _____

If homeless:

3. When did you become homeless?

4. How did you become homeless?

5. At the time of your loss of housing did you live with relatives or friends? For how long?

6. Prior to this time had you ever been homeless before?

7.How do you feel being homeless has affected the lives of your children?

8. Do you see any changes in their behavior?

9. What is mealtime like in your present housing situation?

10. Do you have enough space in your present housing situation? Do you feel that your present environment effects your daily activities? How?

If housed:

1. Have you ever been homeless?

If yes, when? _____ How long?_____
What caused it?_____

2. Describe your present housing.

3. Do you have enough space

4.What are mealtimes like in your home? Do you follow a certain routine?

Other Comments:

Appendix D
Teacher Interview

(NH)

Name of Teacher:_____ Date:_____

Age of Children:_____ Grade:_____

School:_____

(1) How many children are in the classroom at any one time?

(2) What types of games do the children play in the classroom?

(3) Please describe a typical day for your classroom. What are the children's favorite activities?

Morning	Afternoon	Evening
7:00	12:00	5:00
8:00	1:00	6:00
9:00	2:00	7:00
10:00	3:00	8:00
11:00	4:00	

(4) How long do these activities usually occur?

(5) How much time do the children spend with the teacher as opposed to their peers?

(6) How are the activities planned (Probe: structured, unstructured, spontaneous)?

(7) How do the children respond to the structure of these activities?

(8) Are there ever times when there is little or no structure to the activities?

Time Concept Questions

(1) Do you have a clock in your classroom?

If yes, where is it located?

(2) What type of clock do you have (Analog vs. Digital)?

Do you the teacher refer to it during the day? _____ If yes, when?(ex. the beginning or end of day or activity)_____

Do the children refer to it or use it during the day? Under what circumstances?

How many children wear watches?_____
How many where analog watches?_____
How many where digital watches?_____

(3) Do you have a calendar in your classroom?

Where is it located? _____ Is it within the children's reach?_____
Is it used during the day?_____ How?_____

Are there other time related charts, displays , calendars or bulletin boards in the classrooms?_____ If yes, what are they,
ex. birthday, seasonal, holidays, etc.?

(4) How often do you talk about time in the classroom?
(Time of day, week, seasons, monthly birthdays).

(5) Is there a weekly schedule posted ?_____ Are there clock times on it?_____ Is it discussed or referred to?_____
Are activities sequenced in the same order each day?_____
(If no describe variations)_____
_____

Is there a daily schedule posted?_____ Are there clock times on it?_____ Is it discussed or referred to?_____

(6) Do you specifically teach time concepts to the children?

(7) Are there displays of past group activities?_____
What are they (ex. trips, activities etc.)_____
_____
How long ago did these experiences occur ?
1. 1 week _____ 2. 2 weeks _____ 3. 1 month_____
4.More than 1 month_____-

(8) Are there displays of future activities?_____
What are they (ex. trips , holidays , etc.)?_____
_____
When will the activities take place?
1. 1 week_____ 2. 2 weeks_____ 3. 1 month_____
4. More than 1 month _____

(9) Name one special activity , such as a field trip, that has occurred._____ When were the children told of it?_____

Are there any plants or animals in the classroom?
_____ If yes, who feeds and/or waters them?_____
Is their growth ever discussed? _____

(10) How do you mark transition from one activity to another, ex. do you mention the next event, do you tell the time, etc.?

(11) Give three examples of transitions , using the your exact words, if possible.

Announcement of first activity._____
_____
_____

Transition to 2nd activity._____
_____

Transition to 3rd activity._____
_____

(12) Do you specifically teach children how to sequence numbers and/or objects?
How do you do this?

(13) Are there any other activities that take place in your classroom which are related to children's understanding of time, ex. reading books about seasons, plant growing, etc.?

Other :

Comments:

Teacher Interview

(H)

Name of Teacher:_____ Date:_____

Age of Children:_____ Grade:_____

School:_____

(1) How many children are in the classroom at any one time?

(2) How many children in your classroom are homeless based on your roster of students?

(3) How many of the children in your classroom are not homeless?

(4) What types of games do the children play in the classroom?

(5) How do the children play together?

(6) Please describe a typical day for your classroom. What activities do the children like best?

(7) How long are the children involved in these activities?

(8) Do you see any differences in the previously mentioned activities between the homeless children and the children who have homes?

(9) How much time to homeless children spend with the teacher as opposed to their peers?

(10) How are the activities planned (probe: structured, unstructured, spontaneous)?

(11) How do the children respond to the structure of these activities?

(12) Are there ever times when there is little or no structure to the activities?

(13) How do homeless children interact during these unstructured activities?

(14) How do the nonhomeless children interact during these activities?

Time Concept Questions

(1) Do you have a clock in your classroom?
If yes, where is it located?

(2) What type of clock do you have (Analog vs. Digital)?

Do you the teacher refer to it during the day? _____ If yes , when?(ex . the beginning or end of day or activity)_____

Do the children refer to it or use it during the day? Under what circumstances.

How many children wear watches?_____
How many where analog watches?_____
How many where digital watches?_____

(3) Do you have a calendar in your classroom?

Where is it located? _____ Is it within the children's reach?_____
Is it used during the day?_____ How?_____

Are there other time related charts, displays , calendars or bulletin boards in the classrooms?_____ If yes, what are they,
ex. birthday, seasonal, holidays,etc.?

(4) How often do you talk about time in the classroom? (Time of day, week, seasons,monthly birthdays)

(5) Is there a weekly schedule posted ?_____ Are there clock times on it?_____ Is it discussed or referred to?_____
Are activities sequenced in the same order each day?_____
(If no describe variations)_____
_____

Is there a daily schedule posted?_____ Are there clock times on it?_____ Is it discussed or referred to?_____

(6) Do you specifically teach time concepts to the children?

(7) Are there displays of past group activities?_____
What are they (ex. trips, activities etc.)_____
_____
How long ago did these experiences occur ?
1. 1 week _____ 2. 2 weeks _____ 3. 1 month_____
4.More than 1 month_____-

(8) Are there displays of future activities?_____
What are they (ex. trips , holidays , etc.)?_____
_____
When will the activities take place? In
1. 1 week_____ 2. 2 weeks_____ 3. 1 month_____
4. More than 1 month _____

(9) Name one special activity , such as a field trip, that has occurred._____ When were the children told of it?_____

Are there any plants or animals in the classroom?
_____ If yes, who feeds and/or waters them?_____
Is their growth ever discussed? _____

(10) How do you mark transition from one activity to another, ex. do you mention the next event, do you tell the time, etc.?

(11) Give three examples of transitions , using the your exact words, if possible.

Announcement of first activity._____
_____
_____
Transition to 2nd activity._____
_____
Transition to 3rd activity._____
_____

(12) Do you specifically teach children how to sequence numbers and/or objects?
How do you do this?

(13) Are there any other activities that take place in your classroom which are related to children's understanding of time, ex. reading books about seasons, plants growing, etc.?

Other :

Comments:

Appendix E

Parent Interview - Time Questionnaire

1. Ownership of clock and/or watch — No - 0; Yes - 1

A. Follow daily schedule — No - 0; Yes - 1; Sometimes - 2

2. Talk about time to child? — No - 0; Yes - 1

3. Ownership of calendar — No - 0; Yes - 1

4. Transiton from one activity to another — Language -0; Physical Movement - 1; Other - 2

5. Special Routines used for transition — No - 0; Yes - 1

Appendix F

Teacher Interview - Time Questionnaire

1. Clock in classroom	No - 0
	Yes - 1
2. Type of clock	Analog - 0
	Digital - 1
	Both - 2
A. Reference to clock during the day	No - 0
	Yes - 1
B. Children who wear watches	0-2 - 0
	3-4 - 1
	5-6 -2
	more than 6 - 3
C. Wearing of analog watch	0-2 - 0
	3-4 - 1
	5-6 - 2
	more than 6 -3
	NA - 4
D. Wearing of digital watch	0-2 - 0
	3-4 - 1
	5-6 - 2
	more than 6 - 3
	NA - 4
3. Calendar in classroom	No - 0
	Yes - 1

A. In reach of children	No - 0
	Yes - 1
B. Use during the day	No - 0
	Yes - 1
C. Other time charts	No - 0
	Yes - 1
D. Type of chart	Birthday - 0
	Seasonal - 1
	More than one - 2
4. Talk about time in classroom	Everyday - 0
	Once a week - 1
	Once a month - 2
	Other -3
5. Posted weekly schedule	No - 1
	Yes - 1
A. Daily schedule of activities	No - 0
	Yes - 1
B. Reference to schedule	No - 0
	Yes - 1
C. Clocktimes on schedule	No - 0
	Yes - 1
6. Teaching of time concepts	No - 0
	Yes - 1
7. Displays of Past Activities	No - 0
	Yes - 1
A. How long ago did the experience occur	1-2 weeks - 0

relational time, daytime	Wrong clocktime - 2
	Right clocktime - 3 (6-8)
8. When do you go to bed ?	Don't know - 0
	ERD - 1
	Wrong clocktime - 2
	Right clocktime - 3 (7-11)
9. When do you have breakfast?	Don't know/NA - 0
	ERD - 1
	Wrong clocktime - 2
	Right clocktime - 3 (6-9)
10. When do you have supper?	Don't know - 0
	ERD - 1
	Wrong clocktime - 2
	Right clocktime - 3
11. What day come after Sunday?	Don't know or wrong -0
	Correct - 1
12. Can you tell me the days of the week?	Don't know - 0
	1-4 -1
	5-6 -2
	Correct -3
13. Is it morning or afternoon?	Don't know or wrong- 0
	Correct - 1
14. Do you know what month it is?	Don't know or wrong -0

	Correct - 1
15. Do you know what season this is?	Don't know or wrong - 0 Correct - 1
16. Do you know what year this is?	Don't know or wrong - 0 Correct - 1
17. What time does school start?	Don't know - 0 ERD - 1 Wrong clocktime - 2 Right clocktime - 3
18. Is it the same time at home?	Don't know or no - 0 Yes - 1

*Example

Event time - at bedtime

Relational time - after breakfast

Daytime - in the morning

Event Representation Study

Interview Format

Name:_____ Setting:_____

Age:_____ Sex:_____ Time:_____

Primary Language:_____

READ VERBATIM:

Hi, my name is Roseanne and I am a student from the City University. I'm working with 4 and 5 year old children trying to understand what they know about what happens at home and school. Since you know a lot about what kids your age do in school and at home you can help me learn more about it. There are no right or wrong answers, just tell me what you think.

UNSTRUCTURED EVENT REPRESENTATION PROBES

HOME SCRIPT

1. Can you tell me what happens at home in the morning?

a. Anything else?

Anything else?

SCHOOL SCRIPT

1. How about school. Can you tell me what happens at lunch at school?

a. Anything else?

Anything else?

AFTER SCHOOL

1. What happens at home after school?

a. Anything else?

Anything else?

CHURCH SCRIPT

1. Do you ever go to church? What happens at church?

a. Anything else?

Anything else?

BIRTHDAY SCRIPT

1. Tell me about what happens at a birthday party?

a. Anything else?

Anything else?

RESTAURANT

1. Do you ever go out to eat at a restaurant? What happens at a restaurant?

a. Anything else?

Anything else?

STRUCTURED EVENT REPRESENTATION PROBES

HOME SCRIPT

I know you told me what happens at home in the morning but I want to be sure I understand how things go.

a. What's the first thing that happens?

And then what?

And then what happens next?

b. Does it always happen this way?

SCHOOL SCRIPT

I know you told me what happens at lunch at school in the morning but I want to sure I understand how things go.

a. What's the first thing that happens?

And then what?

And then what happens next?

b. Does it always happen that way?

AFTER SCHOOL SCRIPT

I know you told me what happens at home after school but I want to be sure I understand how things go.

a. What's the first thing that happens?

And then what?

And then what happens next?

b. Does it always happen that way?

BIRTHDAY SCRIPT

I know you told me what happens at a birthday party but I want to be sure I understand how things go.

a. What's the first thing that happens/

And then what?

And then what happens next?

b. Does it always happen that way?

CHURCH SCRIPT

I know you told me what happens at church but I want to be sure I understand how things go.

a. What's the first thing that happens?

And then what?

And then what happens next?

b. Does it always happen that way?

RESTAURANT SCRIPT

I know you told me what happens at a restaurant but I want to be sure I understand how things go.

a. What's the first thing that happens?

And then what?

And then what happens next?

b. Does it always happen that way?

Description of Game
"Put Us In Order"
(revised)

Display one of the sequences in mixed order. Then ask the child to put the pictures in the order in which they happened. Have the child place them on an 8 x 11 piece of white cardboard in left-to-right order; assist the child on the sample items only. At the completion of the task the cards should be re-presented in the same order given earlier by the child. The child should then be asked to describe the pictures, telling what happened first, next, and last. This should be repeated for all sequences.

INSTRUCTIONS (READ VERBATIM)

NOW, WE ARE GOING TO PLAY A GAME CALLED "PUT US IN ORDER". I"M GOING TO SHOW YOU A SET OF PICTURES AND WHAT I WANT YOU TO DO IS PLACE THEM IN THE ORDER IN WHICH THEY HAPPENED. FIRST, I'LL SHOW YOU HOW THE GAME IS PLAYED AND THEN AND THEN I'LL LET YOU PUT THE PICTURES IN ORDER ALL BY YOURSELF. (WAIT FOR RESPONSE). OKAY LET'S BEGIN.

SAMPLE ITEMS
1.OUT- Sweeping the floor
2.PAT- Painting

FAMILIAR EVENTS
1.THE- Tooth brushing
2.RID- Hand washing
3.BOX- Opening a birthday present

UNFAMILIAR EVENTS
1.DOG- child feeding a dog
2.FIT- a child fishing
3.BUS- children riding on a school bus

Appendix H

Put Us In Order
Developmental Sequence

What to Code

Code 0 - No response or I don't know

1. Stage 1 = Sequential Picture Labeling
Code 1 = for one word labels.

2. Stage 2. The Skeleton Story
Code 2 = utterance of one phrase

3. Stage 3. If stories contain fillers, hesitations, phrase segments, runner -up sentences, redundancies and elaborations.

4. Stage 4. Accurate Story Telling
Correct and Concise stories.

Scoring Criterion: Children will be considered stage appropriate if 2 or more of their stories can be coded within a particular stage.

Appendix P

Time Questionnaire Coding sheet

1. How old are you?	Wrong or don't know - 0
	Correct - 1
2. when is your next birthday?	Don't know - 0
	Other - 1
	Month right - 2
	Correct day or month - 3
3. How old will you be then?	Wrong or don't know - 0
	Correct - 1
4. What day is today?	Wrong or don't know - 0
	Correct - 1
5. What days do you come to school?	Don't know - 0
	Weekdays and Sat./Sun.- 1
	Some Weekdays - 2
	Correct - 3
6. What days do you stay home?	Don't know - 0
	Sat./Sun. & weekdays - 1
	Sat. or Sun. - 2
	Sat. and Sun. - 3
7. When do you get up?	Don't know - 0
*(ERD) - event time,	ERD - 1
relational time, daytime	Wrong clocktime - 2
	Right clocktime - 3 (6-8)
8. When do you go to bed ?	Don't know - 0

ERD - 1

Wrong clocktime - 2

Right clocktime - 3 (7-11)

9. When do you have breakfast? Don't know/NA - 0

ERD - 1

Wrong clocktime - 2

Right clocktime - 3 (6-9)

10. When do you have supper? Don't know - 0

ERD - 1

Wrong clocktime - 2

Right clocktime - 3

11. What day come after Sunday? Don't know or wrong -0

Correct - 1

12. Can you tell me the days of the week? Don't know - 0

1-4 -1

5-6 -2

Correct -3

13. Is it morning or afternoon? Don't know or wrong- 0

Correct - 1

14. Do you know what month it is? Don't know or wrong -0

Correct - 1

15. Do you know what season this is? Don't know or wrong - 0

Correct - 1

16. Do you know what year this is? Don't know or wrong - 0

Correct - 1

17. What time does school start?

Don't know - 0

ERD - 1

Wrong clocktime - 2

Right clocktime - 3

18. Is it the same time at home?

Don't know or no - 0

Yes - 1

*Example

Event time - at bedtime

Relational time - after breakfast

Daytime - in the morning

Appendix P

Breakdown of Time Questions by Area

Area	Question Number
Age	1,2 and 3
Calendar Time	18
Clock Time	17
Experiential Time	7,8, 9,10,13
Conceptual Time	4,5,6,11, 12, 14, 15, 16

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