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The Effects of Caretaking Settings on School Readiness of 4-Year-Olds

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THE EFFECTS OF CARETAKING SETTINGS ON
SCHOOL READINESS OF 4-YEAR-OLDS

by

Joan C. Sergent

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THE EFFECTS OF CARETAKING SETTINGS ON SCHOOL READINESS OF 4-YEAR OLDS

Joan C. Sergent, Ed.D.
Western Michigan University, 1988

The effects of daytime caretaking settings and the nature and number of activities in those settings on school readiness and receptive language levels of 4-year-old children were investigated. Daytime caretaking settings, defined as the setting experienced by the 4-year-old the year prior to entering kindergarten, were determined through interviews administered to the parent/guardian of each of the 185 4-year-old participants. School readiness and receptive language levels of the 4-year-old participants were determined by individual administration of the Gesell School Readiness Screening Test (GSRST) and Peabody Picture Vocabulary Test-Revised (PPVT-R) respectively. The settings were categorized as group educational, such as preschool or nursery school; group non-educational, such as day care or neighborhood care; parent-based, such as care provided by a parent; and non-parent based, such as care provided by a non-relative in child's own home. Two levels of activities, to which the children were exposed in their caretaking settings were determined using a median split of parent/guardian responses in that
portion of the interview. Through analysis of variance, results indicated that 4-year-olds placed in a group educational setting scored higher on the PPVT-R than did 4-year-olds who were placed in a non-parent based setting. These findings suggest that 4-year-olds whose daytime care setting consists of a nursery or preschool environment will demonstrate a higher level of receptive language than 4-year-olds placed into non-parent based settings. Such findings are congruent with literature stating that group educational settings promote language development in preschool children.
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The effects of caretaking settings on school readiness of 4-year-olds

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CHAPTER I

INTRODUCTION

Statement of the Problem

This study investigated the differential effect between out-of-home care and selected education settings for 4-year-olds and their readiness for school. The need for information about the effects of out-of-home care and education on the 4-year-olds' readiness for school is greater in the 1980s than ever before. In the rapidly changing family structure, mothers of preschool children constitute the fastest growing segment of the work force, placing 4-year-olds in a variety of alternative child care settings. The raising of young children is changing dramatically and parental roles are shifting. The destruction of the nuclear family results in family responsibilities being distributed in new ways, taken over by non-family institutions or abandoned (Hofferth, 1987). Amid these changes, early childhood development programs have emerged as a response to family needs (Schweinhart & Weikart, 1986). Programs may be custodial or educational, varying in the number and nature of activities experienced by 4-year-olds. School districts are attempting to plan for the academic, social and emotional needs of incoming
students. These needs change from child to child as exposure to different environments plays a major role in a child's preparation for school.

Background and Need

The number of early childhood development programs providing educational or supplemental care have increased (Schweinhart & Weikart, 1986). Between 1970 and 1984, the percentage of 3 and 4-year-olds enrolled in programs identified as nursery schools or kindergartens increased from 21% to 36%, serving 2.6 million of the nation's 7.2 million 3 and 4-year-olds in 1984 (United States Bureau of the Census, 1985). Actual use of supplemental child care arrangements is closely tied to the labor force participation of mothers. Between 1950 and 1985, the percentage of mothers in the labor force with children under 18 increased from 14% to 62%. Rates were similar for mothers of 3 and 4-year-olds (United States Bureau of the Census, 1983). In the mid 1980s 4.3 million 3 and 4-year-olds required child care arrangements while their mothers were working. Nursery schools and kindergartens serve approximately one-third of these children by providing some or all of the supplemental care they need (Schweinhart & Weikart, 1986). The remaining care is provided by relatives and non-relatives in a variety of settings. Elkind (1986) supports the need to address out-of-home settings:
We are currently embarked on a social experiment of enormous significance. Never before in all history have more than half of our children below the age of six been cared for outside the home on a regular basis for extended periods of time. During the critical early childhood years, young children form life-long attitudes toward themselves and others as well as toward their capacity for initiative and learning. If we bungle this experiment we may emotionally and educationally disable a significant portion of future generations. How can we, as professional educators, help parents make informed choices regarding the care and education of their young children? (p. 36)

Assessing and understanding the effects of out-of-home care and education on school readiness is relatively new in the field of education. School districts are beginning to recognize the need for early childhood programs for 4 and 5-year-olds. These programs have become the focus of some controversy. Issues under debate include the length of the program day, the effect of various forms of sponsorship and the nature of the curriculum. Early childhood programming is inconsistent. Many programs are designed for specific populations and socio-economic levels.

What is the current range of programs for four-year-olds? No definitive national compendium of such programs is yet available. As part of a recent Connecticut study, a preliminary survey was made that revealed that 19 states have demonstration efforts for four-year-olds. Typically, these are federally funded and are targeted at specific groups, notably handicapped and low income youngsters. (Kagan, 1986, p. 47)

School districts seeking to determine the effect of the variety of experiences and ability levels with which a
child is equipped for school have accepted a worthy challenge. Trying to understand how early experiences might influence later behavior would be difficult enough if children were stable creatures but childhood is a period of continuous change (Stevensen, 1972).

The term "education" when coupled with "out-of-home care" suggests a broader view which does not restrict education to the classroom setting but expands it to include the support of the child's family and community as well as the child's total relationship with his world (Gardner, 1964; Hartup, 1972). This world can become more meaningful through organized learning experiences. The school is the institution designed to help a child increase his competence in becoming an effective person in relationship to people and things (Gardner, 1964). The experiences of the preprimary years results in a level of school readiness. Readiness is the sum total of the constant interactions between a child's physical, mental, emotional and social personality and the field of forces in which he lives. The field of forces includes family, neighborhood, church, teacher, classmates and school. Readiness is always readiness for a task (Brenner, 1957). Learning experiences can be presented too early or too late for individual children. Readiness operates best when a maximum of the child's practical capability meets a minimum of school task difficulty (Brenner, 1957).
In the mid 1980s, the need to assess experiences effecting the readiness level of the 4-year-old was recognized by the Michigan Department of Education. With this and other goals in mind, the Michigan Child Care Task Force was developed in 1984. In addition, the International Association for the Evaluation of Educational Achievement (IEA) also recognized this need and proposed a cross-national study of early childhood care and education in 1986. The international study, coordinated by the High/Scope Educational Research Foundation in Ypsilanti, Michigan, is an integral component of this research.

In response to the IEA, the Michigan Preprimary School Study Council (MPSSC), a non-governmental cooperative assembly of agencies, chose to undertake a Michigan Preprimary Study (MPPS) of 4-year-olds. The IEA Preprimary study and its Michigan component are designed to assess the growing role that out-of-home care and education play in the development of children, particularly in their preparation for school.

The MPPS Technical Group determined intermediate school districts were ideal regional sites for the study. The Macomb Intermediate School District superintendents agreed to participate by coordinating regional projects. The Macomb County regional project provided school districts with one of the following options: (a) participate only in the Macomb Regional Project (20% - 30% sampling of
4-year-olds required); (b) develop a district study of 4-year-olds in addition to meeting minimal sampling requirements to be incorporated into a Macomb County study; or (c) participate only in the Michigan report (5% - 10% sampling of 4-year-old population required). One district in Macomb County, Chippewa Valley Schools, conducted a study (option b) of 4-year-olds meeting minimum sampling requirements. This study was incorporated into the Macomb County regional project. In addition, the differential effect between out-of-home care settings, the number and nature of activities in those settings and the readiness level of 4-year-olds was determined.

With respect to the developmental and educational needs and capacities of Michigan's preprimary school children, the MPSSC seeks:

1. To advance knowledge and understanding of the 4-year-old throughout Michigan.

2. To improve the capabilities and resources of participating agencies, institutions and organizations for preprimary children.

3. To strengthen the skills, knowledge and capabilities of participating agencies, institutions and organizations to meet the needs of preprimary children.

Purpose of the Study

The purpose of this study was to investigate the
differential effect between out-of-home care and education settings of 4-year-olds and their readiness for school. The environment of the 4-year-old, prior to school enrollment, was examined in relationship to school readiness. A major component of school readiness, receptive language development, was also examined. In addition, the nature and number of planned activities in alternative settings were investigated as to whether or not their presence contributed to measures of school readiness and receptive language. Such investigation delineated the settings and activities most closely associated with school readiness.

The problem addressed in this study was whether out-of-home care and education settings do or do not effect school readiness of 4-year-olds. This problem focused on a set of subskills defined as school readiness and a receptive language measure and did not address the many other existing variables that are present in the readiness process. A study was needed to determine if the preprimary experiences of 4-year-olds in Chippewa Valley schools effects readiness for school. Furthermore, since the variety of out-of-home care settings offers a custodial or educational environment for children, the nature and number of planned activities in those settings relative to school readiness were determined.
Importance of the Study

The growing roles that out-of-home care and education play in the development of children's skills, coupled with knowledge of how they have spent their years prior to school attendance, provide information for program planning in the public schools. "We now have studies which show that quality preschool programs pay off - in success in school, lower delinquency rates, and improved future employment - for children who are 'at risk'" (Schram, 1986, p. 7). The Michigan State Superintendent's early childhood study group (Michigan Child Care Task Force, 1984) documented more than 80% of in-formula districts offering readiness programs in 1984. A third of all Michigan school districts offer optional preschool programs and the number is growing (Preschool Education, 1986). However, the controversy continues as to whether preschool, home or neighborhood care is the best setting for the 4-year-old. Meanwhile, public schools have a built-in incentive to maintain quality preschool programs. They are going to live with the product of these preschools when children enter the K-12 program.

These children need group experiences that, for the most part, cannot be provided in private homes by ordinary families. This is not a reflection on the home, or the families, but merely that homes and families, designed to accomplish their basic familial functions, are not capable of providing the range, richness and variety of social, intellectual, and aesthetic experiences that characterize the programs of a
good nursery school. (Gardner, 1964, p. 320)

School districts annually screen incoming students to determine their readiness level and proper placement in an appropriate kindergarten setting. Students may be placed in regular kindergarten, developmental kindergarten, or special needs kindergarten based on screening results and parental permission. Increasing or declining growth patterns force districts to plan and prioritize early childhood programs. Information gained in this study regarding the effect between out-of-home care and education of 4-year-olds and school readiness can assist districts in program planning, curriculum development, prioritization of facilities and program funding.

Answers to questions regarding the effect of out-of-home care settings and the planned activities in those settings in relationship to children's development would be directly useful to policy makers, early childhood professionals and parents. In addition, this information may point the way toward improved public policies regarding children and families, more effective care and education for young children and more informed decisions by parents (Highscope Educational Research Foundation, 1986). Therefore, the following research questions were addressed:

1. Is there a relationship between types of child care settings for 4-year-olds and a measure of school
readiness?

2. Is there a relationship between types of child care settings for 4-year-olds and a measure of receptive language?

3. Is there a relationship between the nature and number of planned activities in a 4-year-old's child care setting and a measure of school readiness?

4. Is there a relationship between the nature and number of planned activities in a 4-year-old's child care setting and a measure of receptive language?

5. Do child care settings for 4-year-olds and the nature and number of planned activities in those settings interact with a measure of school readiness?

6. Do child care settings for 4-year-olds and the nature and number of planned activities in those settings interact with a measure of receptive language?

Definition of Terms

Readiness: Cognitive functioning and potential, including the child's physical, social, emotional, and general language development.

Settings: Include (a) own home with parent, (b) own home with non-relative (babysitter, etc.), (c) other home with relative other than parent, (d) other home with non-relative, (e) group setting (primarily custodial), (f) group setting (primarily education).
Gesell School Readiness Screening Test: Individually administered test taking approximately 20 to 40 minutes. Each subtest provides a picture of the child's behavior which the trained examiner can match with the appropriate developmental age. The child's emotional and social development are measured as well as the child's perceptual development, language development and motor development. The evaluator is also able to determine an overall developmental age aggregate identifying a general age level at which the child is functioning (Senior, 1986).

Peabody Picture Vocabulary Test-Revised: A measure of receptive language. It allows a verbal or non-verbal response, is individually administered and is untimed. Examinees indicate which of four pictures correspond to a stimulus work read aloud by the examiner. The test is applicable to a wide age range (2 years, 6 months to 40 years) (Mitchell, 1985).

Receptive vocabulary: Refers to hearing vocabulary or the level of understanding of language heard by the child.

Primary education: Grades kindergarten through second grade.

Preprimary education: Formal activities taking place before school entry.

Preschool: Formal preprimary education in a group setting on a regular basis.
Planned activities: Activities commonly conducted in a preschool setting such as small motor activities and prereading activities.

IEA Parent/Guardian Interview: The first part is a national survey conducted in 21 countries to describe the availability and distribution of child care and preschool provisions for 4-year-olds.

IEA Pre-Primary Project: Purpose of the project is to improve the understanding of how lives of children and families are affected by out-of-home early childhood care and education. Of particular concern are the contributions that such out-of-home experiences make to children's development and later performance in primary school.

There are three parts to the planned study: Part I is a national survey to describe availability and distribution of child care and preschool provisions for 4-year-olds. Part II will look at the "quality of life" for children in the different settings. Part III will consist of follow-up studies of the children until the end of their first year in primary school. This research will contribute to Part I of the project.

IEA (International Association for the Evaluation of Educational Achievement): A cooperative organization of educational research in 45 countries that is committed to the international assessment of educational achievement.

Kindergarten screening: Measure which can be used
with groups of children as early detection procedures for handicaps which employ simple and reliable techniques routinely applied to a large group of children (Egan, Illingworth, & MacKeith, 1969).

Summary

Early childhood care and education play an important role in the development of children. Almost 138,000 children were born in Michigan in 1982. These children reached the age of four in 1986-1987 (Preschool Education, 1986). Some of these children may be considered "at risk" depending upon their caretaking environment. Among the possible signs of at risk children are single parent families, recent divorce and teen-age mothers. Due to the growing number of one-parent families or families in which both parents work, 4-year-olds are exposed to a variety of alternative care settings. Preprimary settings may be custodial or educational involving child care by relatives or non-relatives. The readiness level of children exposed to both setting categories, using both cognitive and receptive language measures, were compared in this study.

Overview of Remaining Chapters

Chapter II further substantiates the relationship between the changing American family and alternative child care arrangements, the relationship between out of home
care settings and child development and the importance of school readiness.

Chapter III includes the overall design of the study. Specifically defined in this chapter are descriptions of the Parent/Guardian Interview, Peabody Picture Vocabulary Test and Gesell School Readiness Screening Test. In addition, the chapter includes the hypotheses to be tested and a description of the analysis procedure used to test the hypotheses.

Chapter IV presents the data that have been collected and the results of the analyses used. The findings are discussed relative to each of the hypotheses stated in Chapter III.

Chapter V includes a discussion of the conclusions drawn relative to each hypothesis. Additionally, overall conclusions of this study and the implications are discussed. Finally, some recommendations for further research are offered.
CHAPTER II

REVIEW OF THE LITERATURE

The purpose of this study was to describe effects of alternative care settings on the levels of receptive language and school readiness of 4-year-olds. In addition, alternative care settings were examined as to the number of educational activities offered to 4-year-olds in specific setting categories. The review of the related literature for the present study is organized in five sections: (1) changing family patterns resulting in alternative daytime settings for 4-year-olds, (2) the relationship between environment and cognitive functioning of the 4-year-olds, (3) the importance of exposure to preliteracy activities, (4) parental and non-parental based settings, and (5) the relationship between various daytime settings experienced by 4-year-olds and school readiness.

Changing Family Patterns

Traditional Family

The pre-20th century United States was largely an agrarian society with responsibility for child rearing placed on women as an extension of their roles as mothers.
and housekeepers. The preschool experiences and before and after school care of a child in the United States during that time were almost certainly obtained from close association with a child's mother (Arnold, 1985). Larger family sizes and frequent presence of several generations of family members in the traditional family resulted in somewhat predictable home environments and preschool experiences for young children" (Zigler & Cascione, 1980, p. 7). The traditional household—an employed father, a mother at home and two or more school aged children—had long been a stable force in American culture (Traditional Families, 1986).

The first, smallest and most important social unit to which a child belongs is the family of origin. The family serves three basic functions: (1) to ensure physical and economical survival, (2) to provide a social laboratory for psychological development, and (3) to produce autonomous persons who can separate physically and emotionally from the family of origin. (Sahler & McAnarney, 1981, p. 24)

In 1966 60% of the nation's households matched the image of the traditional family. By 1980, the proportion dropped to 11% and in 1986 only 4% of the nation's households could be considered "traditional." The 1980s have brought dramatic changes in the makeup of American families. Children confront new risks in growing up and schools face new challenges in guiding them" (Hofferth, 1987). The predictability of home environments no longer exists. Of 80 million households, almost 20 million
consist of people living alone with another 9.5 million women raising children by themselves (Traditional Families, 1986).

The increase in parental divorce and separation has had a major impact on children's lives. Over the past two decades the proportion of children living with two parents has fallen dramatically, while the proportion living with only their mother has more than doubled. In 1984, 15 percent of white children and 50 percent of black children under age 18 lived with their mother only, compared with 8 and 29 percent respectively in 1970 (U.S. Bureau of the Census 1985). In 1984, 24 percent of Hispanic children lived with only their mother. If current trends continue, between 42 and 70 percent of white children and 86 to 94 percent of black children born around 1980 will spend some time in a one-parent family before reaching age 18. (Hofferth, 1987, p. 79)

Mothers in the Work Force

In 1985, the number of married women with children who work outside the home more than doubled the 1970 rate. On a national scale, 80% of single mothers of 4-year-olds are employed full time. Mothers in the labor force increased 13 percentage points between 1975 and 1985. The increase was the same for mothers of preschoolers as it was for mothers of school-age children. Eight million mothers with preschool children (52%) were labor force participants in the mid-1980s. The Department of Labor reports a gain in labor force participation of married mothers from 45% in 1975 to 59% in 1984. The rate for single mothers also advanced, but at a much slower rate.
Of the 58 million children under age 18, 56% had mothers in the labor force in 1984; 48% of all children under 6 (9.3 million) had working mothers (Working Women Fact Sheet, 1984). The proportion of children under age six with employed mothers is expected to reach two-thirds by 1995 (Hofferth, 1987).

**Alternative Care Settings**

Labor force participation by mothers of preschoolers results in children being placed in a variety of daytime care settings. "A social revolution is propelling more mothers of young children into the work force, forcing reliance on a hodgepodge of tenuous child care arrangements" (Kagan, 1971, p. 45). Finding reliable child care settings has been a problem for many working women. A 1978 survey of working mothers reported that 30% had changed child care arrangements within two years because of undependable or poor child care. At industrial plants and offices throughout the country, management officials and labor representatives are aware of the link between unsatisfactory child care arrangements and employee absenteeism. Some employers and labor unions have helped to solve employee absenteeism and child care problems by sponsoring or supporting reliable child care services (Perry, 1978). Hollister (1986) concluded that "while the need for early childhood programming is becoming more
obvious and acceptable to Americans, it has long been accepted governmental and societal policy in the rest of the world" (p. 11).

The reality of changing family patterns places additional responsibility on the schools. "Whether to help them educate and develop the all around abilities of their children or to prepare them more adequately for primary schools, parents everywhere are seeking the help of the social services and educational authorities" (Hollister, 1986, p. 11). Hofferth (1987) addressed the role of the schools in relationship to changing family patterns:

Schools today face the burden of educating students with many potential problems. The risks that children face in growing up have particular meaning for professional educators because they manifest themselves in children's social and academic behavior in the school setting and because, with more mothers employed outside the home teachers and schools have become increasingly important sources of stability in children's lives. (p. 79)

The changing nature of the American family is the main reason many 4-year-olds are no longer cared for at home. In many two-parent families, both spouses are often required to work. More and more households are headed by a single parent. Therefore, children are placed into a variety of alternative care settings, ranging from custodial care to settings rich in preliteracy development. The nature of the setting can impact the academic and social behavior of the 4-year-old.
Environment and Academic Achievement

A growing percentage of the nation's children are being born into, and growing up in environments that may endanger their physical, emotional, and intellectual development (Traditional Families, 1986). "The influences of home environment variables on children's intellectual development and academic achievement have been the focus of intensive study in child development research" (Goldberg, 1977, p. 2). Clark-Stewart and Fein (1984) and Arnold (1985) point to environment as a useful research approach which explores the characteristics of the settings in which children are cared for during the day to distinguish aspects of the environment and care that are detrimental or that contribute to children's well-being.

It is recognized that the environment and the experiences of young children vary in the degree to which they contribute to the transition to kindergarten and subsequent learning during the years of compulsory school attendance. As the need to assure that these experiences are beneficial to children or at least that they are not socially and educationally detrimental.
(Arnold, 1985, p. 7)

According to Schweinhart and Weikart (1986) early childhood experiences have lasting effects on children.

To understand how early childhood experiences can affect children throughout their lives, look at life as a series of interactions between persons and settings, with performance and experience in one setting affecting access to the next setting and so on. For example, successful performance in first grade leads to second grade while failures may lead to repetition of first grade. Success occurs not only
from year to year, but day to day, and even
minute to minute. Early childhood experiences
stand at the gateway of schooling - a formal
cultural system with clear norms of right and
wrong activities. Good early childhood experi­
ences help a child acquire an interest in learn­
ing, a willingness to try new things and to
trust adults, a strong sense of independence.
(p. 11)

The nature of early childhood experience depends on
the setting in which the child has been placed. Socially
and educationally positive experiences occur in settings
which stress social and educational activities.

Cognitive Functioning

Since the child develops about 50% of his mature
intelligence by age four, these early years are the time
to change the environment for maximum learning gains
(Bloom, 1970). As time progresses, more powerful forces
are required to produce a given amount of change in the
child's intelligence, if change can be produced at all.
Environment can count as much as 40 IQ points in a per­
son's intellectual development (Hunt, 1970). How well and
how rapidly young children develop their mental model of
the world depends largely on the child's environment
(Lavatelli, 1970). "Systematic change over time in cogni­
tive ability is almost certainly due to environmental
influence" (Schweinhart & Weikart, 1980, p. 33).

Evans (1971) cited Bloom and Hunt who support the
importance of environment:
Basically, Hunt's theses is a challenge to the notion that intelligence is fixed or predetermined by genetic forces. Rather, Hunt views intelligence as a network of central neural processes and information processing strategies, the quality of which is affected significantly by the kinds of encounters a child has with his environment. Bloom's (1964) summary and analysis of longitudinal data concerning intelligence has lead to the inference that the rate of intellectual development is at its point of highest acceleration during the early years. Bloom couples this inference with the general idea that growth variables are most affected by environmental intrusions during the period of most rapid acceleration. Therefore, it is argued that the greatest payoff from environmental stimulation, in terms of intellectual growth, will come through experiences for children in the first four to six years of life. (p. 4)

Wolf (1966) provided an important perspective on environmental assessment, as well as an accompanying methodology. He conceptualized the environment as being composed of multiple subenvironments, each influencing the development of a specific characteristic. These different subenvironments were conceived for the development of intelligence, achievement, independence, and stature. Wolf (1966) concluded that subenvironments should be assessed, not in terms of parents' education, occupation, income, and the like, but in terms of what parents did in their interactions with their children. Focusing on the subenvironments for the development of academic achievement and of general intelligence, Wolf (1966) researched child development, learning theory, motivation, and psychometry for variables related to each characteristic.
Those identified for the academic achievement subenvironment were the following:

1. The atmosphere created for achievement motivation.
2. The opportunities established for verbal development.
3. The assistance given in overcoming academic difficulties.
4. The activity level of individuals in the environment.
5. The intellectual level in the environment.
6. The work habits expected of the individual.

In similar fashion, three general intelligence subenvironment variables were identified:

1. The stimulation supplied for intellectual development.
2. The opportunities established for and emphasis on verbal development.
3. The provision for learning in varied situations.

Both the academic achievement and general intelligence subenvironments stress high activity levels, intellectual stimulation, focus on verbal development and provisions for learning. Such environmental characteristics are, from this point on, classified as educational activities or activities which promote preliteracy development.
Educational Activities

Wolf (1966) stresses the nature and number of activities provided to children in their various environments and subenvironments, including opportunities for verbal development and school readiness activities. Educational activities include exposure to toys and educational games, arts and crafts, language development, pre-reading activities, science-based observations, small and large motor activities and group participation games. School readiness means a child's total preparedness to master school tasks. Readiness is enhanced through exposure to educational activities. Readiness depends upon physical, neurological, emotional and social maturation as well as upon previous learning.

Activities available to children in various environments or settings range from no planned activities for the 4-year-old (custodial care) to a structured developmental program (nursery or preschool programs) designed to provide every opportunity to the 4-year-old to prepare for the expectations of formal schooling. Many of these activities are pre-reading and language development activities.

Pre-reading or reading readiness activities are characterized by their emphasis on preparing the young child to master reading skills. Such activities should lead to awareness and skills that will bring the child to a point on the reading acquisition continuum where s/he will be ready to benefit from those more rigorous and
formally structured activities mentioned above. (Bruisnma, 1974, p. 4)

Helmich (1985) stresses the relationship between environment and the nature and number of educational activities:

In terms of educational readiness for school learning activities, children from custodial or poverty environments often lack social skills, vocabulary which is dependent on adult interaction or exposure to community resources and familiarity with toys and games which develop cognitive skills. (p. 297)

Exposure to educational activities in a child's environment encourages a child to move purposefully from toy to toy, game to game, activity to activity, putting energy into making choices, learning all the while. Educational games involve math, language arts, science and social studies concepts. Children also develop initiatives and independence when learning opportunities are made available. Educational activities encourage children to touch, maneuver, smell, taste, take apart, put together, create and share with a friend. A wide range of activities provided at varying levels of difficulty and projects with complex and simple aspects enable the child to progress at his or her own rate. The thinking function of the child's brain is stimulated by educational activities and grows more with choice, complexity and new challenges. The child's brain grows the least in an unstimulated or custodial environment. Choice, complexity and new challenges in educational environments are essential to brain stimulation ("Child Choice," 1987). The degree of exposure to
Educational activities is related to the environment or day-care setting of the 4-year-old. Preliteracy activities are more consistently provided in educational settings and less consistently found in own home, neighborhood or custodial care.

**Language as a Component of Readiness**

Academic success requires a repertoire of basic skills and language concepts. In order that a child is functional, language must be used to receive and transmit data that form the substance of classroom activity (Evans, 1971).

Speech and language are the symbolic tools of cognition and communication. There is an increasing body of literature stressing the need to check the linguistic performance of preschool and kindergarten children. It is language ability that permits communication and interaction for further cognitive development and is critical for learning to read. A study in Edinburgh found that independent of IQ, 75 children from high income groups whose linguistic development at the age of four years was at least eighteen months behind failed in reading several years later. (Mason, 1976, p. 241)

Language development is critical for success in school.

Researchers have demonstrated a continuing interest in unraveling the mysteries of language acquisition. . . . Much work has concentrated on two rival interpretations of how language is acquired - the environmental interpretation, which stresses the role of experience and imitation (Mowrer, 1960; and Skinner, 1957), and the nativistic position, which emphasizes innate structures. (Goodwin & Driscoll, 1980, p. 47)

"Parents and teachers are in the best position to create
the spoken and written language contents that will help children make sense of these potentially enriching aspects of their lives" (Bruisnma, 1984, p. 11). For example, teachers of young children have long appreciated the importance of providing many experiences with stories as a foundation for optimum language development. Recent studies of the development of preliteracy and beginning reading skills have highlighted the importance of children hearing and telling stories (Hough, Nurss, & Wood, 1987). Verbal stimulation is the concrete stimuli necessary for the development of a wide range of language skills including fluency, vocabulary, language functions and story conventions. Verbal development is most often encouraged in structured educational settings. Less emphasis on verbal development is found in settings that are custodial in nature.

Parental and Non-Parental Based Child Care

Current child care services for young children are not well documented and are provided in a variety of settings for which there are no consistent standards or means of assuring adherence to those standards that might exist (Arnold, 1985). Child care arrangements may be either parental or non-parental based. Parental based arrangements refer to settings experienced by the 4-year-old child whose parent is not employed. This child may
attend a preschool program, but the majority of the child's daytime care is provided by the parent in the home setting. Non-parental based child care refers to children whose daytime care takes place in a setting other than the child's own home, with a non-relative as the designated care-giver. Both parental and non-parental settings vary in the nature of care and number of educational activities offered to the 4-year-old.

For employed women having at least one child under five years old, Current Population Survey (CPS) (cited in Arnold, 1985) data showed that 40.2% had their child cared for in another home, 14.8% used group care centers (nursery, preschool or day-care centers) and 5.5% used care by a non-relative in the child's home. Taken together, 60.5% of the women reported using these three categories of child care which represented care provided outside the child's home or care provided by a non-relative in the child's home (Arnold, 1985). These figures are representative of national data.

Parental-Based Child Care

"Psychological research and current popular writing have suggested that the amount of time children spend in activities with their parents contribute importantly to the quality of young children's lives in general, and to children's cognitive development and academic achievement
in particular" (Goldberg, 1977, p. 2). Goldberg (1977) continues by stating that maternal time allocations to preschool children reflect the mothers' attitudes toward learning which more or less prepares children to function in school and take advantage of the learning environment as much as maternal time allocation serves to influence children's cognitive abilities. Many children, however, do not spend their day with their parents. "It is no longer realistic to expect most young children to be cared for primarily by their own mothers or even in their own home during the day" (Huker, 1983, p. 7). Some researchers believe that out-of-home care is detrimental to the child's growth and development. There are claims that children need to be kept at home in close relationship with parents and family (Elkind, 1986). However, results of studies of homogeneous middle class parents who were not employed showed that preschool children were found to spend little time in direct contact with their mothers, who reported spending slightly more than one hour a day in one-to-one contact with their children. Television viewing by the child occupied more time than teaching and reading activities combined. Mothers spend more time with their children in social activities, including outings in the car, than in specific educational activities (Goldberg, 1977). The quality of care in the home setting is questioned by Goldberg (1977) who states that mothers
who worked full time had the same amount of direct one-to-one contact time with children as mothers who are not employed. This suggests that mothers who stay home with their children are not necessarily giving their children any more one-to-one contact than mothers who are separated from their children all day because they are employed.

A key ingredient in the development of the 4-year-olds' cognitive skills in the home setting is the level of education of the mother. Analysis of the independent effects of the mother's time and mother's education showed that the variance in children's performance was explained more effectively by the mother's education than time. Maternal time appeared to affect cognitive skills differently which supported previous research relating different home environment variables to different cognitive skills (Bing, 1963; Jones, 1972; Majorbanks, 1972).

Non-Parental Based Child Care

Due to economic and personal necessity, fully half of the mothers of preschool children are already using some form of day care for their children (Clarke-Stewart, 1985). Caldwell (1974) described day care in America as being on the increase despite efforts of social planners rather than because of them. Measures of reported opposition to day care asserted that increasing the availability of day care would mean mothers would seek additional
employment, neglecting their children and increasing juvenile delinquency. Social planners began to realize the failure to provide good day care did not keep mothers at home. Day care was a mandatory, not an optional, service for mothers left with full responsibility of child rearing, whose children might not have subsisted without the income that the mother could provide. The alternative to not providing good day care was to force mothers to settle for substandard day care. The assumption was made that if the child was kept at home, he automatically experienced a quality of life. In most cases, the way in which day care differed from the child's own home was in the social milieu it provided.

**Family Day Care**

One of the alternative settings available to 4-year-olds is the invisible network of child care services known as family day care. Family day care is defined as a home in which fewer than 10 children, unrelated to the caretaker, are supervised for less than 24 hours a day. Such day care is one option in the variety of services available to working parents and their children. Family day care can be a viable setting for the 4-year-old because it provides an intimate home setting located close to or in the neighborhood of the family needing child care (Sale & Torres, 1971). The family day-care mother often has a
similar life style and economic status providing continuity in experience for the child from one setting to another. "This form of care (the child goes to the sitter's home for supervision) is the form of care used by about one-third of the employed mothers of preschool children in the United States" (Clark & Stewart, 1985, p. 4).

An additional option in this category is day care in the child's own home. When day care is necessary, the form working parents claim to prefer is to have an adult come into the home and look after the children. Department of Labor Statistics suggests that this form of care is used by about one-third of the working mothers of preschool children. "Often (nationally over half the time) the in-home sitter is a relative who may or may not be paid" (Clark-Stewart, 1985, p. 3). In the 1980s, the big shift in care for children is away from care provided by a relative in the home to care outside the home given by a non-relative. However fewer adult caretakers—neighbors, friends or relatives are available to care for children. During the 20th century, there has been an increasing trend toward age segregated housing with young families in one area and elderly located in another. In these types of neighborhoods there are fewer "extra" adults. Smaller families provide fewer teenagers to supervise children. The role of the small town and urban neighborhood has diminished. The emergence of modern
urban environments, accompanied by social isolation, has resulted in fewer adults taking on responsibility for other people's children (Galambos & Garborino, 1983). Therefore, sitter and home care is diminishing and group educational and group custodial care is on the rise.

**Preschool Programs**

Over the past two decades there has also been a substantial increase in care for preschool children in child care centers - a doubling since the early 1970s (Hofferth & Phillips, 1986; Leuck, Orr, & O'Connell, 1982; O'Connel & Rogers, 1983).

The potential of preschool education was recognized by educators and political leaders in the 1960s. The discovery that the child's intelligence develops as much during the first 4 years of life as it will in the next 13 gained support for early childhood education. In the 1960s, an array of federal programs aimed at disadvantaged children were begun. Head Start and Title I, II, VIA, and VII of the Elementary and Secondary Education Act (ESEA) were the forerunners of early childhood education programs. Meanwhile, similar concern was being expressed at the state level. In 1970, the Education Commission of the States produced legislation geared to meet the demands of preschoolers.

Robison (1977) lists the categories of out-of-home
preschool programs available to 4-year-olds:

1. Developmental programs include Piagetian types, traditional nursery school education, and informal, open-classroom activities.

2. Behaviorist programs include the many kinds of behavior modification features, either for learning or social behavior or both.

3. Montessori programs stem from the Montessori writings and the Montessori teacher-training groups both in American and European centers.

4. Academic programs feature reading and academic subjects, almost to the exclusion of all else.

5. Programs termed cognitive emphasize intellectual and cognitive development above everything else.

6. Custodial programs feature the child's physical care and safety minus an educational program.

7. Community oriented programs, which are largely found in ethnically concentrated areas may feature the community's culture. (Robison, 1977, p. 411)

The Relationship Between Setting and School Readiness

"The quality of child care and environments in which this care is provided is of concern to parents and educators because of its influence on the children's future educational and social attainments" (Arnold, 1985, p. 8). Clark-Stewart (1985) investigated a variety of non-paren­tal alternative settings for 4-year-olds. Known as the Chicago Study, the settings investigated included: (a)
care provided by babysitter in child's own home, (b) care provided in a family day-care home, (c) care provided in a part-time nursery school program, and (d) care provided in a full-time day-care center. The majority of the families in this study were middle or professional class status. Findings of the Chicago Study support a relationship between settings and school readiness. "In short there were some consistent and sensible links between children's experiences in their day-care settings and how they perform in standard situations that reflected their abilities outside the day-care setting" (Clark-Stewart, 1985, p. 12).

The results showed strong differences related to the form of day care. Children attending nursery school programs scored consistently higher across the board but especially higher on assessments of cognitive ability, social knowledge and social ability with the adult stranger. In terms of developmental differences, these children were 6 to 9 months advanced over children with sitters in their own homes. (Clark-Stewart, 1985, p. 8)

Schwartz (1983) supports concerns regarding children in home or sitter care:

At four years of age, it is the children who have been in care at the sitter's home for the past two years who look bad. Despite the fact that children in sitter care are slightly more advantaged in family background, at four years of age, they are significantly less intelligent, more passive, and more introverted than children in home care, and the males in sitter care are strikingly deviant. Children who have been in sitter care for the preceding two years are intermediate on these dimensions at four years of age. I suspect that children in sitter care during the third and fourth years receive less
cognitive and social stimulation than is provided to their counterparts in the centers at the same age. (p. 6)

Therefore, children whose daytime setting consisted of some formalized educational experience demonstrated higher cognitive ability than children experiencing own home by sitter care or care in a family day-care home.

Educational Settings

Children, whose daytime care depends heavily on nursery and preschool programs have exposure to a variety of educational activities and verbal development opportunities which are closely related to school readiness.

Children who enter kindergarten with prior group instructional experience have less need for the transition activities typically required for inexperienced children who must adapt to a peer group and the formal class procedures used in the school setting. From an educational perspective, children with preschool group experience and children who have experienced only the typical child care represent a bi-polar group in terms of instructional readiness skills. (Naron, 1981, p. 307)

There is much evidence to support the fact that children who have had preschool experience perform better in school than those who have not. Higher cognitive ability and improved scholastic achievement in reading, math and language were documented by the Consortium for Longitudinal Studies (cited in Schweinhart & Weikart, 1980). A number of authors have reported similar findings (Chattin-McNichols, 1981; Nieman & Gastright, 1981;
Schweinhart & Weikart, 1980). The possibility of quality early childhood education as a means of improving the quality of life is becoming increasingly more apparent. Student tenure in the educational system, as well as life role performance will be influenced by, if not dependent upon, quality education during early childhood (Runkle, 1986). This is supported by Schweinhart and Weikart (1986) who cite evidence for preschool child development programs that is the most extensive and persuasive with respect to children who are poor or otherwise at risk of scholastic failure. For children who do not fall into these categories, limited evidence from Brookline Early Education Project in Massachusetts indicated that a good preschool program lessened scholastic problems for middle class children somewhat, but not as much as for children whose problems are greater. Preschool attendance has a positive effect on life performance. The effect becomes more pronounced for low income and below average groups, according to Weikart (1986).

Economically disadvantaged children appear to benefit from day care experience. In regard to economically disadvantaged children, Belsky and Steinberg (1978) stated day care appears to alleviate declines in test scores typically associated with high risk populations after 18 months of age.

Caldwell (1974) supports day-care programs for
Findings from other carefully evaluated day care programs have shown either similar gains (Robinson & Robinson, 1971), or else no different between day care and control children (Keister, 1970). Probably the most accurate generalization that can be drawn is that the greater the proportion of children in a program from environments which differ from the middle class norm, the greater the likelihood that results will indicate an increase in cognitive functioning associated with day care; the greater the proportion of children from backgrounds already geared to the acquisition of skills represented in the developmental tests, the less likelihood that there will be a statistically significant difference between day care and control children. But above both of these conclusions can be placed the superordinate generalization that intellectual development need not be adversely affected by participation in day care, as many people seemed to fear might be the case if children were separated from their families for large segments of time during their early years. (p. 20)

The Perry Preschool Project, a longitudinal study of the effects of preschool education, stressed the impact of preschool on the lives of the disadvantaged children it served, according to Schweinhart and Weikart (1980).

A chain of causes and effects is being traced in the Perry Preschool Study to determine the nature of the impact of the Perry Preschool Program on the lives of the children it served. The pattern as we see it, is as follows. Preschool education provides children with a kind of cognitive interaction with their environment which they would not otherwise experience. As a result, they enter school with greater cognitive ability and from the beginning, they do better in school. They know that their school achievement is greater, those around them know it as well. They are more committed to school and assume a role consistent with their greater school success. Teachers, parents, and peers acknowledge and reinforce this role, and it persists throughout their school careers.
Eventually, they reap the rewards of greater commitment and success in school. They are less involved in school discipline problems and delinquent behavior. We predict that they will have higher educational attainment, find employment in higher status jobs, and be more productive economically. (p. 5)

The Perry Preschool Project (cited in Schweinhart & Weikart, 1980) used an experimental design in which children were assigned to experimental and control groups to discover the long-term effects of preschool education on the participating children. The findings of the Perry Preschool Project support increased cognitive growth for participating children.

Preschool education improved cognitive ability during preschool, kindergarten and first grade. The best evidence for this comes from comparisons between IQs of the experimental group and the control group, since it might reasonably be assumed that the control group pattern would also have obtained in the experimental group had there been no intervention. The experimental group exceeded the control group by 12 IQ points after one and again after two years of preschool, by 6 points at the end of kindergarten, and by 5 points at the end of first grade (age 7). (Schweinhart & Weikart, 1980, p. 31)

Summary of Literature Review

"From national demographic statistics, it can be predicted that the number of women in the labor force will continue to increase in the 1990s and the number of young children requiring care outside the home will continue to increase for many years" (Goldberg, 1977, p. 7).

Since environment or setting is a useful approach and
acceptable predictor of cognitive ability, the environments or day-care settings most often experienced by 4-year-olds will be examined in reference to the effect they have on a 4-year-old's readiness for school. An acceptable predictor of school readiness is language development as language is used to receive and transmit data in the child's setting. Language development is acquired through the child's daily experiences and interactions with adults. The richness of these experiences depends heavily on the type of setting to which the child is exposed on a continuing basis. Exposure to school related tasks or activities and language development stimulation should result in a high level of school readiness for 4-year-olds. Day-care settings which do not provide exposure to school related tasks or stimulate oral communication should result in decreased readiness levels for 4-year-olds. Settings which stress school-related tasks and verbal development are usually group educational settings that are commercially recognized or public supported preschools. Children whose care is provided by neighborhood care homes, custodial care facilities, or own home care with a parent or relative often do not benefit from formally planned educational activities rich in verbal, cognitive and motor development. Because early childhood experiences have lasting effects on children, the richness of their preschool environment in preliteracy tasks and
language stimulation should be critical factors in the development of the skills with which they begin formal schools. Research suggests that formal preschool experience has life long impact on cognitive skills, school success and higher level employment.

The International Association for the Evaluation of Educational Achievement (IEA) recognized the importance of environment on the world's children and launched an ambitious effort to study preschool experiences of children in several countries. Noting that children are growing up in unpredictable environments, the IEA research, of which this study is a contributing component, is directed toward measuring the environmental impact of alternative daytime settings for children as they relate to child development and school readiness.

This chapter reviewed the changing family patterns which result in children being placed in alternative daycare settings. The relationship between environment and cognitive development was evidenced. Alternative care settings were discussed in relationship to their effects on the cognitive development of the 4-year-old in reference to the emphasis on preliteracy development in each environment. Finally, the relationship between daytime setting and school readiness was clarified as to significant cognitive gains most often found in children who experience settings where preschool activities and
language development opportunities are part of a formally presented program.

Hypotheses

Research cited by Bloom (1970), Lavatelli (1970), Schweinhart and Weikart (1980), Wolf (1966), Evans (1971), and others supports the relationship between cognitive functioning of the preschool child and the child's environment. Therefore, Hypothesis 1 states that children's readiness for school, as measured by a test of readiness skills, will be dependent upon the type of daytime care experiences the children have. Further, it is anticipated that the children placed into an educational setting will demonstrate a higher readiness level than children placed into group non-educational, parent-based or non-parent-based settings. Studies reported by Chatten-McNichols (1981), Nieman and Gastright (1981), Schweinhart and Weikart (1980), Clark-Stewart (1985), Bruisnma (1974), Helmich (1985), and others support the contention that children who experience educational settings demonstrate a higher level of educational readiness than children experiencing other types of environments. More specifically, Naron (1981), Clarke-Stewart (1985), and Schwartz (1983), report significant differences between children placed in educational settings as opposed to children placed with sitters in their own homes (non-parent-based setting), or
children placed in sitters homes or day care (group non-educational settings).

Research cited by Wolf (1966), Naron (1981), Bruisnma (1974), Evans (1971), and others supports the relationship between school readiness and the nature and number of educational activities that take place in the daytime caretaking setting of the 4-year-old. Therefore, Hypothesis 2 states, there will be significant differences between the means on a measure of school readiness for a daytime caretaking setting group with the number of educational activities above the median, as compared to a daytime caretaking setting group with the number of educational activities below the median. Children who have been exposed to group instructional activities demonstrate higher levels of readiness for school related activities than their counterparts who have experienced only typical child care (Naron, 1981).

Interaction between the types of daytime caretaking experiences of the 4-year-old, and the number of different planned educational activities taking place in the daytime caretaking setting, on a measure of school readiness, is not under investigation, nor is it suggested in the literature. However, its importance should not be overlooked. Hence, the third hypothesis in the present study will explore the possibility of such an interaction.

Research cited by Wolf (1966), Bruisnma (1974),
Helmich (1985), Evans (1971), Goodwin and Driscoll (1980) and others, support the relationship between receptive vocabulary of the preschool child and the child's environment. Therefore, Hypothesis 4 states that children's language, as measured by the test of receptive vocabulary, will be dependent upon the type of daytime care experiences the children have. Further, it is anticipated that children placed into an educational setting will demonstrate a higher level of receptive vocabulary than children placed into group non-educational, parent-based and non-parent-based settings. Studies reported by Mowrer (1960), Evans (1971), and Hough et al. (1987) support the contention that children who experience educational settings demonstrate a higher level of receptive vocabulary than children experiencing other types of environments.

Research cited by Evans (1971), Wolf (1966), Helmich (1985), Schweinhart and Weikart (1980) and others support the relationship between language development and the nature and number of educational activities that take place in the daytime caretaking setting of the 4-year-old. Therefore, Hypothesis 5 states that significant differences will be found between means and a measure of receptive vocabulary for a daytime caretaking setting group with the number of educational activities above the median, as compared to a daytime caretaking setting group with the number of educational activities below the
median.

Children who have been exposed to a variety of educational activities demonstrate a high level of vocabulary development (Wolf, 1966).

Interaction between the types of daytime caretaking experiences of the 4-year-old and the number of different planned educational activities taking place in the daytime caretaking setting, on a measure of receptive vocabulary, is not under investigation nor is it suggested in the literature. However, its importance should not be overlooked. Hence the sixth hypothesis in the present study will explore the possibility of such an interaction.
CHAPTER III

DESIGN OF THE STUDY

The purpose of this study was to describe the effects of alternative care settings on the level of receptive language and school readiness. The out-of-home care and selected educational experiences of 4-year-old children were identified through an individually administered parent interview developed by the IEA. A school readiness measure was obtained through the Peabody Picture Vocabulary Test-Revised (PPVT-R). The analysis examined the extent to which differences existed between several alternative settings and the number of educational activities in each setting on measures of school readiness and receptive language. The Gesell Institute designed the GSRST to provide objective and concrete data that measures a child's readiness for kindergarten. Receptive language, measured by the PPVT-R, is considered to be a predictor of school readiness. This chapter is organized into five sections: (1) population of the study, (2) limitations, (3) instrumentation, (4) data collection procedures, and (5) hypotheses.

Population

The Chippewa Valley School District is comprised of
portions of Macomb and Clinton townships and is located in what has been one of the fastest growing geographic areas in the state of Michigan during the 1980s. Chippewa Valley is the third largest school system of the 21 school systems in Macomb County. The district is located approximately 26 miles northeast of Detroit. The 28 square mile district consists primarily of residential dwellings and had a total population of 8,500 as of 1987.

The population for this study consisted of approximately 800 4-year-old children who were expected to register for kindergarten entry based on the district census. Members of this population made appointments for kindergarten screening held in May, 1987 during kindergarten registration. The accessible population consisted of those parents and children who attended their screening appointments, were willing to be interviewed and allowed their children's scores on both the Gesell School Readiness Screening Test (GSRST) and Peabody Picture Vocabulary Test-Revised (PPVT-R) to be used in the study. The sample drawn from the accessible population consisted of 185 random parent/guardian interviews and 185 sets of school readiness and receptive language test results. The group to which this study should be generalized shall consist of Caucasian, middle class suburban children of kindergarten age as determined by Michigan State Law in the Chippewa Valley School District.
Limitations

Since this study took place in a predominantly caucasian, middle class suburb, these results may only be directly generalizable to the total number of kindergarten enrollees in Chippewa Valley Schools, in 1987. The specific screening process and nature of the 4-year-olds may not be generalizable to school districts with different racial, ethnic and socioeconomic factors. In this regard it is hoped that future researchers, who might wish to use the Bridge Argument of Cornfield and Tukey (1956) for generalizing the results to an hypothesized population with similar characteristics, will find the description of the sample provided to suffice.

Independent Variable

The primary independent variables considered in the present study, were the types of daytime caretaking experiences and the number of different planned educational activities in which children participate, during the daytime caretaking experience, as indicated by individually administered parent/guardian interviews. Specifically, four levels of daytime caretaking experiences were considered: (1) children placed in educational group settings, consisting of nursery or pre-school programs designed to develop preliteracy skills in the 4-year-old; (2) children placed in non-educational group settings,
consisting of custodial day care with no emphasis on preliteracy skills; (3) children placed in non-group, non-parent based settings, consisting of care in a home other than their own or own home care with a non-relative; and (4) children placed in non-group parent-based settings, consisting of own home custodial care by a parent. Two levels of numbers of different planned educational activities were considered. The two groupings were determined using a median split of the parent/guardian response on that portion of the interview.

Dependent Variable

Overall age equivalent scores for the Gesell School Readiness Screening Test and Peabody Picture Vocabulary Test-Revised served as the principal dependent measures of the study. These tests are described in the instrumentation section which follows.

Instrumentation

Parent/Guardian Interview

The parent/guardian interview was developed by a cross-section of early childhood educators and advocates representing the International Association for the Evaluation of Educational Achievement Preprimary Study (IEA) and the Michigan Preprimary School Study Council (MPPSSC). The interview was developed to identify and characterize
the variety of out-of-home settings available to 4-year-olds, to survey the numbers of children affected and to assess the impact of family and community variables on access and use of out-of-home and selected educational settings. The required core items of the study were combined on a structured interview consisting of 14 fixed alternative questions. The interview was divided into three main parts: (1) the child's present caretaking experiences, (2) the nature of services offered in the alternative settings, and (3) specific family demographic information. The seven daytime setting categories included in the interview were: (1) own home with parent, (2) own home with relative other than parent, (3) own home with non-relative, (4) other home with relative, (5) other home with non-relative, (6) group setting - primarily custodial, and (7) group setting - primarily educational. In addition, parents were asked to indicate the nature and number of planned activities for their children in these settings, reasons for setting choice and alternative caretaking arrangements made for their children. This core interview established basic setting categories experienced by 4-year-olds prior to school entrance. These categories focused on educational or custodial care which was either parental or non-parental based. Each interview required approximately 12 minutes to complete. A pilot test of the interview was conducted prior to kindergarten
registration, and appropriate adjustments were made.

**Gesell School Readiness Screening Test**

The Gesell School Readiness Screening Test takes an extensive look at the performance of children in a number of content areas related to school readiness. The subtests include: blocks, copy forms, letters and numbers, incomplete man, and gross motor skills.

**Gesell School Readiness Screening Test Subtests**

**Blocks (cubes):** Child is asked to place the cubes in a variety of forms including tower, train, bridge, gate and steps. The child may or may not observe the examiner in the formulation of the cubes.

**Copy Forms:** Child attempts to copy forms provided by the examiner on a sheet of paper. The forms include a circle, cross, square, triangle, divided rectangle and diamond in two positions. In addition, the child's pencil grasp and organization of the forms on the page are considered.

**Letters and Numbers:** Child is asked if he can write his name or any letters contained in the name. The child is asked if he can write the numbers beginning with number one.

**Incomplete Man:** An incomplete man or figure with missing parts is provided to the child. Except for the
eyes, each of the missing parts has a model already drawn
to guide the child. The type, angle, length and shape of
each part allow for many stages of perception. The addi-
tion of parts is the main focus in evaluation of the
child's response.

**Gross Motor:** Individual motor tasks including plac-
ing pellets in a bottle, walking on tiptoe, stepping,
jumping in place, jumping down, standing on one foot,
jumping (broad jump), hopping on one foot, bean bag throw
and bean bag catch (Ames, Gillespie, Haines, & Ilg, 1979).

The Gesell School Readiness Screening Test is indivi-
dually administered by a trained diagnostician. The
estimated testing time is 30 minutes. The standardization
population consisted of 40 boys and 40 girls at each 6-
month age level from two and one-half to six years of age
for a total sample of 320 girls and 320 boys. The sample
was stratified on the basis of socioeconomic status in
accordance with the 1960 census data. Nearly all the
sample children were caucasian from the Eastern United
States. Validity and reliability have not been formally
developed (Johnson, 1979). The Gesell is a widely used
screening instrument in the state of Michigan. Diagnosti-
cians attend training sessions to be certified as Gesell
examiners. The norms in the Gesell range from age three
to age nine. The goal of the test is to determine the
developmental level at which a child is currently
functioning. Tables present the percent of children at each normed age who give specific responses. While there are no explicit procedures for combining subtests into total scores, an age equivalent or developmental quotient is established by a clustering of subtest scores. The test battery indicates whether responses are congruent with chronological age. The test's major limitations include lack of data on reliability, limited reference to availability of validity data other than the author's early studies of placement data and limitations in normative data (Mitchell, 1985). Overall, the Gesell test provides useful information about preschool age and early school age children. The test takes an extensive look at the performance of children in a number of content areas related to readiness for performing well in school.

The Gesell School Readiness Screening Test is based on the belief that behavior is, to a large extent, biologically determined and that it develops in a patterned, predictable and measurable way. In addition, the Gesell Institute supports the interaction between the organism and the environment. According to Ames et al. (1979):

> In appraising growth characteristics, we must not ignore environmental influences. . . . But these must always be considered in relationship to primary, or constitutional factors because the latter ultimately determine the degree and even the mode of the reaction to the so-called environment. The organism always participates in the creation of its environment. And the growth characteristics of the child are really end-product expressions of the interaction
between intrinsic and extrinsic determiners. Because the interaction is the crux, the distinction between these two sets of determiners should not be drawn too heavily. (p. 10)

Peabody Picture Vocabulary Test

The Peabody Picture Vocabulary Test-Revised (PPVT-R) is a measure of receptive language. The Peabody consists of two forms (L and M), allows a verbal or non-verbal response, is individually administered and is untimed. Examinees indicate which of four pictures correspond to a stimulus work read aloud by an examiner. The raw scores obtained on the PPVT-R may be converted to either deviation-type age norms in the form of standard score equivalents, percentile ranks, or stanines or to developmental-type age norms in the form of age equivalents with a standard deviation of 15. The test manual reports internal consistency of .61 to .88 and alternate form reliability value of .71 to .91 from the standardization sample. When alternate form equivalency is examined by comparing means, Form M produces slightly higher standard score equivalents than Form L. The reliability of the PPVT-R has been evaluated to establish internal consistency, alternate forms reliability and consistency or stability over time (Mitchell, 1985).

Data Collection Process

Each spring, children entering kindergarten in
Chippewa Valley's elementary schools are screened to determine their readiness level for school. In 1987, there were seven elementary buildings with an expected kindergarten enrollment of approximately 800 students. Each elementary school held a preliminary meeting at which parents signed up for appointments for kindergarten screening. The screening program was conducted during May of 1987. At the screening, parents filled out the required forms and waited for their children to complete the screening process, consisting of an individually administered Gesell School Readiness Screening Test and Peabody Picture Vocabulary Test-Revised. Approximately 230 children were screened each day. In order to accomplish random selection of parents for the interview portion of the study, a list of random numbers was generated by the EPISTAT Micro Computer Program. The random numbers were assigned to the appointment lists with approximately six parents being interviewed each half hour. This resulted in 60 to 62 parent/guardian interviews per day and a total of 185 interviews.

**Hypotheses**

**Hypothesis 1:** Children's readiness for school, as measured by the GSRST, will be dependent upon the type of daytime care experiences the children have. While any difference would be of interest to the present study, most
previous research suggests that the highest mean level of school readiness will be attained by children who were in a group educational setting (u1). The literature further suggests that children who were in group non-educational settings (u2) would attain the second highest mean level of school readiness and those in parent-based (u3) and non-parent based (u4) settings are expected to attain the two lowest levels respectively. The hypothesis may be stated in operational form as follows:

\[ H_0 : \sum_{i=1}^{4} (\bar{u}_i - u)^2 = 0 \]

\[ H_1 : \sum_{i=1}^{4} (\bar{u}_i - u)^2 \neq 0 \]

**Hypothesis 2:** Childrens' readiness for school, as measured by the GSRST, will be dependent upon the number of different planned activities that parents report take place in the daytime caretaking setting of the children. While any difference would be of interest to the present study, most previous research suggests that 4-year-olds presented with more than the median number of activities (u1) will attain a higher mean level of school readiness than those children presented with less than the median number of activities (u2). Therefore, Null Hypothesis 2 states that there will be no significant difference between the means on a measure of school readiness for a daytime caretaking setting group with the number of
educational activities above the median as compared to a daytime caretaking setting group with the number of educational activities below the median. The hypothesis may be stated in statistical form as follows:

\[ H_0 : \sum_{j=1}^{2} (\bar{u}.j-u)^2 = 0 \]

\[ H_1 : \sum_{j=1}^{2} (\bar{u}.j-u)^2 \neq 0 \]

**Hypothesis 3:** There will be an interaction between the types of daytime caretaking experiences for the 4-year-old and the number of different planned educational activities taking place in the daytime caretaking setting on a measure of school readiness (GSRST). While the literature does not suggest the finding of such interaction, it will be investigated as a function of the study's overall design. The hypothesis may be stated in operational form as follows:

\[ H_0 : \sum_{i=1}^{4} \sum_{j=1}^{2} (uij-\bar{u}.i.-\bar{u}.j+u)^2 = 0 \]

\[ H_1 : \sum_{i=1}^{4} \sum_{j=1}^{2} (uij-\bar{u}.i.-\bar{u}.j+u)^2 \neq 0 \]

**Hypothesis 4:** Children's receptive vocabulary, as measured by the PPVT-R, will be dependent upon the type of daytime experiences the children have. While any difference would be of interest to the present study, most previous research suggests that the highest mean level of

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receptive language will be attained by children who were in a group educational setting (u1). The literature further suggests, that children who were in a group non-educational setting (u2) would attain the second highest mean level on the PPVT-R while parent-based (u3) and non-parent based (u4) settings are expected to attain the lowest mean scores on this measure. The hypothesis may be stated in operational form as follows:

\[ H_0 : \sum_{i=1}^{4} (\bar{u}_i - u)^2 = 0 \]

\[ H_1 : \sum_{i=1}^{4} (\bar{u}_i - u)^2 \neq 0 \]

**Hypothesis 5:** Childrens' receptive vocabulary, as measured by the PPVT-R, will be dependent upon the number of different planned educational activities that parents report take place in the daytime caretaking setting of the children. While any difference would be of interest to the present study, most previous research suggests that 4-year-olds presented with more than the median number of activities (u1) will attain a higher mean level of receptive vocabulary than those children presented with less than the median number of activities (u2). Therefore, Null Hypothesis 5 states that there will be no significant differences between the means on a measure of receptive vocabulary for a daytime caretaking setting group with the number of educational activities above the median, as
compared to a daytime caretaking setting group with the number of educational activities below the median. The hypothesis may be stated in operational form as follows:

\[ H_0 : \sum_{j=1}^{2} (\bar{u}_j - \bar{u})^2 = 0 \]

\[ H_1 : \sum_{j=1}^{2} (\bar{u}_j - \bar{u})^2 \neq 0 \]

**Hypothesis 6:** There will be an interaction between the types of daytime caretaking experiences for the 4-year-old and the number of different planned educational activities taking place in the daytime caretaking setting on a measure of receptive language (PPVT). While the literature does not suggest the finding of such an interaction, it will be investigated as a function of the study's overall design. The hypothesis may be stated in operational form as follows:

\[ H_0 : \sum_{i=1}^{4} \sum_{j=1}^{2} (u_{ij} - \bar{u}_i - \bar{u}_j + \bar{u})^2 = 0 \]

\[ H_1 : \sum_{i=1}^{4} \sum_{j=1}^{2} (u_{ij} - \bar{u}_i - \bar{u}_j + \bar{u})^2 \neq 0 \]

**Analysis**

The basic design for this research study is a two by four factorial. Using analysis of variance, F-ratios were computed to test each of the study's six null hypotheses. Specifically, hypotheses 1 and 4 were tested in an attempt
to identify differences regarding four alternative settings of the 4-year-old participants including group education, group non-educational, parent-based and non-parent-based settings. Differences between the four groups were investigated, utilizing two dependent measures, the GSRST and PPVT-R respectively. Null hypotheses 2 and 5 were tested to identify potential existing differences attributable to the number of planned educational activities taking place during the caretaking setting on the GSRST and PPVT-R respectively. Null hypotheses 3 and 6, in turn, were tested to identify possible interactions between the type of daytime settings and the number of planned activities in those settings on the two measures. An alpha level of .05 was used for all tests.

In addition, means, standard deviations and frequency distributions were computed for both the GSRST and PPVT-R, on each of the four setting types and number of educational activities. Demographic analyses included frequency distributions of employment classifications of adult participants, as well as the reasons for decisions regarding the placement of 4-year-olds into specific daytime settings.

Data necessary for demographic analyses, regarding setting and activity, were obtained through parent/guardian interviews. The GSRST and PPVT-R measures were obtained through individual tests administered to the
4-year-old participants. All data were analyzed on an IBM microcomputer using the ANOVA and FREQUENCIES subprograms of the Statistical Package for Social Sciences (SPSS-PC+) program (Norusis, 1986).

Summary

The design of this study consisted of a two by four factorial, using analysis of variance to determine any significant effects on school readiness and receptive language by the daytime caretaking setting of the 4-year-old and the level of planned educational activities in those settings. The dependent measures consisted of the Gesell School Readiness Screening Test and the Peabody Picture Vocabulary Test-Revised. Information regarding the setting and activity level of the 4-year-old, was obtained through 185 randomly administered parent/guardian interviews. Chapter IV presents an analysis of the data in the framework of the hypotheses generated.
CHAPTER IV

ANALYSIS OF RESULTS

The purpose of the present study was to describe and compare the levels of school readiness attained by groups of 4-year-old children who had received various types of out-of-home care and educational preparation the year prior to kindergarten enrollment. Specifically examined were educational group settings, non-educational group settings, parent based and non-parent based settings, as well as the nature and number of different educational activities provided to the 4-year-olds in each setting. All instrumentation, subject selection and related process issues were approved by the Protection of Human Subjects Committee.

The setting category and the activities taking place in each setting were identified through interviews administered to parents and guardians when the children were tested for kindergarten entry. The level of readiness for school was measured with school readiness and receptive language tests that were administered to each child. Two way analysis of variance was used to identify differences in children's attained age equivalent scores across different caretaking settings and levels of educational activity received on measures of school readiness and
receptive language. Since the subjects were randomly selected and nationally standardized measures were used, it is believed that a representative sample free from systematic biases was obtained and that the assumption of independence was met. Six hypotheses were tested through the computation of F-ratios. These, in effect, provided tests for all conditions of both of the independent variables and any interaction which may have existed between them. The Scheffé method of multiple comparisons was used to identify the specific locus of any differences found.

Demographic Analysis of Subjects

A total of 185 4-year-olds and one parent or guardian of each were randomly selected from the population of 789 children who registered for kindergarten entry at Chippewa Valley Schools, a medium sized midwestern school district, during the fall of 1987. A more detailed description of the school district's population was provided in Chapter III. None of the children or parents selected refused to participate. The sample consisted of 89 males and 96 females, with 132 children having been placed in educational group settings, 11 in non-educational group settings, 35 in parent-based settings and 7 children in non-parent based settings. Parent/guardian interviews were administered to 152 females and 33 males.

Of the adult participants, 1.1% classified their
income at the low level, 85.6% at the middle level and 13.3% at the high level. As shown in Table 1, the majority of adults categorized their level of employment at the professional, skilled, semi-professional or semi-skilled worker level. Participants with no paid employment comprised one-fourth (25.8%) of the group, but this may only have been an artifact of the design (i.e., where one parent was either unemployed or not looking for work, that individual may have been more likely to attend the interview).

Table 1
Job Duties of Adult Participants

<table>
<thead>
<tr>
<th>Employment Classification</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unskilled worker</td>
<td>4</td>
<td>2.2</td>
</tr>
<tr>
<td>Semiskilled worker</td>
<td>22</td>
<td>12.1</td>
</tr>
<tr>
<td>Skilled worker</td>
<td>30</td>
<td>16.5</td>
</tr>
<tr>
<td>Clerical-Technical</td>
<td>19</td>
<td>10.4</td>
</tr>
<tr>
<td>Semi-Professional</td>
<td>22</td>
<td>12.1</td>
</tr>
<tr>
<td>Professional</td>
<td>37</td>
<td>20.3</td>
</tr>
<tr>
<td>Self-Employed</td>
<td>11</td>
<td>6.0</td>
</tr>
<tr>
<td>Military Service</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Retired</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>No paid employment</td>
<td>47</td>
<td>25.8</td>
</tr>
<tr>
<td>Don't know</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>No response</td>
<td>1</td>
<td>0.5</td>
</tr>
</tbody>
</table>
Basis for Selection of Out-of-Home Care

Most adult participants indicated that they had selected out-of-home caretaking settings for their 4-year-olds because such a setting was perceived to be in the best interest of the child (72.7%). Other considerations frequently mentioned, as summarized in Table 2, were demands of employment (13.7%) and the best interest of the parent (7.1%).

Table 2
Out-of-Home Caretaking Arrangement

<table>
<thead>
<tr>
<th>Reason</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work</td>
<td>25</td>
<td>13.7</td>
</tr>
<tr>
<td>Self</td>
<td>13</td>
<td>7.1</td>
</tr>
<tr>
<td>Child</td>
<td>133</td>
<td>72.7</td>
</tr>
<tr>
<td>Family Member</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>Government</td>
<td>1</td>
<td>.5</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td>4.9</td>
</tr>
<tr>
<td>Don't Know</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>No Response</td>
<td>6</td>
<td>3.3</td>
</tr>
</tbody>
</table>

Specific Setting Choice

Adult participants in the study indicated that the basis of their decision to select a group education, group
non-education, parent-based or non-parent based child care arrangement for their son or daughter was, most often, positive information received regarding that setting (63.4%). Other considerations, as shown in Table 3, indicate the specific characteristics of a child care arrangement (31.7%), convenience (19.1%), and cost (4.9%).

Table 3

<table>
<thead>
<tr>
<th>Basis of Decision</th>
<th>Frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>Cost</td>
<td>9</td>
</tr>
<tr>
<td>Convenience</td>
<td>35</td>
</tr>
<tr>
<td>Positive Information</td>
<td>116</td>
</tr>
<tr>
<td>Setting Characteristic</td>
<td>58</td>
</tr>
<tr>
<td>Only Setting Available</td>
<td>6</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
</tr>
<tr>
<td>Don't Know</td>
<td>2</td>
</tr>
<tr>
<td>No Response</td>
<td>8</td>
</tr>
</tbody>
</table>

Alternate Settings

Adult participants were asked if secondary child care arrangements were available to them when the primary setting was unavailable. The respondents' answers to this question are summarized in Table 4. More than half (58%)
of the participants relied on a relative or secondary child care when the setting of their choice was not available. Neighbors or friends (24.3%) represented the next most frequently indicated option and 10.5% of the participants indicated they opted for no secondary caretaking arrangements if their first choice was unavailable.

Table 4
Secondary Child Care Arrangement

<table>
<thead>
<tr>
<th>Type of Arrangement</th>
<th>Frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>Relative</td>
<td>105</td>
</tr>
<tr>
<td>Neighbor or Friend</td>
<td>44</td>
</tr>
<tr>
<td>Other</td>
<td>12</td>
</tr>
<tr>
<td>None</td>
<td>19</td>
</tr>
<tr>
<td>Don't Know</td>
<td>4</td>
</tr>
<tr>
<td>No Response</td>
<td>9</td>
</tr>
</tbody>
</table>

Results of Hypothesis Testing

The analysis in this study included the testing of six hypotheses. Two by four factorial analysis of variance was used to identify differences existing between the various levels of child care setting and number of planned educational activities on each of two dependent measures, namely the GSRST and PPVT-R. In addition, the possible
existence of an interaction between setting and activity was also tested for each measure. Specifically, each hypothesis was tested through the computation of an F-ratio and the Scheffé method of multiple comparison was used to identify the specific locus of any differences found. An alpha level of .05 was used for all tests.

School Readiness

The age equivalent score on the Gesell School Readiness Screening Test (GSRST) derived from a cluster of subtest scores, ranges from 2.5 to 6.0 years of age. For the 185 4-year-olds administered the GSRST at kindergarten screening, the overall mean age equivalent was 4.81. Table 5 presents a summary of the results of the primary analyses which were computed regarding the measures of school readiness used (i.e. the GSRST). The following paragraphs summarize the tests that were conducted on each of the three related hypothesis.
Table 5

Two-Way Analysis of Variance on the Gesell School Readiness Age Equivalent Scores by Present Caretaking Settings and Number of Educational Opportunities

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caretaking Setting</td>
<td>.550</td>
<td>3</td>
<td>.183</td>
<td>1.070</td>
<td>3.63</td>
</tr>
<tr>
<td>Number of Educational Activities</td>
<td>.613</td>
<td>1</td>
<td>.613</td>
<td>3.577</td>
<td>.060</td>
</tr>
<tr>
<td>Caretaking Setting x Number of Activities</td>
<td>.437</td>
<td>3</td>
<td>.146</td>
<td>.850</td>
<td>.468</td>
</tr>
<tr>
<td>Residual</td>
<td>30.331</td>
<td>177</td>
<td>.171</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>32.098</td>
<td>187</td>
<td>.174</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hypothesis 1

Hypothesis 1, in its null form, stated there will be no significant differences found, on a measure of school readiness (GSRST) between the mean score of children who were in different caretaking settings. In testing the hypothesis for the effects of the type of caretaking experience on the GSRST, the observed F-ratio, 1.07, did not exceed the critical value of 2.60 (p > .05). Therefore, the null hypothesis was not rejected. However, for the benefit of the reader, the observed mean scores, standard deviation and sample sizes for each group are presented in Table 6.
Table 6

Summary of Gesell School Readiness Means by Caretaking Setting

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational Group Setting</td>
<td>4.8283</td>
<td>.4084</td>
<td>132</td>
</tr>
<tr>
<td>Non-Educational Group Setting</td>
<td>4.8773</td>
<td>.4886</td>
<td>11</td>
</tr>
<tr>
<td>Parent-Based Setting</td>
<td>4.7917</td>
<td>.3771</td>
<td>35</td>
</tr>
<tr>
<td>Non-Parent Based Setting</td>
<td>4.5143</td>
<td>.6203</td>
<td>7</td>
</tr>
</tbody>
</table>

Hypothesis 2

Hypothesis 2, in its null form, stated there would be no significant differences between the mean on a measure of school readiness for a daytime caretaking setting group with the number of educational activities above the median, as compared to a daytime caretaking setting group with the number of educational activities below the median. In testing the hypothesis for the effects of the number of educational activities on the GSRST, the observed F-ratio, 3.577, did not exceed the critical value of 3.84 (p > .05). Therefore, the null hypothesis was not rejected. For the benefit of the reader, however, the observed mean scores, standard deviations and sample sizes for each group are presented in Table 7.
Table 7

Summary of Gesell School Readiness Means by Number of Educational Activities

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below Median Educational Activities</td>
<td>4.742</td>
<td>.449</td>
<td>85</td>
</tr>
<tr>
<td>Above Median Educational Activities</td>
<td>4.872</td>
<td>.381</td>
<td>100</td>
</tr>
</tbody>
</table>

Hypothesis 3

Hypothesis 3, in its null form, stated there would be no significant interaction between the type of caretaking setting of the 4-year-old and the number of different planned educational activities on a measure of school readiness, GSRST. As indicated in Table 5, the test for the interaction showed to be non-significant, F-ratio $(3,177) = .850; p > .05)$. For the benefit of the reader, however, the cell means, standard deviations and cell sizes for each group are presented in Table 8.
Table 8

Summary of Cell Means, Standard Deviations and Cell Sizes by Levels of Present Caretaking Experiences and Number of Educational Activities for Gesell School Readiness Screening Test

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Cell Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entire Population</td>
<td>4.8124</td>
<td>.4177</td>
<td>185</td>
</tr>
<tr>
<td>Educational Group Setting</td>
<td>4.8283</td>
<td>.4084</td>
<td>132</td>
</tr>
<tr>
<td>Number of Activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below Median</td>
<td>4.7571</td>
<td>.4685</td>
<td>51</td>
</tr>
<tr>
<td>Above Median</td>
<td>4.8732</td>
<td>.3615</td>
<td>81</td>
</tr>
<tr>
<td>Non-Educational Group Setting</td>
<td>4.8773</td>
<td>.4886</td>
<td>11</td>
</tr>
<tr>
<td>Number of Activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below Median</td>
<td>4.6700</td>
<td>.4685</td>
<td>5</td>
</tr>
<tr>
<td>Above Median</td>
<td>5.0500</td>
<td>.4722</td>
<td>6</td>
</tr>
<tr>
<td>Parent Based Setting</td>
<td>4.7917</td>
<td>.3771</td>
<td>35</td>
</tr>
<tr>
<td>Number of Activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below Median</td>
<td>4.7546</td>
<td>.4037</td>
<td>24</td>
</tr>
<tr>
<td>Above Median</td>
<td>4.8727</td>
<td>.3133</td>
<td>11</td>
</tr>
<tr>
<td>Non-Parent Based Setting</td>
<td>4.5143</td>
<td>.6203</td>
<td>7</td>
</tr>
<tr>
<td>Number of Activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below Median</td>
<td>4.6000</td>
<td>.5477</td>
<td>5</td>
</tr>
<tr>
<td>Above Median</td>
<td>4.3000</td>
<td>.9899</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Cases = 185

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Receptive Language

The Peabody Picture Vocabulary Test-Revised (PPVT-R) provides a measure of receptive vocabulary in the form of an age equivalent. Of the 185 4-year-olds participating in the study, there were 184 Peabody tests administered with one missing case. For the 184 4-year-olds administered the PPVT-R at kindergarten screening, the overall mean age equivalent was 5.08. Table 9 presents a summary of the results of the primary analyses which were computed regarding the measure of receptive language uses (i.e., the PPVT-R). The following paragraphs summarize the tests which were conducted on each of the three related hypotheses.

Table 9
Two-Way Analysis of Variance on the Peabody Receptive Language Age Equivalent Scores by Present Caretaking Settings and Number of Educational Activities

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caretaking Setting</td>
<td>10.572</td>
<td>3</td>
<td>3.524</td>
<td>3.240</td>
<td>.023</td>
</tr>
<tr>
<td>Number of Educational Activities</td>
<td>.499</td>
<td>1</td>
<td>.499</td>
<td>.459</td>
<td>.499</td>
</tr>
<tr>
<td>Caretaking Setting x Number of Activities</td>
<td>.221</td>
<td>3</td>
<td>.074</td>
<td>.068</td>
<td>.977</td>
</tr>
<tr>
<td>Residual</td>
<td>191.419</td>
<td>176</td>
<td>1.088</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>202.229</td>
<td>183</td>
<td>1.105</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Hypothesis 4

Hypothesis 4, in its null form, stated there will be no significant differences found regarding the type of children's daytime caretaking setting on a measure of receptive language, namely the PPVT-R. The observed $F$-ratio, 3.240, as shown in Table 9, did exceed the critical value of 2.60 ($p < .05$) and the null hypothesis was rejected. The Scheffé method of multiple comparisons was used to identify the specific locus of any differences found.

The only groups which were evidenced to have significant differences between their mean scores on the PPVT-R consisted of those students who were in an educational group setting versus those students who were in a non-group setting with someone other than their parent (non-parent based setting). Specifically, children who were in an educational group setting scored higher on the PPVT-R ($\bar{X} = 5.16$) than did those children who were in a non-group setting with someone other than their parents ($\bar{X} = 4.0$). The observed mean scores, standard deviations and sample sizes for each group are presented in Table 10.
Table 10
Sheffé Post Hoc Test on Mean Scores of Peabody Picture Vocabulary Test and Caretaking Setting

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Parent Based Setting</td>
<td>3.9957</td>
<td>.7944</td>
<td>7</td>
</tr>
<tr>
<td>Parent Based Setting</td>
<td>4.9520</td>
<td>.9318</td>
<td>35</td>
</tr>
<tr>
<td>Group Educational Setting</td>
<td>5.1572</td>
<td>1.0587</td>
<td>131</td>
</tr>
<tr>
<td>Group Non-Educational Setting</td>
<td>5.2945</td>
<td>1.1450</td>
<td>11</td>
</tr>
</tbody>
</table>

Hypotheses 5

Hypothesis 5, in its null form, stated there would be no significant differences between the means on a measure of receptive vocabulary for a daytime caretaking setting group with the number of educational activities above the median as compared to a daytime caretaking setting group with the number of educational activities below the median. In testing the hypothesis for the effects of the number of educational activities on the PPVT-R, the observed F-ratio, .459 did not exceed the critical value of 3.84 (p > .05) and the null hypothesis was not rejected.

However, for the benefit of the reader, the observed mean scores, standard deviations and sample sizes for each group are presented in Table 11.
Table 11
Summary of Peabody Receptive Language by Number of Educational Activities

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below Median Educational Activities</td>
<td>5.0925</td>
<td>1.1049</td>
<td>84</td>
</tr>
<tr>
<td>Above Median Educational Activities</td>
<td>5.0735</td>
<td>1.0095</td>
<td>100</td>
</tr>
</tbody>
</table>

Hypothesis 6

Hypothesis 6, in the null form, stated there would be no significant interaction between the type of caretaking setting of the 4-year-old and the number of different planned educational activities on a measure of receptive language, namely the PPVT-R. The observed F, as shown in Table 8 was non-significant F-ratio, \( \frac{F}{(3,176)} = .068; P > .05 \). For the benefit of the reader, however, the cell means, standard deviations and cell sizes for each group are presented in Table 12.
Table 12
Summary Cell Means, Standard Deviations and Cell Sizes by Levels of Present Caretaking Experiences and Number of Educational Activities for Peabody Vocabulary Test

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Cell Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entire Population</td>
<td>5.0822</td>
<td>1.0512</td>
<td>184</td>
</tr>
<tr>
<td>Educational Group Setting</td>
<td>5.1572</td>
<td>1.0587</td>
<td>131</td>
</tr>
<tr>
<td>Number of Activities Below Median</td>
<td>5.2240</td>
<td>1.1566</td>
<td>50</td>
</tr>
<tr>
<td>Number of Activities Above Median</td>
<td>5.1159</td>
<td>.9988</td>
<td>81</td>
</tr>
<tr>
<td>Non-Educational Group Setting</td>
<td>5.2945</td>
<td>1.1450</td>
<td>11</td>
</tr>
<tr>
<td>Number of Activities Below Median</td>
<td>5.2560</td>
<td>1.1393</td>
<td>5</td>
</tr>
<tr>
<td>Number of Activities Above Median</td>
<td>5.3267</td>
<td>1.2574</td>
<td>6</td>
</tr>
<tr>
<td>Parent Based Setting</td>
<td>4.9520</td>
<td>.9318</td>
<td>35</td>
</tr>
<tr>
<td>Number of Activities Below Median</td>
<td>4.9883</td>
<td>.9554</td>
<td>24</td>
</tr>
<tr>
<td>Number of Activities Above Median</td>
<td>4.8727</td>
<td>.9177</td>
<td>11</td>
</tr>
<tr>
<td>Non-Parent Based Setting</td>
<td>3.9957</td>
<td>.7944</td>
<td>7</td>
</tr>
<tr>
<td>Number of Activities Below Median</td>
<td>4.1140</td>
<td>.9410</td>
<td>5</td>
</tr>
<tr>
<td>Number of Activities Above Median</td>
<td>3.7060</td>
<td>.0000</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Cases = 185
Missing Case = 1
Summary

This chapter included all relevant statistical analysis required by the present study. The statistical data characterized the relationship between children's daytime caretaking settings and the number of different planned activities in those settings on the GSRST and PPVT-R. To test for significant differences between the groups investigated and for possible interactions between the independent variables, two-way analyses of variance were used and $F$-ratios computed, using an alpha level of .05.

Demographic information was collected on the adult and 4-year-old participants. These data, found in Tables 1-4, were collected in order to establish the characteristics of the participants in this study. Mean scores on the GSRST and the PPVT-R were calculated. These scores were examined on the basis of the caretaking setting experienced by the 4-year-old participants and number of different planned educational activities in those settings. Caretaking settings included group educational, group non-educational, parent-based and non-parent based settings. Educational activities included those preliteracy activities designed to increase readiness for school-related tasks.

The findings of the present study revealed that the only difference observed was between type of educational setting on a measure of receptive language. No
interactions between caretaking settings and number of different planned educational activities were evidenced regarding either dependent measure.

Chapter V presents a summary of the purpose of the study, a discussion of the results, conclusions, implications for further study and recommendations for future research.
CHAPTER V

SUMMARY AND CONCLUSIONS

Chapter V is divided into four sections. The first section is an overview of the purpose of the study, relating to 4-year-old children's preparation for school entry as it is affected by out-of-home settings. In section two, there is a summary of the findings of the six hypotheses tested. In the third section, conclusions are drawn based on the results of the six hypotheses. Implications for further study, as well as recommendations for utilizing study results, are discussed in the fourth section.

General Summary of Problem

The changing family structure of the 1980s resulted in an increasing number of working parents, placing preschool children in a variety of alternative caretaking settings. Because early childhood experiences affect children through their lives, there is a need for information regarding the effects of alternative care on the 4-year-olds readiness level for school. The settings in which 4-year-olds are placed are the gateway to formal schooling. They may range from custodial to educational and vary in the nature and number of different planned
educational activities. Information, regarding the effect of these settings on the child's preparedness for school, would be useful to school districts, early childhood professionals and policy makers, and parents choosing an alternative care setting for their child. Since the research supports the effect of environment on school readiness, and an increasing percentage of children are exposed to alternative out-of-home settings, it is logical to investigate these settings as to which contributes to school preparedness.

The Chippewa Valley School District annually screens children for kindergarten entry. Since 1983, the GSRST and the PPVT-R have been utilized as readiness measures. These tests are individually administered to incoming 4-year-olds by trained examiners. Parents of children attending the screening have noted various preschool experiences of children, ranging from commercial preschools to neighborhood group-care homes. Such settings were investigated in the present study as to their effect on school readiness and receptive language. In addition, the number of different planned educational activities in the alternative settings were investigated in relationship to their impact on readiness and receptive language levels. The present study clearly questions whether out-of-home and selected education settings affect school readiness and receptive vocabulary. If settings affect
readiness, then implications exist for parents when selecting an alternative setting and for school districts when planning educational programs for preschool and kindergarten students.

The out-of-home care and selected education experiences of 4-year-olds were identified by interviews individually administered to parents or guardians of 4-year-olds participating in the study. This interview was developed by the IEA as part of an international study of the environments of 4-year-olds. Research states that early childhood experiences affect performance in early school years (Bloom, 1970; Lavaletti, 1970; Schweinhart & Weikart, 1986; Wolf, 1966). The nature of this experience is dependent upon the setting to which the child is exposed. Children placed into settings offering a high level of activities, rich in preliteracy and language development experiences, should demonstrate higher levels of school readiness and receptive language, as determined by readiness and language measures, than children who have been placed into setting which do not formally provide developmentally appropriate preliteracy activities. An analysis of variance was used to determine any significant differences on the GSRST and PPVT-R based on the setting category and number of different planned educational activities in the setting. From this information, it was then possible to determine if specific settings and
numbers of planned educational activities affected basic school readiness skills and receptive vocabulary.

Discussion of Results

Results of the hypotheses tested indicated that the dependent measure affected by daytime setting was receptive language as measured by the PPVT-R. The Scheffé method of multiple comparisons determined the specific locus of differences found to be between those 4-year-olds who had been placed in an educational group setting versus 4-year-olds placed in a non-group setting with a non-relative. It is reasonable to believe that 4-year-olds whose daytime care setting consists of preschool or nursery school environment, stressing preliteracy activities, will demonstrate a higher level of receptive language. Four-year-olds who had been placed in non-group settings, such as a babysitter's home or at-home care with a non-relative, demonstrated significantly lower levels of receptive vocabulary. Such findings were consistent with the research of Hough et al. (1987), who found language stimulation in preschool settings of value in the development of language proficiency. Helmich (1985) pointed out that children receiving non-group custodial care often lacked language proficiency. Bruisnma (1984) stressed the importance of spoken and written language contexts which not only allowed children to understand what is going on
around them, but increased language proficiency as well.

No differences were found between mean scores on a measure of school readiness (GSRST) and daytime caretaking settings, or the number of educational activities provided in the setting categories. These inconclusive results were not anticipated due to the volume of research that suggested a strong relationship between preschool attendance and exposure to preliteracy activities and school readiness, as indicated by the Brookline Early Educational Project in Massachusetts. However, Caldwell (1974) stressed the relationship between day care and readiness as being more closely associated with settings that differ from the middle class norm. Specifically, differences will not be found between children whose backgrounds are generally geared to the acquisition of skills most often found on readiness measures. Such a generalization could be made about the accessible population of this study.

Overall, the children participating in this study came from middle class backgrounds, where preschool skills were likely stressed in some manner. Few children in this study came from backgrounds that differed from middle class norms.

The number of preliteracy or educational activities found in the alternative setting did not affect a measure of receptive vocabulary (PPVT-R). These results were not anticipated since the opportunities for and emphasis on
verbal development are most often reinforced through a variety of activities stressing language development. Such activities are most often found in formal preschool settings. According to Bruisnma (1974), such activities lead to a level of skill and awareness that allow a child to make an easy transition into the kindergarten setting. Children from custodial settings usually display a lack of language development caused by the austerity of their environment and minimal interaction with adults. No interactions were evidenced between setting categories and number of educational activities on measures of school readiness and receptive language.

Conclusions

A relationship does exist between the type of daytime caretaking setting experienced by the 4-year-old and a measure of receptive language. Specifically, children who are placed in group educational settings, characterized as preschool or nursery school settings, with a planned program of language stimulation, do demonstrate higher language proficiency than children placed into a babysitter's home or children who experience at-home-care with a non-relative. This relationship suggests that setting can affect an element of school readiness, namely the child's ability to understand what he hears, or level of receptive vocabulary.
Language proficiency, acquired through those experiences made available within a given environment, allows communication and interaction to continue to occur at higher levels each time (Mason, 1976). Verbal stimulation promotes the development of language skills, including receptive vocabulary. The Consortium of Longitudinal Studies (cited in Schweinhart & Weikart, 1980) documented improved language ability for those children who have been placed in school or educational settings. Investigation by Clark-Stewart (1985) supported a relationship between daytime care settings and performance on measures of school readiness. According to Clark-Stewart (1985) children placed in educational settings scored higher on preschool assessments than children experiencing at-home-care by a non-relative. Schwartz (1983) supported the concept that children in non-group settings, cared for by non-relatives, receive less stimulation than children placed into educational group settings.

Implications for Future Study and Recommendations

While the relationship between children's experiences in day-care settings and performance outside those settings has been established by the research, many of the results anticipated in this study were found not to be statistically significant. The main effect between receptive language and educational group setting supports
research that states that children placed in educational group settings are most often exposed to a variety of educational and verbal development opportunities which are most closely related to school readiness. According to Caldwell (1974), the most dramatic differences between children in educational settings and non-parent based settings, such as sitter care, occur in children from low income families. The children, in this study, for the most part, represented middle class families. These children were from backgrounds where preliteracy skills were stressed and were less likely to demonstrate differences that were as statistically significant as children from low income families who had been placed in educational settings, prior to school entry (Caldwell, 1974).

In addition, the main effect found in this study supported the research which states children in educational group settings score consistently higher on preschool assessments. Such children demonstrate higher developmental levels as well. Children in this study who had experienced educational group settings demonstrated consistently higher receptive language scores on the PPVT-R than children in non-parent based settings.

The goal of the Michigan Pre-primary study, developed by the IEA, was to assess the role that out-of-home settings play in the development of children. Mean scores on the GSRST and PPVT-R reflect children's ability to handle
basic school readiness tasks and receptive language. The settings experienced by the children, carefully determined through the interview process, provide information useful to program planners, parents and school policy makers. An additional goal of the IEA study of preprimary children was to advance knowledge and understanding of 4-year-olds throughout Michigan, in order to improve the capabilities of participating agencies, institutions and organizations which serve preprimary children in Michigan. Further study in this area could center around more specific examination of settings in relationship to less broad-based categories. The nature of the program offered in educational group settings requires examination in light of quality preschool curriculum. In addition, more specific examination of preliteracy activities in relationship to school readiness would also be helpful.

Chippewa Valley Schools needs to further assess the effects of out-of-home care in potential students. Specifically, children whose preschool experiences have been spent in sitter or group day care could participate in a conjunctural study of school performance or achievement. The phenomena of the group non-educational setting needs to be explored as to what in this setting category contributes to higher receptive language and school readiness measures. The nature of social relationships in this setting category may be worth exploration.
In addition, an examination of GSRST subtest scores would assist the district in determining a relationship between specific basic readiness skills and out-of-home settings experienced by 4-year-olds. Setting categories and placement recommendations as to developmental kindergarten, regular kindergarten, or special needs programs would also be of interest. It is not recommended that out-of-home setting category be a single determiner in placing children in entry level programs. This is due to the number of variables which contribute to whole child. However, certain gaps in preschool experience based on setting category can be filled in the appropriate entry level program. All information contributes to an understanding of the incoming student.

Chippewa Valley should continue to look at GSRST and PPVT-R to evaluate incoming students. Since these two measures do not evaluate every necessary variable for school success, attention should be given to preprimary setting and setting effects.

It is further recommended to utilize this study as a basis for a future study in the same general area of concern. Similar studies using similar and non-similar demographic data would be useful in determining the reliability of this study. In addition, a follow-up study of these students in relationship to school achievement, program placement and retention rate would be of
additional interest.
Appendix A

Parent Consent Form
Chippewa Valley Schools
Parent Consent Form

Chippewa Valley Schools is participating in a regional study to determine the relationship between out-of-home care settings your child may have experienced before entering school and school readiness. This information will assist Chippewa Valley Schools in planning pre-kindergarten and kindergarten programs. In order to determine this information, you are requested to participate in a short interview and allow your child's test results on the Gesell Test of School Readiness and Peabody Picture Vocabulary Test to be incorporated into this study. Neither your name nor the child's name will be used. Participation in this study is voluntary and has no effect on your child's kindergarten placement. You may discontinue participation at any time.

If you have any questions, please contact the Superintendent of Schools

Sincerely

George DePillo
Superintendent of Schools

I agree to participate in this project by responding to the interview questions and allowing my child's test results to be incorporated into the regional study.

I understand that neither my name nor my child's name will be used

Signature

Child's Name
Appendix B

Parent/Guardian Interview
PARENT/GUARDIAN INTERVIEW
INTERNATIONAL CATEGORIES
(Required core items)

Part I

Child's Present Daytime Caretaking Experiences

1. WHAT IS HIS/HER RELATIONSHIP/TYPe OF PLACE IS IT?

Categories
1. Own home with parent.
2. Own home with relative other than parent.
3. Own home with non-relative (e.g., babysitter, nanny, maid, etc.)
4. Other home with relative.
5. Other home with non-relative.
7. Group setting - primarily educational.
8. Other.
9. Don't know.
10. No response.

2d. HOW DOES (CHILD’S NAME) USUALLY GET THERE?

Categories
1. On foot (walking).
2. By private care.
3. By public transportation (e.g., bus, streetcar, etc.).
4. Other (e.g., bicycle, etc.).
5. Don't know.
6. No response.

6. WHAT ARE YOUR MAJOR REASONS FOR USING THIS CARETAKING ARRANGEMENT?

Categories
1. Work
2. Self
3. Child
4. Other family member
5. Government
6. Other
7. Don't know
8. No response
7. ON WHAT DID YOU BASE YOUR DECISION TO USE THIS CHILD CARE ARRANGEMENT?

Categories
1. Cost
2. Convenience (e.g., proximity, ease of transportation, etc.)
3. Positive information about setting/recommendation.
4. Characteristic of setting (e.g., child-adult ratio, academic orientation, etc.).
5. Only setting available.
6. Other.
7. Don't know.
8. No response.

10. DO YOU HAVE ALTERNATIVE ARRANGEMENTS AVAILABLE?

Categories
1. Relative
2. Neighbor/Friend (non-relative)
3. Other (e.g., different arrangements each time, etc.)
4. None
5. Don't know
6. No response

15. WERE THERE ANY OTHER CARETAKING ARRANGEMENTS THAT YOU CONSIDERED?

Categories
1. Own home with relative.
2. Own home with non-relative (e.g., babysitter, nanny, maid, etc.).
3. Other home with relative.
4. Other home with non-relative.
5. Group setting - primarily child care.
6. Group setting - primarily educational.
7. Other (e.g., mother is only caretaker).
8. Don't know.
9. No response.

PART III

16. WHO OR WHAT AGENCY, IF ANY, SPONSORS (CHILD'S NAME) CARETAKING SETTING?

Categories
1. Educational
2. Government Agency
3. Religious Group
4. Military Institution  
5. Business Organization  
6. Parent/Volunteer/Neighborhood Organization  
7. Private  
8. Other  
9. Don't know  
10. No response  

18a. ARE THERE PLANNED ACTIVITIES?  18b. WHAT ARE THEY?  

Categories  
1. Letters, reading, writing.  
3. Play with other children, share.  
4. Paint, draw, sing.  
5. Field trips.  
6. Routine activities, lunch, self-care.  
7. Other.  

19a. ARE THERE SPECIAL SERVICES PROVIDED SUCH AS MEDICAL, MEDICAL EDUCATION OR SOCIAL SERVICES?  
19b. WHAT ARE THEY?  

Categories  
1. Medical (e.g., nurse).  
2. Social (e.g., social worker).  
3. Special education (e.g., speech therapist).  
4. Transportation.  
5. Other.  
6. Don't know.  
7. No response.  
8. None.  

20. DURING PAST 6 MONTHS, TYPES OF CONTACT BETWEEN YOU AND PRIMARY CARETAKER?  

Categories  
1. Face-to-face/discussion.  
2. Phone/mail.  
3. Group meeting.  
4. Parent as active participant in setting.  
5. Parent and teacher in other setting.  
6. None.  
7. Don't know.  
8. No response.
PART VI

35. WHAT IS YOUR JOB TITLE? WHAT ARE A FEW OF YOUR MOST IMPORTANT JOB DUTIES?

Categories

1. Unskilled worker (e.g., farm hand).
2. Semi-skilled worker (e.g., nurse's aide).
3. Skilled worker (e.g., carpenter).
4. Clerical, technical (e.g., secretary).
5. Semi-professional (e.g., registered nurse).
6. Professional (e.g., doctor).
7. Self-employed (e.g., store owner).
9. Retired.
10. No paid employment.
11. Don't know.
12. No response.

46. DOES MOST OF YOUR MONEY COME FROM:

Categories

1. Employment
2. Relatives
3. Public
4. Pension
5. Other
6. Don't know
7. No response

47. WHAT IS YOUR HOUSEHOLD'S APPROXIMATE ANNUAL INCOME FROM ALL SOURCES?

Each country will need to develop 4 categories in relationship to the average national income for the country.

1. Subsistence level
2. Low
3. Middle
4. High
Kindergarten Screening

Child's Name ______________________

Gesell Subtests

Blocks
Copy Forms
Letters & Numbers
Incomplete Man.
Gross Motor

Age Equivalent

Peabody Picture Vocabulary Test

Percentile
Age Equivalent
BIBLIOGRAPHY


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