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A STUDY IN THE EFFECTIVENESS OF A DEVELOPMENTAL KINDERGARTEN IN  
PROMOTING ACADEMIC ACHIEVEMENT IN PUPILS IDENTIFIED AS  
DEVELOPMENTALLY NOT READY FOR SCHOOL

by  
Lynn A. Wildrick

A THESIS

Submitted in partial fulfillment of the requirements of the  
Master of Arts Degree in the Graduate Division  
of Rowan College  
1996

Approved by \_\_\_\_\_  
Dr. Stanley Urban

Date Approved May 6, 1996

## ABSTRACT

Lynn A. Wildrick

### A STUDY IN THE EFFECTIVENESS OF A DEVELOPMENTAL KINDERGARTEN IN PROMOTING ACADEMIC ACHIEVEMENT IN PUPILS IDENTIFIED AS DEVELOPMENTALLY NOT READY FOR SCHOOL

1996

Thesis Advisor: Dr. Stanley Urban

Master of Arts in Learning Disabilities

The purpose of this project was to determine if participation in a year long developmental kindergarten prior to school entry would prove beneficial in promoting academic achievement. A screening of all kindergarten age-eligible children the spring prior to school entry, utilizing the Childcraft DiAL-R Screening Test, identified students considered to be developmentally young. The subjects in this longitudinal study were comprised of identified students that either participated in the developmental kindergarten prior to school entry or, due to parental objections, chose to go directly into the traditional kindergarten. Outcome measures utilized included teacher assigned report card grades as a functional measure, as well as the Iowa Test of Basic Skills as a formal measure.

The results of the functional measure indicated that the developmental kindergarten experience did prove beneficial in helping students acquire the skills necessary for academic achievement. The results of the formal measure proved inconclusive.

MINI-ABSTRACT

Lynn A. Wildrick

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IN PROMOTING ACADEMIC ACHIEVEMENT IN PUPILS IDENTIFIED AS  
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The purpose of this project was to determine if children identified as developmentally not ready for school would benefit from a year long developmental kindergarten prior to entering the traditional kindergarten. A functional outcome measure, teacher assigned report card grades, indicated that the developmental kindergarten experience was beneficial in promoting academic achievement.

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## Chapter One

### Introduction

#### Need

The issue of school readiness has been the focus of much controversy over the past few decades. Although readiness heads the list of the nation's six educational goals, authorities are still unable to agree on a definition of readiness [Johnston, 1992]. It is not the intent of this project to define readiness nor will it propose objectives to reach this goal. The goal of this research is to investigate the efficacy of a developmental kindergarten program in enhancing school readiness in children identified as developmentally not ready for school.

Historically, school entry has been viewed as a milestone every child encountered upon reaching his or her fifth birthday. Schools assumed the attainment of a certain age indicated readiness for the work and demands that the classroom required of pupils at that given age [Ilg, 1985]. When determining whether a child possesses school readiness, using chronological age alone causes difficulties since behavior that is supposed to be typical at a given age is only an average, or guideline, to help determine when the behavior can be expected. Problems develop when the average is determined to be the standard [Ilg, 1985]. Often the child's individuality is ignored when chronological age is the only standard utilized to determine school entry or placement. In addition, today's high-tech, fast moving society offers

a kindergarten curriculum that often resembles those previously found in most first grades of the past. Now, more than ever, chronological age alone may not be the sole determining factor indicating readiness for school [Uphoff, 1990].

When looking at the concept of developmental readiness, many areas of functioning are considered in order to determine a child's developmental age. The concept of developmental age is more of a qualitative concept than it is quantitative. It is not numerically derived and therefore is subject to clinical judgement [Ilg, 1985]. It is more accurately described as a composite of the child's whole development [Carll and Richard, 1983]. While cognitive functioning and potential are considered, they are not the sole aspects researchers considered as indicators of school readiness [Wood, Powell, and Knight, 1984]. Equally important are the child's physical development, social development, emotional development, and general language development [Wood et. al., 1984]. These skills are considered to be more accurate indicators of a child's overall developmental readiness for school than the specific level of cognitive functioning.

In attempting to try to meet the needs of pupils identified as developmentally not ready for school, some schools have restructured their kindergartens into a two-tier program. The two-tier program consists of a traditional kindergarten program preceded by a year long alternative program, referred to as a developmental kindergarten [Morado, 1987]. These alternative programs provide an intervention year prior to the child actually entering kindergarten. Although the pupils' schooling is extended by an additional year, the general consensus among the proponents of the developmental kindergarten is that the additional year would alleviate the need for future educational interventions and allow the pupils to experience academic success [Uphoff and Gilmore, 1985].

Time alone, though, is not the only contributing factor to increasing school readiness. During the additional year prior to entry into kindergarten, these children are instructed

utilizing a specially designed kindergarten curriculum appropriate to their developmental level [Uphoff and Gilmore, 1985]. However, critics of the 2-tier kindergarten program believe that they do not succeed in providing academic benefits. It has been reported that any benefits students gain by participating in developmental kindergartens are short-term and generally vanish within a few years.

#### Purpose

The purpose of this study is to determine if pupils identified as being developmentally not ready for school would benefit from an additional year in a developmental kindergarten prior to entering the traditional kindergarten program.

Indicators of being developmentally not ready for school could include delays in the areas of physical well-being, emotional maturity, social confidence, language richness, or general knowledge.

#### Hypothesis

Children of kindergarten age who have been identified as developmentally not ready for school will demonstrate higher academic achievement if they participate in a year long developmental kindergarten program prior to entering the traditional kindergarten program than similarly identified pupils who enter the traditional kindergarten program without a year in the developmental kindergarten program.

### Definition of Terms

**developmental age** - The age at which the child functions as a total organism. The social, emotional, intellectual, and physical components of the individual are interdependent [Ilg, 1985]. The child's developmental age may or may not correspond with his chronological age. A displayed range of behaviors can be averaged in order to obtain a developmental age - the age where a child sustains or is grounded [Carll and Richard, 1983].

**developmental kindergarten** - This term refers to the practice of screening specific developmental areas [visual, motoric, language, behavior, social, emotional] in pupils entering kindergarten and placing them in separate kindergarten programs on the basis of this assessment. Many times this involves placing developmentally immature children in programs that require a two-year route to first grade. The developmental kindergarten is based on the belief that developmental age should be the basis for school placement, not chronological age [Slavin, Karweit and Wasik, 1993].

**developmentally not ready for school** - Children identified as developmentally not ready for school demonstrate delays in the area[s] of physical well-being, emotional maturity, social confidence, language development - both receptive and expressive, or general knowledge resulting in a developmental age that does not correspond with the student's chronological age. Specific behaviors include impulsiveness, inattentiveness, fidgetiness, poor social and emotional adjustment, and the inability to recognize and name colors, letters, and numbers (Slavin et. al., 1993).

**school readiness** - The ability to cope and sustain within the school environment on an academic basis as well as physically, emotionally, and socially without undue stress [Carll and Richard, 1983].

**school success** - Achievement without undue stress. Learning with enough spirit and energy left over to develop into a well-integrated individual [Carll and Richard, 1983].

## Chapter Two

### Reviewing the Literature

The kindergarten was first introduced in the United States around 1860 as a private, preschool innovation and was considered a radically new approach to education [Ross, 1976]. In order to understand the evolution of this kindergarten into its present day two-tier system, it seems relevant to examine it from a historical perspective.

Friedrich Froebel introduced the kindergarten concept and developed the first kindergarten program in Blankenburg, Germany, in 1837, about twenty years prior to its introduction into the United States [Snyder, 1972]. Earlier in his career he had visited the Yverdon school of Swiss educator Heinrich Pestalozzi. This school's innovative system, which was based upon the principle of observation, impressed Froebel. Pestalozzi believed that each child's need to study his environment was the basis of his education. Froebel later combined this principle of observation with allowing the child to actually become an active participant. His belief was that this allowed the child to develop his unique abilities and to express his own creative impulses [Ross, 1976]. The kindergarten concept was developed in response to Froebel's belief that the traditional schools concentrated too heavily on developing the child's intellect through reading, writing, and memorization. He believed that the earliest years of a child's life were the most important since the foundation for future

learning was laid during this time and each additional phase of education must build on a child's previous development. He concluded that play was the most natural way for a young child to learn. His kindergarten provided a child-centered, preschool curriculum for 3-7 year old children that was aimed at revealing and balancing aspects of each child's physical, intellectual, and moral development.

The keystone of Froebel's philosophy was the unity of God, man, and nature [Snyder, 1972]. Because this unity was so central to Froebel's thinking, the care of plants and animals played an important role in his kindergarten. He believed that adults were to nurture the love of God in children and to help each child reach his full potential. In turn, children would nurture all living things [Snyder, 1972]. The literal translation of kindergarten, a garden of children, illustrates how Froebel equated the nurturing of children to flowers thriving in a garden.

Froebel devised three categories of activities that he utilized in his kindergarten. The first category comprised the "Gifts" or playthings [Snyder, 1972]. These consisted of soft rubber balls covered with brightly covered yarn, wooden spheres, cubes, and cylinders. Some of the wooden objects were whole and some were dissected into parts. Initially the children would handle them as directed and later play with them on their own initiative [Ross, 1976].

The second category in Froebel's kindergarten consisted of the "Occupations" or handiwork activities [Snyder, 1972]. These included such activities as paper cutting, paper weaving, stringing wooden beads, outlining shapes of birds or flowers in cardboard by threading colored yarn through holes around the shape of each natural object, and laying lentils on the table in geometric forms [Ross, 1976].

The third category was comprised of songs, games, stories, and gardening [Snyder, 1972]. These activities were included in a book Froebel wrote and utilized in his kindergarten

called "Mother Play". It contained verses and songs that he felt would bring a mother and child closer together. The simplest songs had to do with the child's own body and referred to his fingers, toes, and ears [Ross, 1976]. The general procedure utilized and taught by Froebel was that first the teacher demonstrated, then the children imitated, and finally the children produced freely on their own [Snyder, 1972]. His classroom was noted to have a large circle painted on the floor to guide children in playing singing games, circle games, stories, and finger plays. The next step was to have the Mother Play move outward to things around the child, such as the clock, weather vane, grass cutter, and pigeons. All the while having the songs' words and imitative movements going together. The children also sang and played at being carpenters, bankers, charcoal burners, and wheelwrights - some well-known occupations of that time [Ross, 1976]. The final group of songs had to do with ethical values and consisted of songs like those of the good Knight ready to help others.

While the activities in these three categories did restrict the complete freedom of the child, they did offer some structure in which learning could take place. Froebel believed that they also provided outlets for self-expression while offering children the opportunity to develop manual dexterity and relationships with nature.

One of Froebel's most significant contributions to education was his appreciation of the value of play in education. He has stated that during childhood, play was never "trivial", but was rather "serious and deeply significant" (Ross, 1976). He urged parents to cherish and encourage play. He believed that in the child's free choice of play, his mind's future life was revealed. Froebel regarded play as the "highest level of child development" (Ross, 1976). The purpose of the curriculum that he devised for kindergarten was to help each child unfold his abilities by directing his playing. In the process, Froebel hoped the child would gradually carry-over the joy that he felt while playing into his future attitudes toward work and the rest of his school activities.

The first kindergarten in the United States is thought to have been started in Watertown, Wisconsin, in 1856. It was a small, private, German-speaking kindergarten for the family and friends of its founder, Margarethe Meyer Schurz [Snyder, 1972]. She had been trained in Germany by Friedrich Froebel and utilized his methods and materials. However, it was through the activities of Elizabeth Palmer Peabody that Froebel's ideas were widely recognized in the United States. Elizabeth Peabody first heard about the kindergarten system in 1859 from Margarethe Meyer Schurz at the Boston home of a mutual friend and was fascinated by Froebel's precepts as well as Margarethe's own experiences in kindergartening. Elizabeth became one of Froebel's earliest and most active American kindergarten pioneers [Ross, 1976].

By the end of the 1890's, the idea of kindergarten was widely accepted. School Boards in many cities included kindergartens in their school systems and most respected normal schools, teacher training institutes of the day, had kindergarten departments [Ross, 1976]. As programs developed in the realm of the public school system, kindergarten teachers began to advocate for changes in the curriculum. The building gifts were retained, but they were enlarged and additional materials for occupations were introduced. Many of them were changed in order to make them more realistic to the children, ie. using policemen and firemen to teach about courage rather than playing games about knights and castles.

As educational leaders sought to reform the American Educational system, the kindergarten made important contributions in several ways. The new ideas and materials employed in Kindergarten programs helped to change the existing rigid formalism and discipline of the primary grades. Even today, many psychologists, social workers, and educators are returning to some of the earlier positions on matters such as conceptual learning through play and the efficacy of teaching reading to preschool children [Ross, 1976].

Nationally, the number of kindergartens in public schools spiralled in the years before World War I with half-day programs being the norm. Since those days, educational reform has brought about many changes. The schools became concerned that the kindergarten programs were not preparing children for success in the primary grades and, consequently, most kindergarten programs of today bear little resemblance to Froebel's kindergarten [Meisels, 1989]. While the concept of play still exists in today's kindergarten, the curriculum seems to be enmeshed with paper and pencil tasks, phonics, mathematics, and penmanship. The result appears to be a harmful escalation and narrowing of the kindergarten curriculum (Hitz and Richter, 1993). Due to inappropriate curriculum and expectations, it has been noted that schools no longer have the responsibility of being ready for a child's entry, but rather it appears as though the children now bear the responsibility of being ready for school [USA Today, 1990]. Leading experts in the teaching of reading such as Nila Barton Smith and George D. Spache have remarked that formal reading readiness is contraindicated in kindergarten. They mutually agree that kindergarten should be a place for children to be exposed to formal language experiences, not reading readiness [Ross, 1976]. In terms of addressing the expanding kindergarten curriculum, the Ypsilanti Head Start longitudinal study clearly shows that preschool programs are more successful with play as the vehicle for learning. More startling, though, was the fact that this mode of instruction had a major, positive impact on the children's future success. The American Academy of Pediatrics has expressed concern regarding the dramatic increase of "stress-related" symptoms in young school-aged children. They believe that the pressure for academic achievement may make learning stressful and may also delay social skills [Uphoff and Gilmore, 1985].

The concept of the "unready" child is really not a new concept. Ilg and Ames had already published research on the topic in 1951. Additionally, studies conducted by Forester as far back as 1955 reported that very bright pupils who lacked readiness due to young

chronological ages never realized their true potentials. These pupils tended to be both physically immature as well as emotionally unstable, evidenced by frequently crying without provocation. Deficits were noted socially as these students seldom exhibited leadership. From junior high school on, 50% of these young, very bright students earned only "C" grades. Conversely, for the most part, the very bright, late-school-entrance group excelled throughout their entire school careers. Results of this study also led the researcher to conclude that early entry to school may not only result in school maladjustment, but may even have an adverse effect on the student's adult life [Uphoff & Gilmore, 1985].

Additional studies in 1957 identified the problem of students not ready for school. Researchers at that time attributed the escalation of the kindergarten curriculum to the Russians' launching of Sputnik and the impending space race [Uphoff & Gilmore, 1985].

Mawhinney's study, published in 1964, reported on why schools in Grosse Pointe, Michigan had abandoned their early entrance program for very bright children. The result of data obtained from a fourteen year longitudinal study of participating children in the program revealed that nearly one-third of the participants turned out to be poorly adjusted and nearly three out of four were considered to be entirely lacking in leadership ability. Academically, one in four had either below average performance in school or had to repeat a grade. In addition, at the end of the study only one-twentieth were judged to be outstanding leaders [Uphoff & Gilmore, 1985] .

Research conducted and published by Ames and Iig in 1979 led them to the conclusion that chronological age was no guarantee of school readiness. They felt that behavioral age, not chronological age, should not only determine the time of school entrance, but would also dictate the child's subsequent promotions.

As concern over some students' lack of school readiness continued to escalate, it became apparent that, in some cases, the specific nature of the kindergarten itself should

change. A survey of 7000 kindergarten teachers in 1991 reported that 35% of the students starting school were unprepared to learn. 42% of these teachers also reported that children appeared less ready to learn than the children who entered school five years earlier. Most of the 7000 teachers felt the children lacked basic skills in vocabulary and sentence structure necessary for school success [Chira, 1991].

Rather than adjust the existing kindergarten program in order to accommodate different levels of school readiness, an increasing number of school districts have started to provide an extra year of kindergarten for children who have been judged to be not ready to begin kindergarten, even though they are age-eligible [USA Today, 1990]. The two year kindergarten has become one response to the diversity in young children's rates of development and cumulative experiences [Robinson, Rose, and Jackson, 1986]. School districts that employ the two year kindergarten typically screen incoming kindergarten pupils prior to school entry. Current research indicates that local districts employ many various screening instruments to identify at risk pupils. The most commonly cited types of instruments are commercial tests and inventories, locally developed measures, and any combination of subtests from two or more instruments [Morado, 1987]. Based on the results of this screening, some of the pupils are placed in developmental kindergarten classes for one year prior to the regular kindergarten program, which results in a two-year route to first grade.

There are many variables likely to affect a child's readiness and school success. Kindergarten screening usually involves considering the child's physical well-being, emotional maturity, social confidence, language richness, and general knowledge as indicators of school readiness [Johnston, 1992]. A child's cognitive behavior alone, while important, is not enough. Developmental readiness for school success is a concept that considers cognitive functioning and potential as well as the previously mentioned indicators. A study by Wood,

Powell, and Knight [1984] regarding the effectiveness of the Gesell School Readiness Screening Test as a valid predictor of school success, reported that the chronological age of children entering kindergarten is unrelated to eventual success or failure in kindergarten. The developmental age provides a more useful predictive measurement of later school performance than does chronological age [Wood et. al., 1984].

The first and second years of kindergarten differ in both the instructional approaches utilized as well as in the nature of the curriculum. Carolyn Morado [1987] conducted a study on the availability, characteristics, and operations of kindergarten programs, as well as the need to formulate policy issues pertaining to developmental kindergartens. She felt that developmental kindergarten programs seemed to have developed rapidly over the past few years, were largely under local school district initiative, and served children without definition or regulation by state departments of education. The current practices in 170 school districts with developmental kindergarten programs in Michigan at the close of the 1984-85 school year were studied. Findings indicated that many areas of the program operations were widely diversified with no clear-cut standard procedures. The schools investigated determined school readiness on the basis of commercial tests, locally-derived instruments, or combination tests. Typically children were selected for the developmental kindergarten programs on the basis of a single screening administered three to five months prior to the children's scheduled school entry. Most developmental kindergarten programs in the study tended to supplement the regular kindergarten program and added an additional year to the children's educational process. Regular kindergartens were attended after students completed a year in the developmental kindergarten. Kindergarten teachers in the study reported markedly different expectations for the children in developmental kindergarten and regular kindergarten programs. The author found this to be of great concern and feels this may

contribute to the escalation of school concerns that increasing numbers of children entering school are not ready for the regular kindergarten curriculum [Morado, 1987].

In the study, 213 developmental kindergarten teachers rated 27 selected learning activities in terms of their importance in a developmental kindergarten program and a regular kindergarten program. The teachers' ratings suggest that the curricular expectations for regular kindergarten programs, while including traditional kindergarten learning activities, have expanded to include many academically oriented activities as well. Conversely, teachers reported that children lacking school readiness would benefit most from a curriculum that primarily emphasizes traditional kindergarten activities [Morado, 1987].

Eight social behaviors were also rated to the extent they were deemed to be typical of children in the developmental kindergarten program and children in the regular kindergarten program at the time each group of children entered school in the fall. The social behaviors rated include: adapting to new situations, sharing and taking turns, using self-control, interacting appropriately with peers, utilizing adults as resource persons, listening attentively, following directions, and contributing to discussions [Morado, 1987]. Teachers reported dramatically different perceptions of children's social maturity at the time they entered school for the children in the developmental kindergarten and regular kindergarten programs. These teachers felt the perceived social maturity of a child at the time of school entry may be closely related to school readiness. The teachers' ratings suggest that the children who do not appear to be socially competent are the children that have been identified as not ready for the regular kindergarten program [Morado, 1987].

A study of a two-tier kindergarten program in Virginia, conducted by Nancy Phillips [1990], asked if the experience of a developmental kindergarten program was worth the additional year the participants must spend in the educational process. This study examined several facets of the growth of the students in the developmental kindergarten in order to

assess and compare academic achievement and positive self-perceptions with that of other groups of at-risk students. Data regarding developmental kindergarten students (DK), regular kindergarten pupils who had subsequently been retained (RT), and regular kindergarten pupils who were not retained (NRT), was analyzed. Students were considered to be at risk for school failure based on an analysis of many factors such as socio-economic status, including family background [level of parental education and parental occupation], demographic information, and free or reduced lunch eligibility.

The study was conducted in a district starting a developmental kindergarten pilot program during the fall of 1985. The district was located near a major city in Virginia and was rather large, evidenced by a total kindergarten enrollment that year [1985-86] of 2,463 pupils that were representative of a cross-section of the pupils across the United States. The previous May [1985], students were screened utilizing the Cooperative Preschool Inventory [PCI] - a readiness screening test, as well as consultations with parents, and administrative observations. 204 students were selected for the developmental kindergarten based on their performance falling into the lowest third on the PCI and having a birthday not occurring in the first quarter of the school year. In addition, 149 pupils were selected for inclusion in the non-developmental program group for the study based on performance on the fall ability test ranking in the lowest range as well as having a birthday that did not occur in the first quarter of the school year. Based on current placement, this group of non-developmental group students was divided into two groups, the retained group [RT] and the not retained group [NRT]. The RT group included students who attended academic kindergarten and were retained sometime between kindergarten and second grade. The NRT group included students who attended academic kindergarten and were never retained. Fall testing [1985] of all kindergarten students utilizing the Primary Mental Ability Tests [PMA] confirmed placements or resulted in placements being adjusted. The school developed local norms for

this instrument and the final placement guidelines were based on these local norms [Phillips, 1990].

In the spring of 1989, the students' fourth year in school, the Iowa Tests of Basic Skills [ITBS] was administered in order to assess academic achievement. The Harter Self-Perception Profile for Children was administered the following fall in order to assess the children's self-perceptions. Data was analyzed by paired comparisons performed across all measurements. The first analyses paired the DK children with the children who attended academic kindergarten programs but were subsequently retained in either kindergarten or first grade. At the end of the four year longitudinal study, both groups of children had completed second grade. Measures of academic outcomes were mean reading, Language Arts, and spelling grade point averages as well as the raw scores of the standardized test measures [ITBS]. Results were significant for all three academic measures in favor of the children who attended the developmental kindergarten programs [Phillips, 1990].

The second set of analyses paired the DK children with similarly at-risk pupils who attended academic kindergarten but did not experience retention, utilizing the same academic measures as above. Since these children were never retained and did not spend an additional year in kindergarten, they had completed third grade at the end of the four year longitudinal study. As with the retained academic kindergarten pupils, results indicated significant effects favored the children in the developmental kindergarten group for all outcome measures [Phillips, 1990].

The third set of analyses compared the effect of the program on children's self-perception in four domains: perceived scholastic ability, social acceptance, school behavior, and global self-worth. When compared to the retained group, the developmental kindergarten group's self-perception measures were significant for more positive perceptions in the areas of school ability, school behavior, and global self-worth. When the

developmental kindergarten pupils were compared to the not retained group, their self-perceptions were only significant in the area of school behavior. Based on these results, the researcher has concluded that the significant findings indicate that there probably were areas where the program had positive effects [Phillips, 1990].

Not all the research, however, has shed such a favorable light on the effects of developmental kindergarten programs. It has been reported that research on two-year programs not only suffer from faulty design, but lack random assignment of subjects or equivalent control groups. At issue is also the perceived failure of researchers to adequately identify the basis of comparison of comparable children of the same age or grade [Robinson et. al., 1986].

Shepard and Smith [1986] reviewed evidence on two-year programs and concluded that programs were ineffective. These sentiments were reinforced by a longitudinal study of the academic effects of a developmental kindergarten [Banerji, 1990]. In this longitudinal study, a matched sample of students in a developmental kindergarten were compared with a group of students who had been recommended for the developmental kindergarten program but did not participate due to parents refusing the placement. The pupils' progress was evaluated after each group had completed the same grade levels, and after equal time in school [when students were the same ages but not necessarily in the same grade]. The results of the study initially showed significant positive differences favoring the children who had attended the developmental kindergarten program. However, it was noted that all these effects vanished after the second and third years in school and suggest the developmental kindergarten programs were ineffective in alleviating future school failure. Similarly, Mantzicopoulos and Morrison [1991] found significant and positive effects for the developmental kindergarten group on reading achievement in same grade comparisons after the second year of kindergarten. Again, these effects faded out at the end of first and/or

second grades, suggesting the benefits of the developmental kindergarten program are short-term [Mantzicopoulos and Morrison, 1991].

#### Summary:

The kindergarten concept was developed by Friedrich Froebel in response to his belief that traditional schools concentrated too heavily on developing the child's intellect through reading, writing, and memorization. Froebel regarded play as the "highest level of child development". Originally the kindergarten curriculum devised by Froebel was intended to help each child unfold his abilities by directing his play.

As kindergarten programs developed in the realm of the public schools, the curriculum began to narrow and escalate in response to concerns that pupils were entering the primary grades unprepared for academic success. More and more schools began to require a certain degree of readiness on the part of the child entering school. This led to the concept of the "unready" child and concerns over some students' lack of school readiness began to grow. Studies conducted in 1979 by Ames and Ilg, concluded that chronological age was no guarantee of school readiness.

The development of the developmental kindergarten was a direct response to concerns over age-eligible pupils judged not to be ready to begin kindergarten. Schools were not prepared to adjust their kindergarten programs in order to accommodate the diverse rates of children's development and cumulative experiences. Consequently, schools began grouping students into a two-tier kindergarten program based on physical well-being, emotional maturity, social confidence, language richness, and general knowledge, as well as cognitive behavior.

Studies conducted on developmental kindergarten programs illustrated various degrees of success of such programs. Morado's study in 1984 reported that the first and second years in the two-tier kindergarten differ in both instructional approaches utilized as well as in the level of teacher expectations [Morado, 1987].

Phillips' study in 1985 compared the participants of a developmental kindergarten to two groups of children: one group of children who had been retained and a second group of children deemed eligible for inclusion in a developmental kindergarten but who did not participate [Phillips, 1990]. It was discovered that after four years in school both the academic achievement and positive self-perception of the children who participated in a year of developmental kindergarten were higher than that of the other two groups compared. Other studies, while noting the positive effects of the programs, felt the effects were short-term. In 1990 Banerji reported initial effects as favoring the children who participated in the developmental kindergarten program. She added that these effects vanished after two to three years in school and concluded that the developmental kindergartens were ineffective in insuring future school success. Mantzicopoulos and Morrison reported similar results in 1991. The positive effects they noted in the developmental kindergarten group faded out at the end of first and second grade.

The majority of the research cited indicates that the developmental kindergarten does offer positive effects in promoting academic achievement. At issue, however, is the effectiveness of these programs in insuring long-term academic success.

## Chapter Three

### Design of the Study

#### Conceptual Format:

This will be a longitudinal study of two groups of age-eligible children identified as being developmentally not ready for school. One group of children participated in a year long developmental kindergarten program while the second group, due to parental objections, did not participate in the developmental kindergarten program and instead entered the traditional kindergarten program.

#### Sample:

The subjects of this study were drawn from incoming kindergarten pupils in a small school district containing grades kindergarten through eighth grade with a total enrollment of approximately 600 pupils. The district, a rural-suburban township containing a moderate amount of heavy industry, is located in southern New Jersey in an area of 9.5 square miles with a population of approximately 5,100 people.

The kindergarten population for the years 1989-1991 was comprised of 120 pupils, represented by 3.33% African American, 3.33% Hispanic, 0% Native American, 0.83% Asian [Eastern Indian], and 92.5% Caucasian pupils. Although the general

kindergarten population is not representative of the national population, it does reflect the racial distribution of the local population.

This district initiated a developmental kindergarten program in the fall of 1989. The spring previous to kindergarten enrollment, all children registered to begin kindergarten the following fall were screened in order to determine placement [see Table 1].

#### Group Selection:

All subjects were selected through screening tests administered in the spring of the year preceding admission to kindergarten. In addition, parent interviews/input as well as teacher observations on visitation day were important considerations in determining placement. All subjects selected performed below the cut-off score of 73 points on the Childcraft Developmental Indicators for the Assessment of Learning - Revised Screening Test [DIAL-R]. Cut-off points are charted by three month intervals and describe the child's performance in terms of having potentially advanced skills [1.5 or more standard deviations above the mean], average skill development [1.5 standard deviations in either direction from the mean], or target potential school problems [1.5 or more standard deviations below the mean]. These calculations are based on a standardized sample of 73% white and 27% non-white pupils [Mardell-Czudnowski and Goldenberg, 1983].

Areas assessed by the DIAL-R include motor, conceptual, and language skills.

**Motor Skills** include catching, jumping, hopping, skipping, building, touching fingers, cutting, matching, copying, and the ability to write his/her name.

**Conceptual skills** include naming colors, identifying body parts, counting [both rote and meaningful], positioning, identifying concepts [biggest, hot, full, etc.], naming letters and sorting chips by color, size and shape.

**TABLE 1:**

**KINDERGARTEN SCREENING RESULTS**

Developmental Kindergarten [DK] Recommendations

<u>School Year</u>	<u>Pupils Screened</u>	<u>Recommended for DK Program</u>	<u>Actual DK Participants</u>
1989 - 90	60	21	11 [18%]
1990 - 91	60	16	10 [17%]
<b>TOTALS [1989-1991]</b>	<b>120</b>	<b>37</b>	<b>21 [17.5%]</b>

Language Skills include articulation, giving personal data, memory, naming nouns, naming verbs, classifying foods, problem solving, and forming sentences of various lengths.

#### Procedures:

Testing Schedules - Initial screening for all incoming kindergarten pupils was conducted in the spring preceding the pupils' entry to kindergarten. The instrument utilized in the screening was the Childcraft DIAL-B Screening Test, a standardized screening instrument that determines the developmental age of each child in the areas of language, motor skills, and concepts. On the basis of the test results, students were recommended for inclusion in the developmental kindergarten program or the traditional kindergarten.

Every spring the students were administered the Iowa Test of Basic Skills [ITBS]. The ITBS is a battery of tests that evaluates academic achievement in the areas of reading, mathematics, language, and study skills. The results of this battery of tests were collected for the purpose of this study.

#### Measures:

In this study, eligibility for the developmental kindergarten program was based on students' performance on a screening tool, the Childcraft DIAL-B Screening Test [DIAL-B]. The DIAL-B was developed by Carol D. Mardell-Czudnowski and Dorothea S. Goldenberg and is published by the Childcraft Education Corporation. It is an individually administered standardized screening of motoric, conceptual, and language skills for children between the ages of two and six. The DIAL-B was standardized on a national sample that was stratified based on age, gender, ethnicity, geographic region, and community size. During the spring of 1981, testing sites from all over the country were recruited. Each site had to have a

population of over 50,000 and tested 320 children who were stratified by age, race, and gender.

Construct validity of the DIAL-R was established by measuring the degree to which each task in the screening demonstrated consistent developmental trends within the specific behaviors of the conceptual model. The aggregation correlation of the DIAL-R total score and age yielded a correlation of .98.

The content validity was established by consulting with leaders in the field of child development. During the test's development, research at Northwestern University resulted in the identification of criteria for task selection and scoring. This was accomplished by interviewing kindergarten and early childhood teachers and having them identify behaviors they deemed necessary for school success. All consultants were in total agreement with the test development.

Criterion-related validity was established for both concurrent and predictive qualities. In terms of concurrent validity, the Stanford-Binet Intelligence Scale showed complete agreement in the identification of children in 82.4% of those who should have been identified. As a predictive measure, the DIAL-R proved significant with correlations of .45 to .73 when utilizing other test criterion such as the Metropolitan Reading Readiness Test in kindergarten aged pupils, and the Iowa Test of Basic Skills with first grade pupils.

To establish reliability, the Cronback Alpha Model was utilized to examine the internal consistency of pupils' scores on each component and in the total test. The degree of homogeneity was considered significant with a coefficient of .96.

Test-retest coefficients were also significant for reliability and ranged from .758 to .895, with the average time between test administration being two weeks.

The outcome measures at the end of grades kindergarten, one, two, and three will be used to analyze the effects of a developmental kindergarten program on the children's

academic achievement. Outcome measures that will be used to evaluate students' growth include teacher evaluated report card grades and standardized test scores [ITBS].

One way in which the students' academic achievement will be evaluated will be with a functional measure, teacher assigned report card grades. The mean grades of four grading periods will be utilized as academic indicators. Teacher assigned grades, though subjective in nature, are relatively consistent from teacher to teacher due to specific district guidelines in the criteria for assigning grades. They are also a fairly reliable indicator of the students' classroom functioning on a day-to-day basis.

A formal measure, the Iowa Test of Basic Skills [ITBS] will also be used to evaluate each student's academic achievement. The ITBS is a norm-referenced group administered standardized achievement battery comprised of tests in several subject areas - reading, language, mathematics, and study skills. It was developed by a team of researchers at the University of Iowa and published by the Riverside Publishing Company of Chicago, Illinois. The ITBS was standardized on approximately 170,000 students in grades kindergarten through twelfth grade. The national standardized sample included public, Catholic, and private non-Catholic school pupils in regular core instructional or gifted classes. This also included pupils classified as learning disabled, or slow learners, who participated in regular classes. However, students assigned to special education classes on a full-time basis were excluded from the sample. Schools in the national sample were stratified based on geographic region, district enrollment, and the socio-economic status of the school district [ITBS, 1993].

ITBS scores are reported as raw scores, developmental standard scores, grade equivalents, national percentile ranks, national stanines, and national normal curve equivalents.

### Design/Treatment:

The treatment for this study of program effect was the developmental kindergarten program. The first developmental kindergarten program began operating in the district in the fall of 1989. Children were assigned to the developmental kindergarten based on performance on a screening tool falling below the cut-off of a total score of 73 points. Children participating in the developmental kindergarten spent a year in this program prior to entering the traditional kindergarten. Instruction took place in a small group of similarly identified pupils [average class size - 11 pupils] utilizing a curriculum geared to meet the social, emotional, physical, intellectual needs of children who entered school developmentally young. The developmental kindergarten program also strove to prevent failure and frustration in the child's initial school experience by exposing children to all curriculum areas without the requirement of mastery. Meanwhile, children identified for the developmental kindergarten program who chose not to attend went on to the full-day traditional kindergarten instead. In the traditional kindergarten classes the average class size was 16 pupils and the curriculum emphasized the regular kindergarten curriculum integrated with readiness in reading, writing and mathematics.

An examination of pupil achievement on the ITBS at the end of grades one, two, and three, as well as teacher assigned report card grades in grades kindergarten through third, will enable a comparison to be made between the academic achievement of the developmental kindergarten group to the group of subjects who chose not to participate in the developmental kindergarten.

### Testable Hypothesis:

The review of the literature has, in most cases, documented the success of the developmental kindergarten in helping developmentally young children achieve academic achievement.

Children of kindergarten age who have been identified as developmentally not ready for school will demonstrate higher academic achievement if they participate in a year-long developmental kindergarten program than similarly identified pupils who enter the traditional kindergarten program without a year in the developmental kindergarten program.

### Analysis:

The spring preceding the scheduled admission to kindergarten, all students are screened utilizing the Childcraft DIAL-B Screening Test to determine developmental ages in the areas of motor, language, and conceptual development. Based on the results of this screening, as well as parental interview and teacher observation during classroom visitation, children will be selected for the developmental kindergarten program. These pupils will be divided into two groups - those that actually participate in the year long developmental kindergarten, and those that, due to parental objections, entered the traditional kindergarten without the benefit of the year long developmental kindergarten program.

This study will evaluate and compare the academic achievement of both groups after completion of third grade. This will be accomplished by utilizing both the IIBS and teacher assigned report card grades.

Summary:

This is a longitudinal study involving the evaluation of the effects of a developmental kindergarten program on the academic achievement of age-eligible pupils identified as not developmentally ready for school. The subjects are developmentally young pupils separated into two groups. The first group will have spent a year in a developmental kindergarten for one year prior to entering the traditional kindergarten, while the second group entered the traditional kindergarten without the benefit of a year in the developmental kindergarten program.

The DIAL-R will be utilized in identifying developmentally young children and a norm-referenced test, as well as criterion-referenced data, will be utilized as posttest instruments.

At the conclusion of the study, the posttest data of the two groups will be analyzed and compared in order to determine the students' current levels of academic achievement. The purpose of this comparison is to determine if the year spent in the developmental kindergarten program had a positive effect on students' ability to achieve academically.

## Chapter Four

### Analysis of the Data

#### Introduction

The purpose of this study was to document the effectiveness of an additional year in a developmental kindergarten program prior to entering the traditional kindergarten program in pupils identified as developmentally not ready for school.

The focus of the study was the following testable hypothesis:

Children of kindergarten age who have been identified as developmentally not ready for school will demonstrate higher academic achievement if they participate in a year long developmental kindergarten program prior to entering the traditional kindergarten than similarly identified pupils who enter the traditional kindergarten without a year in the developmental kindergarten program.

In this study, eligibility for the developmental kindergarten program was based on students' performance on the Childcraft DIAL-B Screening Test in the spring prior to entering kindergarten. On the basis of these results, students were recommended for inclusion in

either the developmental kindergarten program or the traditional kindergarten program [see Graph 1].

Two groups of pupils were followed in this study - pupils identified as developmentally not ready for school who participated in the developmental kindergarten program, and children identified as developmentally not ready for school who did not participate in the developmental kindergarten due to parental objections.

The Iowa Test of Basic Skills (ITBS) and teacher evaluated report card grades were utilized as outcome measures of pupil achievement. Based on these measures, academic achievement was evaluated for the identified population in grades one, two, and three.

### Results

Of the initial 37 subjects in the study, 21 participated in the developmental kindergarten program and 16 were recommended for the developmental kindergarten but instead went directly to the traditional kindergarten due to parental objections. Of these 37 subjects, only 14 remained at the conclusion of the study. This was due to children moving from the district or their removal from the regular education classes due to identification and subsequent classification and placement into special education programs [see table 2].

The original 21 subjects participating in the developmental kindergarten moved from the district at an average rate of 62%. Although the school district has historically been characterized as being stable in nature, these results would seem to indicate that, at least as it pertains to the developmental kindergarten group, the population identified as developmentally not ready for school exhibited a tendency to be transient.

GRAPH 1:

**KINDERGARTEN RECOMMENDATIONS**  
DEVELOPMENTAL KINDERGARTEN PROGRAM (DK)

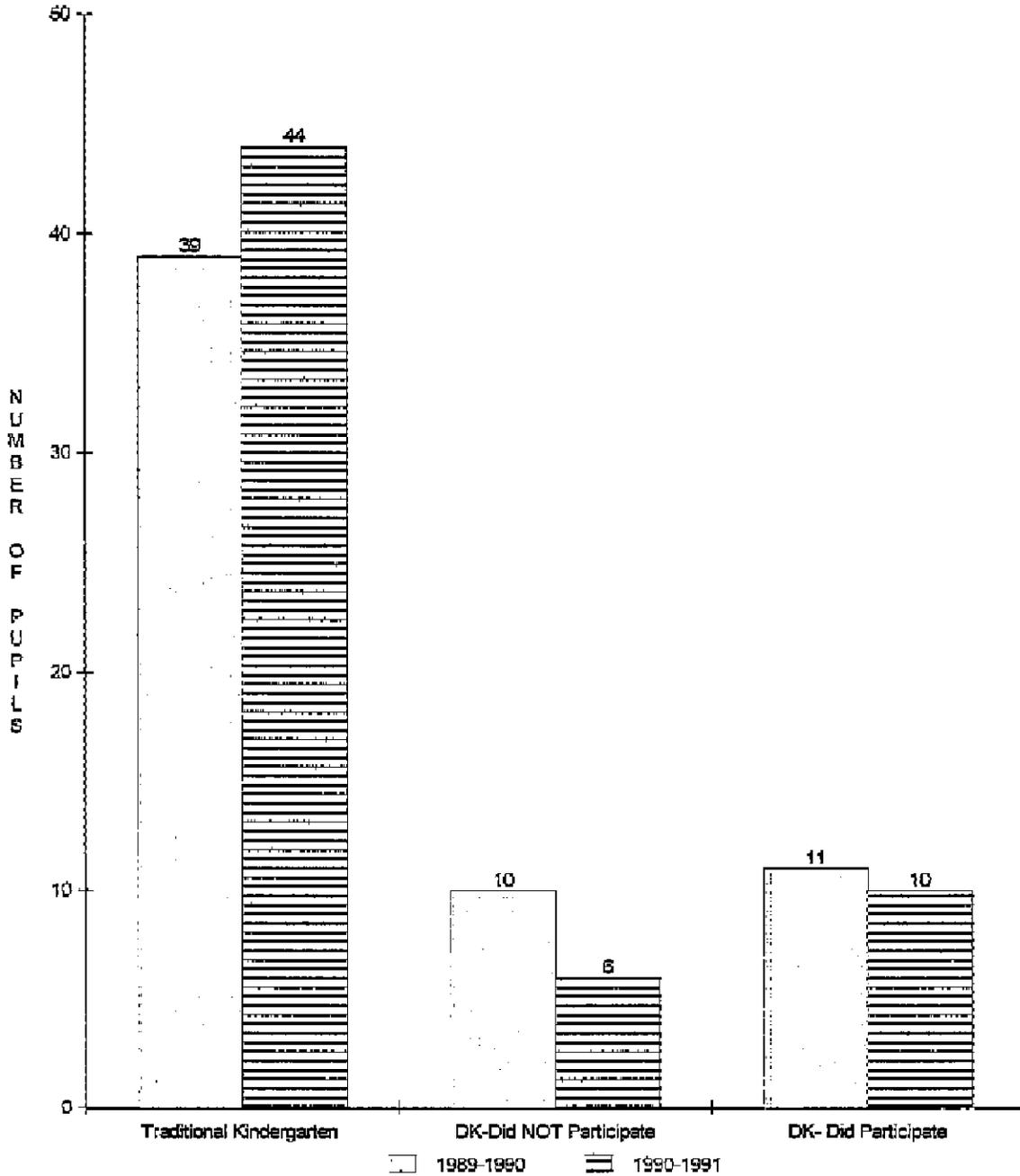


TABLE 2:

SUBJECTS AT CONCLUSION OF STUDYPupils Recommended for Placement in Developmental Kindergarten

	<u>Students Participating</u>		<u>Students not participating</u>	
	<u>1989-90</u>	<u>1990-91</u>	<u>1989-90</u>	<u>1990-91</u>
Original group	11	10	10	6
Pupils moving	- 7	- 6	- 2	- 2
[Classified]	[3]	[0]	[0]	[0]
Remaining pupils	4	4	8	4
Classified	- <u>1</u>	- <u>2</u>	- <u>2</u>	- <u>1</u>
Subjects in Study	3	2	6	3
<b>TOTAL SUBJECTS</b> [1989 - 1991]		<b>[5]</b>		<b>[9]</b>

It seems noteworthy to mention that the classification rate for students identified as developmentally not ready for school appear to be significantly higher than the rate of classification for students recommended for the traditional kindergarten [see Graph 2].

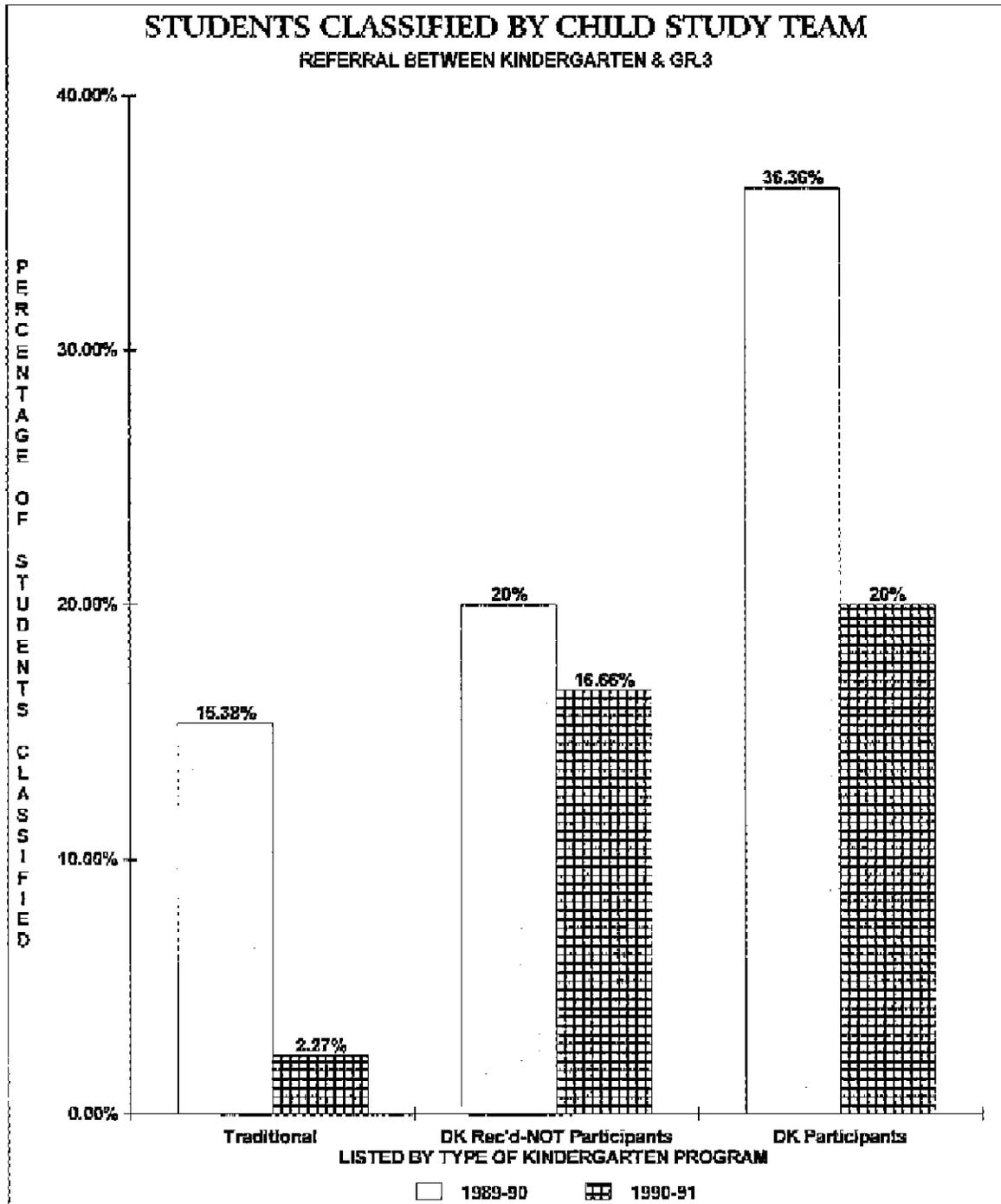
Formal and informal outcome measures were utilized in order to determine student levels of academic achievement in the areas of reading and mathematics. An analysis of these results provided evidence that, until the end of third grade, inclusion in a developmental kindergarten program for one year prior to entering the traditional kindergarten program will result in academic achievement that is equivalent to or higher, as measured by a functional assessment, than that of similarly identified pupils who did not participate in a developmental kindergarten program.

Teacher assigned report card grades were utilized as the informal measure of the pupils' achievement in reading and math. Although subjective in nature, they do provide a fairly accurate measure of the pupils' functioning in the classroom environment on a daily basis.

When utilizing teacher assigned report card grades in order to compare the developmental kindergarten group to the traditional kindergarten group, the developmental kindergarten group appears to have achieved higher academic achievements in grades kindergarten, one, and two. At the conclusion of grade 3, the group that by-passed the developmental kindergarten program appears to have performed slightly better in the classroom than did the group that participated in the developmental kindergarten [see Table 3].

The results of the ITBS were utilized as a formal measure of reading and math achievement. Results of the ITBS were reported as Normal Curve Equivalent scores [NCE]. A NCE is a type of normalized standard score that, like a percentile rank, can range from 1 to 99. NCE scores in the ITBS have a mean of 50 and a standard deviation of 21.06. Scores

**GRAPH 2:**



**TABLE 3**

**FUNCTIONAL MEASURE OF ACHIEVEMENT**

*Pupil Report Card Grades*

**DEVELOPMENTAL KINDERGARTEN PUPILS**

	Kindergarten		Grade 1		Grade 2		Grade 3	
	Reading	Math	Reading	Math	Reading	Math	Reading	Math
DK-1	S	S	S	S	B	B-	81	86
DK-2	S	S	S	S	B	B	86	86
DK-3	S	S	S	S	C	C	85	85
DK-4	S	S	S	S	B	A	95	94
DK-5	S	S	S	S	C	B	82	84

**REGULAR KINDERGARTEN PUPILS**

	Kindergarten		Grade 1		Grade 2		Grade 3	
	Reading	Math	Reading	Math	Reading	Math	Reading	Math
REG K-1	S	S	PS	S	C	B	82	94
REG K-2	S	S	S	S	B	B	87	93
REG K-3	S	S	S	S	A	A	94	96
REG K-4	S	S	S	S	B	C	93	88
REG K-5	S	S	S	S	B	B	89	88
REG K-6	S	S	S	S	C	C+	87	95
REG K-7	NI/S*	NI/S*	S	S	A-	B	87	88
REG K-8	S	PS	S	S	E/B+*	E/B*	79	85
REG K-9	PS/NI*	S/S*	S	S	D+	C	80	76

\* - RETENTION - Second year in this grade

reported as NCEs may be thought of as roughly equivalent to stanines to one decimal place. For example, a NCE of 73 may be interpreted as a stanine of 7.3. NCE scores have been used mainly for reporting test results in Chapter One programs.

When comparing the achievement of the Developmental Kindergarten group to that of the traditional kindergarten group, as measured by the ITBS and reported as NCE scores, the results seem to favor the non-developmental kindergarten group in both reading and math at every grade level from first grade through third [see Table 4].

While compiling the results of this study, it became apparent that a third group of students had emerged. This third group is comprised of the students who were recommended for the developmental kindergarten, did not participate due to parental objections, and were subsequently retained in a grade level between kindergarten and third grade. This group of pupils demonstrated lower academic achievement than the developmental kindergarten participants [see Graphs 3a, 3b, and 4].

### Summary

An analysis of the results of the formal measure [ITBS] and the informal measure [teacher assigned report card grades] indicate that, when utilizing a functional measure, the additional year the developmental group spent in kindergarten prior to entering the traditional kindergarten will result in academic achievement that is equivalent to or greater than that of similarly identified pupils who did not participate in a year long developmental kindergarten.

These findings will be further elaborated on in chapter five.

**TABLE 4**

**FORMAL MEASURE OF ACHIEVEMENT**  
Pupil's *NCE+ Scores* on the Iowa Test of Basic Skills  
+ [Normal Curve Equivalent]

**DEVELOPMENTAL KINDERGARTEN PUPILS**

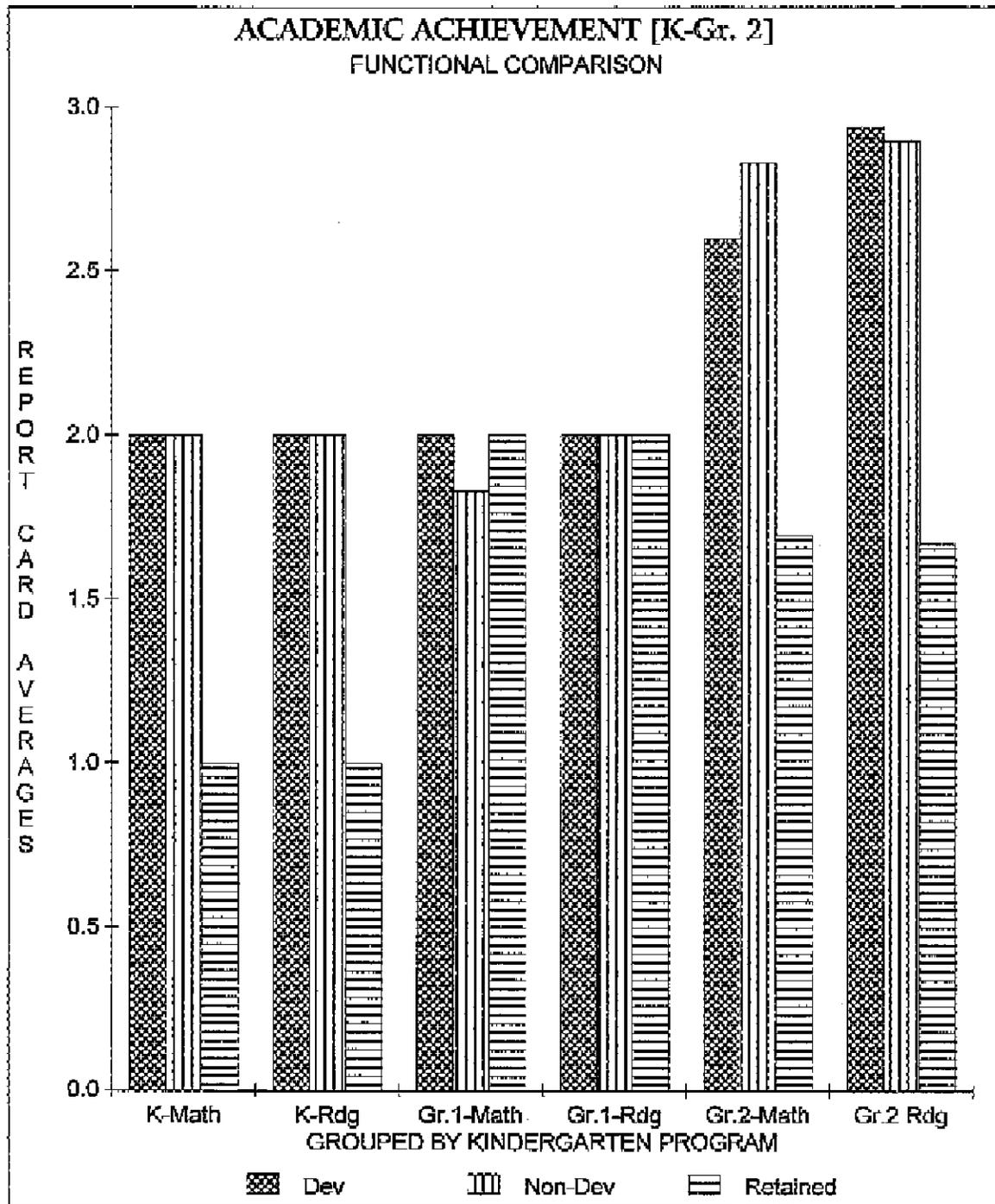
	Kindergarten		Grade 1		Grade 2		Grade 3	
	Reading	Math	Reading	Math	Reading	Math	Reading	Math
DK-1			45	70	33	59	50	51
DK-2			75	90	83	67	66	71
DK-3			57	61	44	59	34	46
DK-4			65	64	79	76	69	66
DK-5			65	70	53	52	45	55

**REGULAR KINDERGARTEN PUPILS**

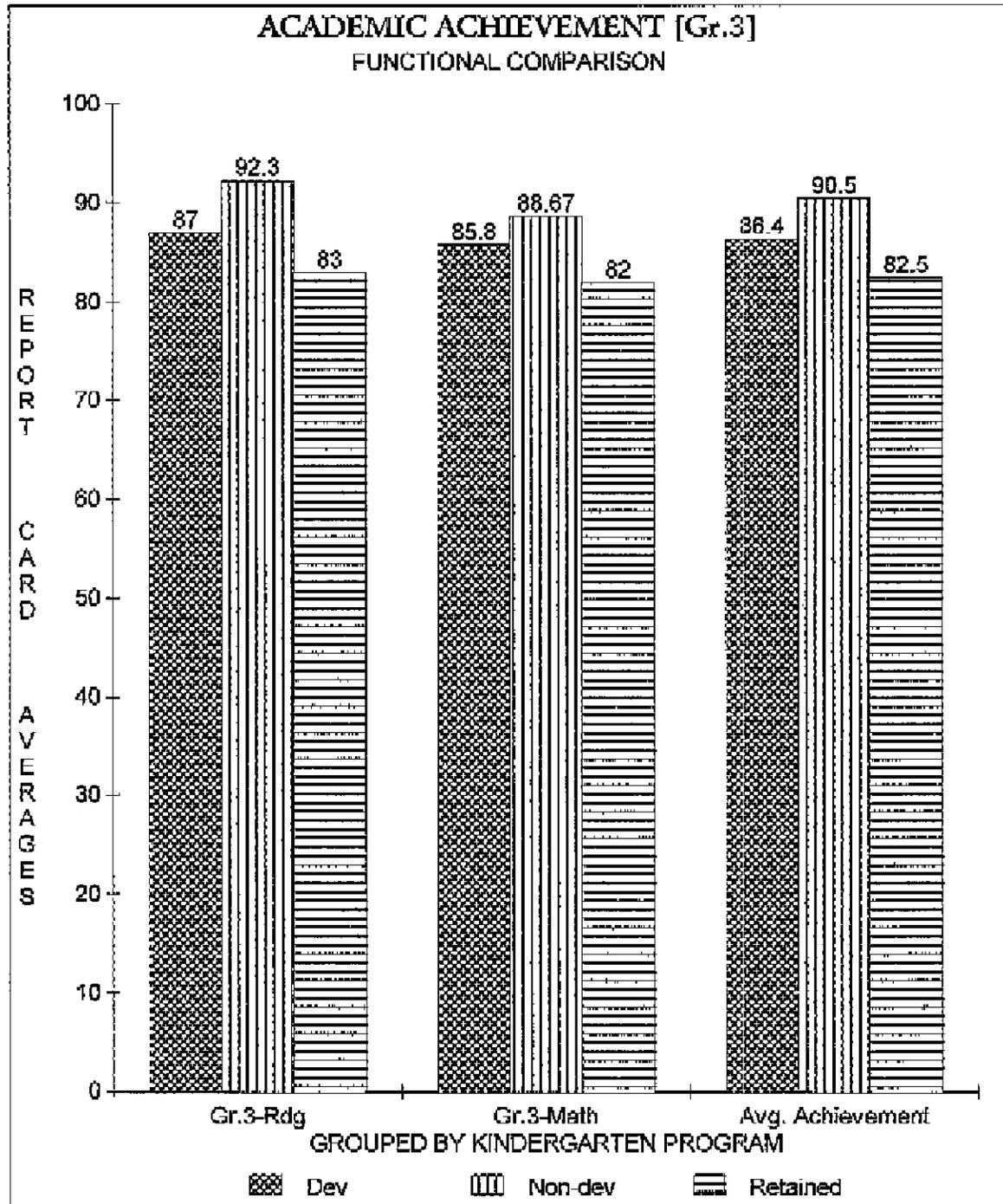
	Kindergarten		Grade 1		Grade 2		Grade 3	
	Reading	Math	Reading	Math	Reading	Math	Reading	Math
REG K-1			55	83	48	72	51	77
REG K-2			65	88	70	67	46	68
REG K-3			90	90	56	93	70	99
REG K-4			62	77	68	41	63	51
REG K-5			65	77	71	67	83	57
REG K-6			48	86	52	64	43	46
REG K-7	*	*	57	73	68	54	66	60
REG K-8			61	51	29/40*	28/60*	44	32
REG K-9	*	*	50	51	40	55	42	45

\* = RETENTION - Second year in this grade

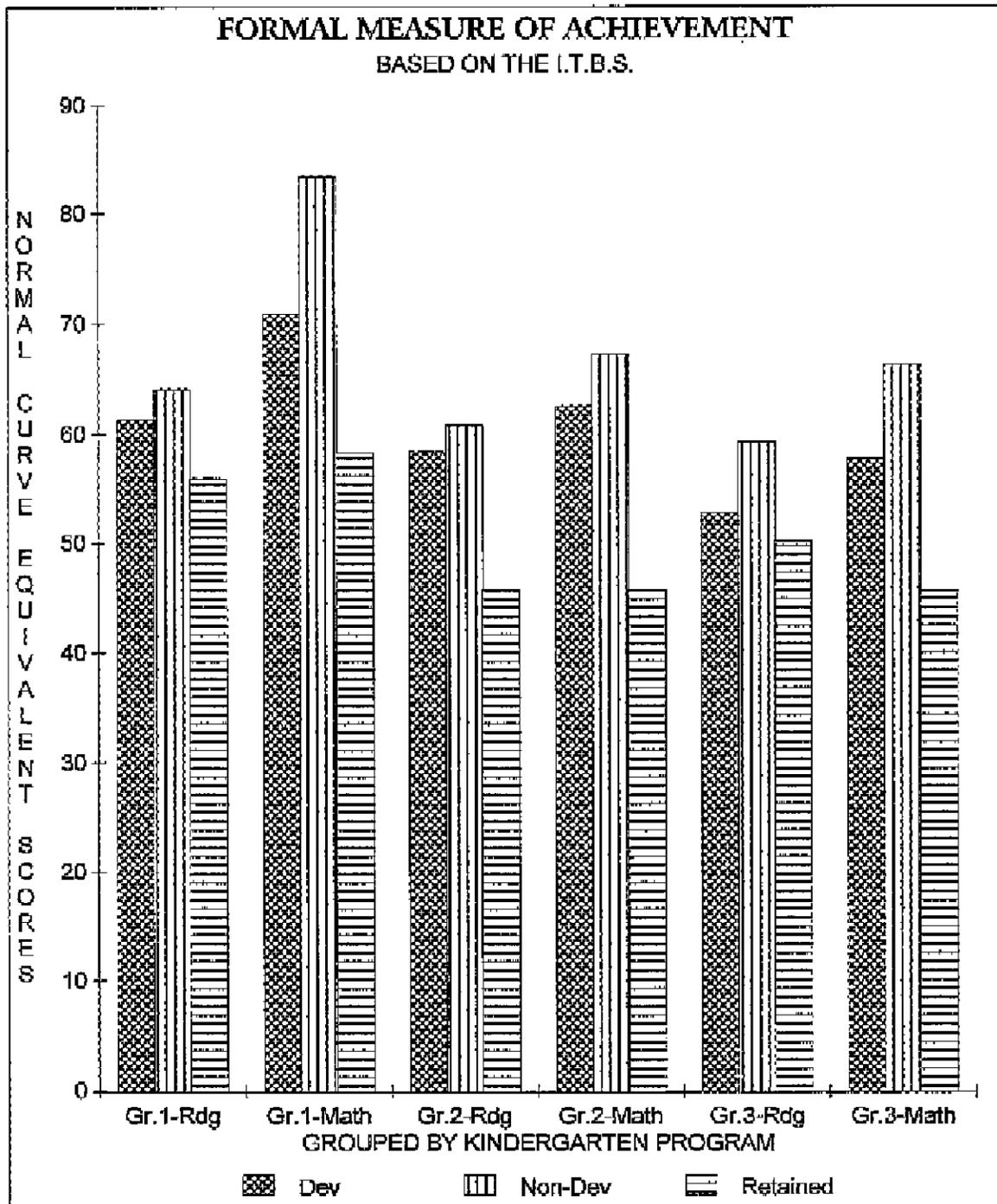
GRAPH 3a:



GRAPH 3b:



GRAPH 4:



## Chapter Five

### Summary/Conclusions

#### Introduction

The purpose of this study was to determine if pupils identified as being developmentally not ready for school would benefit from inclusion in a developmental kindergarten for one year prior to entering the traditional kindergarten program.

The subjects for this study were five [5] participants of the developmental kindergarten program and nine [9] pupils who were identified to participate but, due to parental objections, did not. All students attended the same elementary school in a rural/suburban township, containing a moderate amount of heavy industry, in southern New Jersey. Students were selected for inclusion in the developmental kindergarten program based on the results of a kindergarten screening conducted in the spring prior to entering kindergarten. All age-eligible students registered to begin kindergarten the following fall were administered the Childcraft DIAL-R Screening Test in order to identify those children considered to be developmentally not ready for school. This identified population was then recommended for inclusion in the developmental kindergarten program. Of the children identified as being developmentally not ready for kindergarten and recommended for the developmental kindergarten, not all participated due to parental objections. The students

who did participate in the developmental kindergarten were given an additional year of instruction prior to actually entering the traditional kindergarten program. During the year the children spent in the developmental kindergarten, they were instructed in a classroom consisting of approximately 11 pupils and a curriculum geared to meet the social, emotional, physical, and intellectual needs of children who entered school developmentally young. The program also strove to expose children to all curriculum areas without the requirement of mastery in the hope that failure and frustration would be avoided in the children's initial school experience. Conversely, the students recommended for the program who did not participate due to parental objections, went directly into the full-day traditional kindergarten program without the additional year in the developmental kindergarten program.

### Findings

The results of this study indicate that, when utilizing a functional measure, students identified as developmentally not ready for school participating in a year long developmental kindergarten can demonstrate academic achievement that equals or surpasses that of similarly identified pupils who do not participate in a year long developmental kindergarten. The results of a formal measure, the Iowa Test of Basic Skills [ITBS], however, did not seem to reinforce these findings.

Initially, this study contained two groups - students identified as developmentally not ready for school who participated in the developmental kindergarten program and students identified as developmentally not ready for school who chose not to participate in the developmental kindergarten program. However, as the study progressed, it became apparent that a third group emerged - the retentions. While examining the academic achievement of the group of students who chose not to participate in the developmental

kindergarten, it was discovered that one-third of these subjects had subsequently been retained between the time they entered the traditional kindergarten and third grade.

### Conclusions

The data generated by the functional measure in this study seem to substantiate the conclusion that students identified as developmentally not ready for school who participated in a year long developmental kindergarten program prior to entering the traditional kindergarten program will demonstrate academic achievement that will equal or surpass that of similarly identified pupils who did not participate in the developmental kindergarten prior to school entry. However, the data does seem to reflect that as the subjects progressed through school, this trend did not continue. In fact, by the end of third grade, while both groups had report card grades in the "B" range, numerically the group who had not attended the developmental kindergarten had academic achievement that averaged four [4] points higher. Additionally, when the achievement of the retained subjects alone was compared to that of the developmental kindergarten group, the gap between the two groups' academic achievement had closed considerably by the end of third grade. The subjects in the developmental kindergarten group had grades that averaged in the "B" range while the subjects in the retained group had grades that averaged in the "C" range. This, however, only represents 3.9 additional points in the developmental kindergarten group's average academic achievement.

Even though the results of the data from the formal measure do not appear to support the above conclusion, they do not prove that the conclusions drawn are incorrect. Although the pupils that participated in the developmental kindergarten did not appear to score as well as the pupils who chose not to attend the developmental kindergarten, they did

demonstrate significantly higher academic achievement on the ITBS than the group of pupils who chose not to participate in the developmental kindergarten but were subsequently retained. Additionally, the data generated by the formal measure represents the students' performance at only one given point in time, while the data generated by the functional measure was on-going.

### Discussion and Implications

While there are many factors that may have influenced the academic achievement of the subjects in this study, the results seem to suggest that the additional year in the developmental kindergarten has had a positive impact upon the participants' achievement in reading and mathematics.

Due to the limited sample population, however, further research would be needed to substantiate the results.

### Recommendations for Further Research

The results of this study seem to support previous research findings that children participating in a developmental kindergarten initially tend to show higher academic gains than similarly identified peers who do not participate in such a program. Based on this study, further research can be conducted to substantiate the results.

1. Examine social/emotional factors of each group of subjects. Which group seems better adjusted and/or has more self-esteem?
2. Assess the identification process. Is it identifying the population intended - developmentally not ready vs. potentially learning disabled?

3. At what point should the developmental kindergarten participants be reassessed in order to determine the point at which they are no longer considered developmentally young?
3. Research the acquisition of test-taking skills as it applies to each group in this study.

In conclusion, it appears that continued research is necessary in order to determine the effectiveness of the developmental kindergarten program in promoting academic achievement in pupils determined to be developmentally not ready for school.

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