

THE IMPORTANCE OF EARLY CHILDHOOD EDUCATION

by

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This thesis is submitted in partial fulfillment of the requirements for the degree of

Master of Curriculum and Instruction

Administrative Focus

Ferris State University

School of Education

College of Education and Human Services

April 30, 2014

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ABSTRACT

This research study sought to examine value of early intervention with students that were considered young kindergarten students. It followed the students from September 2011 through January 2012 from one rural Michigan school district. It sought to better understand the differences in test scores between the very young kindergarten population and the older students as well as the young male and female student populations in hopes of finding if there was a difference in outcomes between the groups. It then examined their DIBELS and MLPP test data through the use of an ANOVA. In doing so it was found that there was a significant difference between the test scores of the young and older populations as well as between the young male and female populations.

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CHAPTER 1

Defining the Problem/Research Purpose

Introduction to the Importance of Early Childhood Education

Research suggests that early childhood education and intervention has a benefit that far outweighs the cost that is needed to run programs for students. Reynolds, et al. (2002) suggests “every dollar invested in preschool returned \$7.14 in educational, social welfare, and socioeconomic benefits. The total public benefit was \$3.85 per dollar invested” (p. 286). Despite this research, many schools are finding it hard to secure funding to allow them to offer early childhood opportunities to the students they serve. Instead, these schools are forced to place students in classes that are inappropriate for them. While this situation is better than no educational intervention at all, it places undue stress on students and on staff at these schools.

This study took place at one such school. This school had, in the past, had several early childhood intervention programs, but due to budget cuts by the State of Michigan, they were forced to cut early childhood services (Young Fives).

The school is located in a rural Michigan setting with about 1900 students in the kindergarten through twelfth grade educational program. The 2nd-12th grades are housed

on one campus, while the kindergarten and first grades are housed on a separate campus, a few miles away. These buildings are comprised of students from the surrounding cities, townships and villages. The past several years the school has seen declining enrollment due to the economic depression that Michigan finds itself in. Many families have left to find work elsewhere, which has in turn taken from the student base. For the 2011-2012 school year, however, this school saw an increase of 60-80 students. This was due in part to the economic climate the county finds itself in. The district had accepted many schools of choice students that were turned away from other districts because they were already at capacity and were not accepting school of choice students. There was also some activity in the housing market during the year of the study, with some students moving into the area. Finally, the school saw a large increase in migrant students during the study year. The migrant coordinator believed that it was the largest increase in migrant, Spanish speaking only, students that the school had ever had.

As of the 2011-2012 school year the school had to make some very tough decisions based on the State of Michigan's new requirements for procuring funding. The district decided to close a lower elementary building that formerly housed kindergarten through second grade students those students have been redistributed to other buildings in the district in order to save money. In doing so the district made their upper elementary building a 2nd-5th grade facility and the other lower elementary school a kindergarten and first grade building. They were also forced to cut the Young Fives program, which offered students who would turn five on or before December 1st an opportunity to attend school an extra year before heading off to kindergarten. The elimination of Young Fives

caused many parents to put their students into kindergarten with the thought that their students would then have two years of kindergarten.

Statement of the Problem

The State budget for the 2011-2012 school year brought about drastic changes for schools in the way that they are able to educate their youngest students. This school was forced to eliminate their Young Fives program, a program that would serve as a precursor to kindergarten, for students who are “young” kindergarteners. Younger students would be considered developmentally young, and not ready to enter into the rigorous kindergarten curriculum. This program allowed kindergarten students who would turn five years old during the summer and fall a chance to attend school, learn many of the things that kindergarten students learn, understand how to be learners and then move into kindergarten the following year. To further exacerbate this problem, during the 2009-2010 school year, the District cut their Great Start Readiness Program, which allowed students who would turn four on or before December 1st time to attend an early childhood program before kindergarten. This program was cut due to changes in rules that would have made the program more expensive to run than the revenue that it generated. During that same year, the local community college also cut an early childhood program because of funding reasons. These cuts mean that students are starting their public education careers with less training/learning than they would have had, but are being required to perform at higher levels than were expected in the past. Will the lack of prior training and knowledge serve as a detriment to these students or will it have no effect at all? Will the students who were slated to be Young Five students during the 2011-2012 school year progress at the same rate academically as the older more physically, mentally and socially

mature students? This study sought to determine whether the elimination of the young fives program has a detrimental effect on student achievement.

Purpose of the Study

The purpose of this study is to examine the need for early childhood programs and to evaluate the loss of the Young Fives program at one school. In addition, this study sought to determine what the effects of the elimination of the Young Fives program has on the kindergarten population at the school and how teachers feel about the loss of the program and the effects this loss has on their students.

Description of how the Research is Grounded

Research suggests that students who receive early intervention are less at risk for school failure and retention. This study examined students who would have been otherwise eligible for intervention, had the program not been eliminated for the 2011-2012 school year. The goal was to understand if these students, who would have otherwise been receiving intervention, would progress at the same rate as students who would not have received the intervention, or if they, as research suggests, become at-risk and remain at-risk throughout the year.

Research Hypothesis

1. There will be no significant difference in the literacy scores between kindergarten population and the population previously eligible for Young Fives.
2. There will be no significant difference in literacy scores between boys who should have been in Young Fives and girls that should have been in Young Fives.

Key Terms

Older Students- Students whose fifth birthday fell before July 1st of their kindergarten year.

MLPP- (Michigan Literacy Progress Profile)- Michigan set up benchmarks in letter identification and sound identification with which kindergarten students are tested with. MLPP is a specific set of tests that many schools in Michigan use to test their kindergarten students with. Teachers then record their data and compare it to the Michigan benchmarks for kindergarten students to assess need for intervention.

DIBELS- (Dynamic Indicators of Basic Early Literacy Skills)- This is a standardized test developed by a team of professionals in the 1980s. It has since become a staple in the world of education and has been used by universities around the world. The University of Oregon holds the schools' data and distributes testing materials that measures students' literacy skills based on a series of tests developed for each grade level. Each grade level has its own set of tests to administer and its own set of "norms" with which to evaluate students. This test places students at, beyond or below benchmarks based on results, and provides feedback to educators as to what their student's weaknesses are in specific areas. The areas assessed are listed below as are working definitions for young students:

CLS- Nonsense Word Fluency-Correct Letter Sound

FSF- First Sound Fluency

ISF- Initial Sound Fluency

LNF- Letter Naming Fluency

NWF- Nonsense Word Fluency

PSF- Phoneme Segmentation Fluency

WRC- Nonsense Word Fluency-Words Recoded Completely and Correctly

WWR- Nonsense Word Fluency-Whole Words Read

Young Female- A female student whose fifth birthday fell between July 1st and December 1st.

Young Fives -This is a prekindergarten program that is used for students who would be eligible under Michigan State law to attend kindergarten but who have turned 5 during the summer or will turn 5 before the State's December 1st cutoff.

Young Male- A male student whose fifth birthday fell between July 1st and December 1st.

Younger Students- Students whose fifth birthday fell on or after July 1st of their kindergarten year.

Limitations/Delimitations of Study

This study took place at one rural school in Michigan. The results here are based on the school's kindergarten students from the 2011-2012 school year. It does not extend to multiple years and its parameters do not extend beyond this district. Furthermore, the study does not track students who left the school during the 2011-2012 school year, nor does it extend to students who moved into the district during the course of the year, as there would be no baseline data for those students. Given the highly mobile population

of the district there could be some bias in the scores as this study will not follow students who leave the district nor will it include students who move into the district.

Significance of this Study

This study was designed to test the significance of early childhood programs at the school. In studying the kindergarten population over a course of a year, significant data was produced that would support the claim that students who are young need more intervention before starting kindergarten than students who are not young. This could suggest that the school may need to examine their academically at-risk population to gain a better understanding of how to use funding in a different way while still being able to comply with the State of Michigan's funding stipulations.

CHAPTER 2

REVIEW OF LITERATURE

Early Childhood Funding

Early childhood education and funding has long been a widely and hotly debated topic in our education system. Early education has been studied, scrutinized, praised and most recently, cut from budgets. There are those professionals who are completely sold on the benefits that early education can provide and others that believe who it is just a waste of taxpayer money. But where did all of this begin? Lowenstein (2011) believes that

“The use of publicly provided non-maternal care in the United States dates back to the mid-19th century, when day nurseries were established to enable low-income mothers to go to work (Cahan, 1989). Later, in response to labor shortages during World War II, federal funds were temporarily used to pay for childcare centers so that women could join the workforce (Cohen, 2001). When the war effort ended, however, most of the childcare centers were closed. It was not until 1962 that the federal government next earmarked funds for child care, this time in the context of a welfare law” (p 95).

With this in mind Lowenstein (2011) goes on to say that “early intervention came to be seen as a means of permanently enhancing the development of low-income children

and possibly even wiping out poverty itself” (pg. 95). The eradication of poverty itself was the incentive that provided the means to an end. Hustedt and Barnett (2011) report that “the Comprehensive Child Development Act of 1971, which would have provided voluntary access to early care and education for all children nationwide, was passed by both the U.S. House and Senate before being vetoed by President Nixon” (p. 168). The pair further goes on to report that the pendulum has swung in the other direction today claiming that many in government today are concerned that “governments should not become too involved in such traditional family matters as the care and education of young children” (Hustedt & Barnett, 2011, p. 168).

Evidence of Effectiveness

Here we are decades later facing the exact same issues as our ancestors were when early childcare first came into the picture. Literacy levels are alarmingly low, poverty levels alarmingly high and yet “the expansion of state-funded preschool decreased for the first time in two years” (Lowenstein, 2011, p. 95). In 1962 the thought was annihilation of poverty: nine years later despite the fact that many of our government officials want to provide early childhood education for all American students, President Nixon vetoed it because he believed that it was the responsibility of the family to provide that service for their children. With those two thoughts in mind there is not any room left for wonder as to why we have headed in the direction we have. Consensus cannot be reached, conflict has arisen, and thus policy makers have taken action. In a look at the 21st century, Lowenstein points out that among President Obama’s campaign promises was a nod toward early education for all students, yet in light of our recent economic

depression the funding just wasn't there to follow through with that thought and thus in 2010 early education was dropped from the agenda, waiting to gain attention again in better financial times. Thus the back and forth continues.

The financing of the programs seems to be one of the problems, but what seems to be undisputable are the results of a good early childhood educational program. There are many different pots of money from which early childhood funding could come, including: Head Start, Direct child subsidies, Tax Credits, Title I preschool, early childhood special education, state pre-K and local programs. Most are fairly cut and dry, but the ones that vary the most are the state funding models. Hustedt and Barnett (2011) reported on several financing models that vary from state to state. One such model is the school funding formula. This formula is simple. "One particularly effective and stable approach to funding involves including pre-K initiatives in statewide school funding formulas for K-12 education" (p. 181).

Another model for funding, or the accessing thereof is the lottery system. "Lotteries can quickly generate large sums of money and are politically popular when the proceeds are used in support of education. Lotteries can be used to create dedicated funding streams for pre-K that are protected from state budget shortfalls in difficult times. When the economic environment of a state decreases, like Michigan's has for the past several years, the dedicated lottery funding decreases as well, leaving schools hurting for the funding that they so desperately need" (Hustedt and Barnett, 2011, p. 183). Lastly, Hustedt and Barnett (2011) report, "Arkansas implemented a sin tax on beer. Missouri has levied fees on gambling. Several states have taxed tobacco or used funds from the national tobacco settlement to help fund pre-K" (p. 183). These authors do imply

however that when taxing things such as these states run the risk of discouraging these activities, which would in turn cut into the revenues that could be generated. No matter where the funds come from, there is an obvious push by federal, state and local officials to secure funding for early programs. The question is how dedicated are they to the procurement of those funds and at what point do they simply give in due to economic issues facing our nation today, and what will the resulting nation of students look like when that happens? We can gain clues to this question by looking at what has come from early intervention programs.

Noteworthy Programs

Temple and Reynolds are two leaders in the field of early childhood education. This pair is responsible for a mass of research that has come from a lifetime of work gathering data and analyzing that data. They have disaggregated data, interviewed countless parents, students, and teachers as well as written volumes about this topic. Temple, Reynolds and Miedel (2000) report that “there is strong evidence that good-quality early childhood interventions have meaningful effects on academic and social development in both the short-and long-term, while only a handful of studies have investigated links between early intervention and high school completion or dropout” (p. 31-32).

They authors go on to name those few studies that they discovered while creating their own. One such study is the High Scope/Perry Preschool Program. A program first developed in the mid 1960’s in Ypsilanti, Michigan. It was a preschool program targeted at low-income African-American students. A longitudinal study of the initial group of

young children found that the participants in this program were up much less likely to drop out of school than their peers, who that had not had the advantage of the preschool program. Temple et al. (2000) report that the results of this study “translates to a 38% reduction in the rate of school dropout” (p. 32). This information along with information from Temple’s and Reynolds work in the Chicago Longitudinal Study (CLS) suggests that “preschool participation was associated with a 30% reduction in school drop out by ages 18 to 22” (p. 32). Keeping this in mind there needs to be further analysis of early childhood programs, leading to application. The research has stated that there is a significant problem with high school completion. Could Temple and Reynolds’ research about early childhood education suggest that if more funding were placed in early childhood programs there would be less of a problem with incompleteness at the end of high school?

From this body of research came the National Education Goals in the 1990’s. “The first goal of this reform initiative, which was to be achieved by the year 2000, was that all students in the US were to start school ready to learn (National Education Goals Panel, 1992) from (Brown, 2010, p. 135)” Brown goes on to say that “researchers...were concerned that this increased emphasis by policy-makers on students entering elementary school possessing a particular set of knowledge and skills would result in inappropriate practices such as the use of assessments for determining whether children were ready for entry into kindergarten” (2010, p. 136). According to Brown (2010), The flaw in this system is that “in the US, policy-makers typically frame early childhood programs as mechanisms that can improve students’ success in school and thus, the construct of readiness and the readiness equation are reduced to discussion centered on academic

achievement.” (p. 138). Brown’s point here is that if we are educating students just for the sake of making them smarter academically then we could be missing the mark and forfeiting some of the value that early education of students has to offer. Brown (2010) says the “Bush Administration’s *Good Start, Grow Smart* initiative...put in place directives to establish early learning standards that clearly define the knowledge and skills children are to possess when they leave early education programs” (p. 138). He further says that initiatives such as Good Start, Grow Smart are “altering the landscape of the field” (p. 138). Brown (2010) sends his point home when he says “this ‘de-facto’ conceptualization of readiness that emerges in this reform process could translate into a concept of readiness that focuses primarily on the child and minimizes the importance of the other elements of school readiness which play an important role in the degree of success children experience in school” (p.138). Early childhood education is more than teaching academics, but it has been reduced to that because of state and federally mandated programs. Early childhood education should prepare students for school, academically, socially and emotionally. Pianta, et al. (2009) reported that a preschool group they had been studying had “better classroom and personal behavior as reported by teachers, less involvement in youth misconduct and crime, fewer special education placements, and a higher high school graduation rate” (p. 60). This data wasn’t collected when the students were 4 or 5, but rather the when the students were between the ages of 14 and 19. These students were, by all accounts, prepared for a life of education when compared to other students their age, because of the preschool education they received.

School has always been more about reading, writing and arithmetic than about making sure that children are ready to learn when they get to school. Brown (2010) is so

bold as to say, “the readiness equation is dependent on the social context in which the child operates, and as such, a child can be ready in one community and not another” (p. 136). Contrary to this idea is a one size fits all model. Pianta, et al. (2009) believes that “policymaking related to the care and education of young children is extraordinarily active, engaging a wide range of interest groups, foundations, politicians, and professional organizations” (p. 51). They have made education less of an art and more of a science. Teaching has become less about teachable moments and more about standards and benchmarks. Pianta et al. (2009) reports that “early childhood education is a means to address concerns that an unacceptably large number of children are already, by 5 years of age, lacking in competencies fundamental to their school success notably in the areas of spoken language and literacy” (p. 51). These facts have made policy-makers the world over stand up and take notice, thus the call for more examination and policy in this field. Policy-makers have come to understand that, the importance of early childhood education means more now than ever before, and in some cases they want to ensure that they are getting the most out of their money by putting systems of accountability into place.

Lowenstein (2011) reports that, “high-quality early education programs can have remarkably long-lasting, positive effects on low-income children’s cognitive, academic, and socio-emotional functioning” (p. 101). But where does it all start? Birth? Temple et al. (2010) believe that “contrary to results in many published studies, in our sample of urban children from low-income families low birth-weight status is not predictive of later receipt of special education services” (2010, p. 722). However, they go on to say that their “study finds instead that low birth weight is associated with significantly higher rates of grade retention, especially for boys” (2010, p. 722). Lastly, Temple, Reynolds

and Arteaga say their “results suggest that early intervention through participation in preschool works best for boys and for those at the highest level of socioeconomic risk” (2010, p. 724). They are also quick to report that “numerous studies, such as those cited in Hong and Raudenbush (2005), or Temple, Reynolds, and Ou (2004), find negative effects of grade retention and suggest that the retained students would have learned more if they had not been retained” (Temple, Reynolds and Arteaga, 2010, p. 723).

If early childhood funding were to be eliminated or reduced, grade level retention could be one of the first places that a deficiency would show up. The next clue as to where a deficiency may show up is revealed by Temple, Reynolds and Meidel (2000), Thesis authors reported that, “The grade-retention/drop-out connection holds for both girls and boys. Boys who were retained in grade had a 43.7% drop-out rate as of January 1998.” (p. 40). Would the dropout rate would increase as early childhood funding were to decrease?

Conyers, Reynolds, and Ou (2003) asked themselves three questions in their research. Their first question was, “What are the patterns of special education services among a sample of urban African American children who live below the poverty level? (p. 82). Conyers, Reynolds and Ou (2003) found here that there were “significantly lower rates of special education when students were associated with early intervention programs.” (p. 88) The second question was, “Does participation in the CPC (child parent centers) preschool program reduce the likelihood of receiving special education services during elementary grades for students with varied types of disability” (p. 82)? The trio found that in students who participated in early childhood intervention there was as much as a six percentage point decrease in special education services over those

students who hadn't participated in the CPC programs. Their last question was, "Is the relation between CPC preschool program participation and special education placement explained by the cognitive advantage and family support hypothesis" (p. 82)? Again there were findings, although not with as much significance, that indicated that there was a relationship between early intervention and success. Those findings take us from birth to graduation, but would there be longer-term effects that would last into early or later adulthood?

The American Medical Association reports that there are some long-term effects of early childhood intervention on achievement and juvenile arrest as well as on adult health and well being. Reynolds, Temple, Robertson & Mann, (2001) report that "participation in an established early childhood intervention for low-income children was associated with better educational and social outcomes up to age 20 years (p. 2339). They have based this conclusion on data gathered from students who started school in 1985 and are adults today. They also report, that "preschool participants also completed more years of education than the comparison group" (p. 2343). Findings also indicated that "boys benefitted from preschool participation more than girls" (p. 2343). One last finding reported by Reynolds, Temple, Robertson and Mann (2001) is that preschool participation was associated with a significantly lower rate and number of juvenile arrests" (p. 2344). Reynolds, et al. (2007) concluded that "findings provide evidence that established early education programs can have enduring effects on general well-being into adulthood. (p. 2344) They found that students who participated in early intervention programs were more likely to graduate from high school, and then either go on to college or obtain a good enough job that they were then supplied with health care to take care of

any medical needs that arose. They were more likely to hold good paying, long lasting, full time jobs than those students who didn't participate in any early education classes. Finally Reynolds et al. (2001) found that students who were involved in early childhood intervention/education classes were less likely to commit violent crimes than peers their age that had not had any early intervention. The research shows the benefit of early childhood education, but where the rubber really meets the road returns us to a cost benefit analysis. What was the return on investment for these students?

Reynolds, Temple, Robertson and Mann (2002) report that the average cost for early childhood education is about \$4,400 per year. They found that extended intervention time of 4 to 6 years cost about \$10,000. Reynolds et al. (2002) go on to report that because of that initial outlay of money there were reductions in things like remedial services, increases in lifetime earnings, reductions in criminal justice expenditures and in health care costs because of participation in early intervention. The group concludes, "Every dollar invested in preschool returned \$7.14 in educational, social welfare, and socioeconomic benefits. The total public benefit was \$3.85 per dollar invested" (Reynolds, Temple, Robertson & Mann, 2002, p. 286). When all is said and done, the benefits of early childhood educational programs seem to outweigh the risks of the program. There is a significant outlay of money initially, but as Reynolds, et al. (2002) have shown us the return on investment is substantial. If we want to change our system of education today we need to be willing to make the financial sacrifices that will make that happen.

CHAPTER 3

METHODOLOGY AND PROCEDURES

Description of Research Methodology and Approach

The design of this study is quasi-experimental. In this design method there is no random assignment of subjects. Placement into Young Fives was based on a screening conducted at kindergarten roundup in March where students who were identified as needing an early intervention would be assigned to the Young Fives Classrooms. The screening included consideration of birthdates and a school readiness test. Parents could also request that their child attend the Young Fives program. This experiment type has some aspects of true experimental design because its task is to determine the cause and effect. Young Fives is a specific intervention and this study sought to understand the effects of the elimination of the intervention had had on the staff attitudes/concerns and student achievement at the school, therefore the students included in this experiment were simply separated by birthdate. Students who turned five years of age after June 1, 2006 were included in the young group while students who turned five years of age before that date were included in the older group. There are no students included whose parents requested Young Fives, likewise; there are no students placed in the younger group based on academics alone.

Research Design

This research design is comparative in nature because it sought to compare the scores of students that are kindergarten aged, with those who would have previously qualified for Young Fives.

Pilot Studies

DIBELS (Dynamic Indicators of Basic Early Literacy Skills) is a standardized test that was developed for use with students kindergarten through third grade based on measurement procedures for Curriculum-Based Measurement (CBM) in the 1970s-80s. It was piloted at the University of Oregon in the 1980's and has since proven its reliability and validity. It is used at many universities and schools worldwide.

All staff members at the school who are expected to administer the DIBELS test have at least one half day of professional development training on the DIBELS program, administration techniques and procedures based on what grade level they are teaching. They are provided with testing materials that correspond with each grade level as well.

Selection of Subjects

All students who were enrolled in kindergarten during the 2011-2012 school year were selected for this study. The student's ages ranged from four to seven years old at the start of the study. This design used all kindergarten students because of the highly migratory population within the school district. If there were some drop-outs in the study there would still be an appropriate number of students left to finish the research. The size of the study included about 130 kindergarten students.

Instrumentation

Instruments were selected for their ability to predict which students will need additional support with English language arts (ELA.) They are used to test alphabetic recognition, sound skills, and basic principles of the English language, such as syllabication, letter recognition and phonemic awareness. The test instruments used by school employees to test such areas with students were procured by the Title I teacher and thus she housed the paper copies of the tests and entered the data herself. Teachers administer the test and then the data was published for Title I, At-Risk and teaching staff members to analyze.

Data Collection

DIBELS data was collected by the Title I staff. The staff met one on one with each student and conducted the appropriate tests. MLPP testing was administered by each student's classroom teacher. All data was then entered into an electronic document which was shared between all kindergarten teachers, the school administrator, curriculum director and the Title I staff.

I was given access to the electronic document that holds student scores and other data. I was also given copies of testing documents and their corresponding benchmarks in order to compile, sort, code and analyze the given data.

Field, Classroom or Laboratory Procedures

MLPP (Michigan Literacy Progress Profile) and DIBELS tests have a script that is to be followed so that test validity is never called into question. The staff was to read the script to the student they are testing and then follow the directions for testing.

Analysis

MLPP suggests that Kindergartners should have a score of 27 or higher on their letter naming ability test and a score of 11 or higher on their ability to name sounds by November. Students should know all their letters and sounds by January, which would be about half way through their Kindergarten year.

The DIBELS test says that kindergartner’s scores for the beginning of the year should follow table 3.1.

Table 3.1 Kindergarten Scoring Chart for DIBELS

ISF (Initial Sound Fluency)	0-3	At Risk
	4-7	Some Risk
	8 and above	Low Risk
LNF (Letter Naming Fluency)	0-1	At Risk
	2-7	Some Risk
	8 and above	Low Risk

CHAPTER 4

DATA ANALYSIS

Analysis of MLPP Data

MLPP (Michigan Literacy Progress Profile) suggests that Kindergartners have a score of 27 or higher on their letter naming ability test and a score of 11 or higher on their ability to name sounds by the time they start kindergarten. They go on to indicate that students should know all their 54 letters and 26 sounds by January, which would be about half way through their kindergarten year. Table 4.1 indicates the scores of the students at the school.

Table 4.1 September and January Analysis of MLPP Letter and Sound Naming Ability for all Kindergarten Populations

	Older Students	Younger Students	Young Female Students	Young Male Students
September				
Letters (27+)	37	20	21	18
Sounds (11+)	10	3	3	4

	Older Students	Younger Students	Young Female Students	Young Male Students
January				
Letters (54)	52	49	50	48
Sounds (26)	24	22	22	21

Note. Students can receive a score of 54 total letters because there are considered 26 upper case letters and 28 lowercase letters, the original 26 plus an alternate version of both letters a and g.

As we compare the scores in table 4.1 we see that when the students started the school year the older students knew more than the expected number of letter and sounds both, while the younger students, male and female both knew less than the expected number of letters and sounds on average.

From here the data were subjected to an analysis of variance test (ANOVA) for three or more groups of data. The ANOVA revealed that there were large variances between the mean and one standard deviation, as shown in Table 4.2. This trend was more so true for the younger students, indicating that there were scores ranging from high to low, which would create a highly scattered plot line.

Table 4.2 September/ January Comparison of Young Students MLPP Letter Naming Ability

Young students	September (27+)	January (54)
Mean letter	20	49
Standard Deviation	18.42	11.38

Students who were older were less varied, which would of course cause a less scattered plot line. This could be due in part to the fact that many of the older students knew their letters and sounds, therefore there wouldn't be as large of a variance between the mean and one standard deviation.

Table 4.3 September/ January Comparison of Older Students MLPP Letter Naming Ability

Older students	September (27+)	January (54)
Mean letter	37	52
Standard Deviation	16.17	5.56

As shown in table 4.3, when comparing the young and the older students September scores, the null hypothesis was rejected, indicating that there was a significant difference between the younger and older students when considering letter knowledge. However, as indicated in table 4.4, in January there was no significant difference between the letter scores of the younger and older students. No the null hypothesis was accepted, indicating that there would be no difference. Furthermore, there was no significant difference between young female students and young male students when it came to September letter scores alone.

The same held true for the MLPP sounds test. While there was a significant difference between younger and older students concerning the sounds tests, there again was no significant difference between the scores in January nor was there a significant difference between the scores of young males and young females, where there had been in January. Tables 4.4 and 4.5 indicate these results.

Table 4.4 September/ January Comparison of Younger Students MLPP Sound Naming Ability

Young students	September (11+)	January (26)
Mean sounds	3	22
Standard Deviation	5.11	6.90

Table 4.5 September/ January Comparison of Older Students MLPP Sound Naming Ability

Older students	September (11+)	January (26)
Mean Sounds	10	24
Standard Deviation	7.90	4.78

There was a difference in the standard deviation from the mean when it came to sounds in this ANOVA analysis. There wasn't as large of a standard deviation, may be due to the fact that there aren't as many sounds to know as there were letters. This data would indicate there were would be a less scattered plot because the majority of the data would be close to the mean.

Analysis of DIBELS Data

DIBELS tests analyze a number of different literacy indicators. In September, kindergartners were required to take the initial sounds fluency (ISF) test as well as the letter naming fluency (LNF) test. The composite score is found by adding the ISF and the LNF. DIBELS indicates that students should have a composite score of 26 or higher for the September. Any students that fall below that score would be considered at risk and in need of intervention. Likewise, in January students were assessed on first sound fluency (FSF), letter naming fluency (LNF), phoneme segmentation fluency (PSF) and nonsense word fluency (NWF). DIBELS indicates that students should have a composite score of 112 or higher and students below that benchmark would be in need of intervention. Table 4.6 contains the schools data:

Table 4.6 September Comparison of Students DIBELS Composite Score

September	Older Students	Younger Students	Young Female Students	Young Male Students
September Composite 26+	33	14	15	12
January Composite 112+	134	108	112	102

This indicates that the older students mean composite scores were higher than the benchmark set, while the younger students were never able to reach the September nor the January benchmarks. Table 4.7 reveals the scores of only the older kindergarten students. The mean scores indicate that overall the older students scored above benchmark. However, the standard deviation increased as the score increased, leaving open the notion that as the scoring possibility increased the scores would have made more of a scattered data plot.

Table 4.7 September/ January Comparison of Older Students DIBELS Composite Score

Older students	September (26+)	January (112+)
Mean Composite	33	134
Standard Deviation	23.34	70.94

Table 4.8 shows the mean scores for the entire young kindergarten student population. Neither the September nor January scores met DIBELS benchmark goals, which would indicate that this population of students would be considered at risk or school failure

without more intervention. One difference was noted between the scores of the older students and the scores of the younger students however; the younger student population had a standard deviation that was smaller than that of the older students. This would indicate that their scores were grouped closer together leaving less room for very high scores and very low scores.

Table 4.8 September/ January Comparison of Younger Students DIBELS

Composite Score

Younger students	September (26+)	January (112+)
Mean DIBELS Composite	14	108
Standard Deviation	18.72	47.69

Tables 4.9 and 4.10 indicate that in September the young female and male populations were unable to reach the benchmark set forth by DIBELS, while in January the young female mean managed to reach benchmark, leaving the young male population under the mark.

Table 4.9 September/ January Comparison of Young Female DIBELS Composite Score

Younger Female students	September (26+)	January (112+)
Mean DIBELS Composite	15	112
Standard Deviation	18.75	43.86

Table 4.10 September/ January Comparison of Young Male DIBELS Composite Score

Younger Male students	September (26+)	January (112+)
Mean DIBELS Composite	12	102
Standard Deviation	18.55	51.93

As indicated earlier in the analysis the same pattern emerges with the standard deviation. As the score increases so does the deviation from the mean score. However, the standard deviations don't seem to be as large as that of the older student population. The ANOVA analysis to compare the student scores was again used to compare the student scores. Each time the null hypothesis had to be rejected, indicating that there was a difference between the scores of the young and old students and there was a difference between the young male and young female population. The P value for the September analysis was >0.01 and the P value for the January analysis was >0.001 indicating that the probability that there was an error with the data was less than one-one hundredth and one-one thousandth respectively. This number is often used when considering the confidence we have with the rejection of the null hypothesis. The smaller the number the more confidence we have in the rejection of the null hypothesis. This number also indicates that there is a statistical difference between the two groups of students, thus adding to our confidence.

Analysis of Results

In conclusion, the DIBELS test was the best indicator of student results and therefore, gaps in students' gaps. The MLPP failed to be as accurate when determining

the rejection of the null because the score can only go so high before it tops out. The goal in November was that each student knows all letters', therefore, the score cannot go any higher than the number of letters possible, whereas the DIBELS test asked students to name random letters which would indicate letter knowledge and fluency. As shown by the DIBELS composite scores as the year progresses so does the expectation for benchmark. Therefore, when looking at the results of the DIBELS testing one could assume with a fair amount of certainty that there is a statistical difference between the test scores of older students and younger students. There is a statistical difference between the test scores of young male students and young female students. These results indicated that the young male population was more at risk for academic failure than that of the young female population, but that both the young male and female student population was more at risk for failure than the older student populations. This could indicate that students that were young kindergartners would be in need of more intervention than those students that were older kindergartners.

Future Research

These students could be followed yearly in a longitudinal study, as were the students in the CRC programs and the Ypsilanti schools. Their data could be analyzed and compared to their peers to see if they, unlike the students in Chicago and Ypsilanti continue to struggle with the content. It would be interesting to see if they continue to need extra help with grade-level content expectations and it would be very interesting to see what types of classes all of this led to in high school and on into college.

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APPENDIX A

CODED KINDERGARTEN DATA

young			September Assessment		Sept. DIBELS			January Assessment		Jan. DIBELS				
ID #	DOB	M/F	Letters	sounds	ISF	LNF	Comp	Letter	sounds	FSF	LNF	PSF	NWF	122
104	11/3/06	f	24	2	0	5	5	54	26	49	28	35	27	139
107	12/1/06	f	25	1	0	10	10	54	26	40	44	53	24	161
110	9/15/06	f	18	0	0	17	17	54	26	30	41	6	20	97
111	10/31/06	f	12	2	0	0	0	54	26	46	33	47	21	147
112	8/29/06	f	13	5	20	2	22	54	26	30	9	38	19	96
117	11/23/06	f	51	6	0	21	21	54	26	60	42	66	34	202
201	11/7/06	f	10	2	0	1	1	53	25	46	23	24	28	121
205	7/22/06	f	24	1	0	6	6	54	24	22	38	32	17	109
213	6/24/06	f	52	21	32	39	71	54	26	45	40	52	27	164
219	7/6/06	f	32	2	18	17	35	53	26	50	45	25	28	148
222	8/27/06	f	13	0	0	5	5	44	10	28	4	16	7	55
304	9/19/06	f	0	0	0	2	2	44	10	14	15	5	0	34
308	7/14/06	f	1	0	3	0	3	26	14	40	11	16	3	70
310	6/20/06	f	39	3	0	12	12	54	26	23	47	60	26	156
402	10/17/06	f	48	8	22	27	49	54	24	53	42	42	17	154
405	11/10/06	f	0	0	0	0	0	4	1	24	3	15	0	42
415	11/6/06	f	14	0	0	0	0	52	26	31	21	16	5	73
416	9/1/06	f	0	0	0	0	0	49	14	24	22	10	0	56
421	6/29/06	f	6	0	4	5	9	48	19	48	32	21	9	110
423	10/9/06	f	31	1	0	8	8	54	26	34	30	40	17	121
502	8/1/06	f	46	12	6	9	15	54	26	60	54	50	30	194
508	9/6/06	f	9	0	0	2	2	54	26	30	48	16	12	106
512	11/20/06	f	45	5	8	23	31	54	26	30	35	36	26	127
514	11/22/06	f	9	1	0	2	2	53	26	40	15	18	24	97
517	6/12/06	f	0	0	1	3	4	53	25	24	9	0	15	48
523	6/15/06	f	46	17	32	33	65	54	26	54	9	58	28	149
707	8/8/06	f	36	0	21	22	43	50	20	38	29	58	14	139
708	9/20/06	f	6	0	5	3	8	45	20	38	30	25	4	97
709	11/20/06	f	35	1	0	16	16	52	7	0	52	0	0	52
710	11/13/06	f	4	0	7	0	7	46	21	42	30	30	16	118
711	8/23/06	f	5	0	0	1	1	53	24	26	35	11	10	82
			21.1	2.903			15.2	49.5	21.74					112

Young			September Assessment			Sept. DIBELS			January Assessment			Jan. DIBELS			
stude	DOB	gen	Letters	sounds	ISF	LNF	Comp	Letter	sounds	FSF	LNF	PSF	NWF	122	
101	6/12/06	m	15	7	14	3	17	54	26	29	54	37	34	154	
114	8/15/06	m	52	12	8	28	36	54	26	28	55	48	77	208	
124	11/20/06	m	8	1	0	1	1	54	26	46	28	9	17	100	
203	9/11/06	m	1	0	0	0	0	54	25	36	54	19	24	133	
206	8/22/06	m	39	2	3	21	24	52	18	34	28	8	15	85	
214	9/13/06	m	4	0	2	1	3	51	20	35	35	12	1	83	
217	8/1/06	m	5	0	0	5	5	47	21	42	42	15	41	140	
221	11/11/06	m	0	0	0	0	0	5	0	0	1	0	0	1	
302	9/11/06	m	0	0	1	1	2	53	25	36	10	13	21	80	
314	9/13/06	m	51	15	6	24	30	54	26	28	29	29	13	99	
322	8/3/06	m	14	0	2	3	5	51	23	22	37	16	13	88	
401	9/29/06	m	0	0	4	6	10	35	8	13	19	11	0	43	
414	9/24/06	m	2	0	0	2	2	48	18	16	7	3	0	26	
417	6/26/06	m	40	7	0	1	1	54	26	42	50	14	19	125	
422	10/24/06	m	0	0	0	0	0	50	20	24	22	9	6	61	
504	11/16/06	m	30	1	0	9	9	54	26	28	27	34	20	109	
505	8/16/06	m	29	9	1	11	12	54	26	30	37	11	26	104	
518	7/5/06	m	0	0	0	0	0	53	26	26	40	0	4	70	
521	6/2/06	m	50	14	15	48	63	54	26	48	69	48	32	197	
524	7/10/06	m	7	0	0	0	0	52	26	42	43	6	29	120	
706	6/29/06	m	52	12	19	44	63	54	26	52	63	51	31	197	
714	6/22/06	m	4	1	0	0	0	49	17	44	9	24	5	82	
723	7/12/06	m	0	0	0	0	0	11	6	27	6	16	0	49	
			17.52	3.522			12.3	47.7	21.17					102	

older			September Assessment		Sept. DIBELS			January Assessment		Jan. DIBELS					
ID #	DOB	M/F	Letters	sounds	ISF	LNF	Comp	Letters	sounds	FSF 30+	LNF	PSF 20+	NWF 17+	Comp 122+	
713	2/8/05	m	52	20	4	37	41	54	25	46	42	46	39	173	
106	2/18/05	m	50	18	8	7	15	54	26	24	28	11	18	81	
719	2/22/05	m	38	5	2	22	24	52	20	30	28	19	17	94	
312	3/23/05	m	53	14	22	37	59	54	26	40	52	22	31	145	
407	4/4/05	f	55	18	12	21	33	54	25	38	27	17	5	87	
404	4/22/05	m	51	4	0	30	30	54	11	5	60	10	24	99	
519	5/1/05	m	33	10	0	8	8	54	26	24	34	21	21	100	
513	5/3/05	m	8	0	11	8	19	52	25	33	42	31	20	126	
309	5/10/05	m	26	6	15	4	19	54	26	36	20	34	2	92	
209	5/17/05	f	39	8	6	11	17	51	25	20	19	8	10	57	
102	5/30/05	f	50	7	18	28	46	54	26	42	66	56	45	209	
522	6/20/05	f	51	21	29	38	67	54	26	56	56	53	41	206	
109	6/24/05	m	53	25	25	33	58	54	26	46	63	63	59	231	
220	6/27/05	m	46	15	18	28	46	53	25	24	28	40	16	108	
705	6/30/05	f	44	15	5	12	17	51	25	22	29	42	17	110	
413	7/6/05	f	25	1	1	0	1	52	23	41	28	45	0	114	
715	7/22/05	m	51	20	22	42	64	52	25	40	38	38	24	140	
716	7/23/05	m	50	19	24	42	66	54	25	41	55	49	51	196	
722	7/27/05	f	51	16	4	33	37	54	26	21	48	19	20	108	
420	7/31/05	m	53	21	26	20	46	53	24	29	39	21	5	94	
105	8/8/05	m	48	22	28	32	60	54	26	40	59	49	40	188	
301	8/11/05	m	50	24	23	25	48	54	26	58	51	67	34	210	
720	8/15/05	m	37	9	31	25	56	53	25	48	38	66	20	172	
121	8/16/05	m	31	3	18	28	46	54	26	49	55	71	29	204	
307	8/29/05	m	53	22	30	43	73	54	26	60	67	66	49	242	
721	9/14/05	f	21	0	12	4	16	50	17	35	26	45	12	118	
511	9/26/05	f	51	20	16	27	43	54	26	30	38	34	22	124	
515	9/28/05	f	49	24	17	32	49	54	26	32	27	13	18	90	
218	10/2/05	m	52	23	35	19	54	54	26	36	41	38	29	144	
409	10/4/05	m	43	15	9	31	40	53	24	33	46	23	18	120	
207	10/7/05	m	40	11	8	19	27	53	26	28	28	30	18	104	
204	10/13/05	m	51	9	15	32	47	54	26	40	41	25	21	127	
701	10/14/05	f	52	17	19	50	69	54	26	52	53	54	25	184	
210	10/24/05	m	50	15	21	22	43	53	25	50	62	45	31	188	
702	10/28/05	m	51	14	10	27	37	53	25	28	34	40	22	124	
317	11/5/05	m	51	23	17	31	48	54	26	42	43	11	27	123	
122	11/8/05	m	54	24	28	48	76	54	26	55	76	61	38	230	
103	11/11/05	f	52	15	21	61	82	54	26	60	63	66	132	321	
216	11/30/05	f	50	16	28	38	66	54	26	56	58	45	23	182	
311	12/1/05	m	51	22	30	31	61	54	26	50	64	56	45	215	
319	12/6/05	f	49	15	28	26	54	54	26	40	50	43	29	162	

424	12/8/05	f	2	1	13	5	18	43	8	33	11	32	0	76
305	12/13/05	f	11	1	0	5	5	54	26	32	40	14	30	116
717	12/17/05	m	44	3	25	19	44	50	24	52	54	48	31	185
212	12/21/05	f	25	6	29	0	29	54	25	48	31	45	24	148
306	12/28/05	m	9	0	13	21	34	54	26	33	49	45	31	158
108	12/30/05	m	5	0	0	9	9	54	26	12	22	5	7	46
507	12/30/05	m	39	11	25	31	56	54	26	46	54	60	25	185
123	12/31/05	m	37	4	12	15	27	54	26	42	44	30	30	146
223	1/1/06	m	28	2	23	10	33	52	24	30	28	39	16	113
510	1/5/06	m	6	1	0	4	4	54	26	38	47	20	28	133
501	1/7/06	m	30	6	2	5	7	53	26	36	35	10	11	92
116	1/26/06	m	5	0	0	0	0	54	26	36	29	26	24	115
724	1/26/06	m	49	7	0	22	22	54	26	40	46	18	24	128
316	2/1/06	m	43	4	12	19	31	54	25	48	52	47	29	176
703	2/6/06	m	26	0	5	10	15	54	22	50	38	33	20	141
321	2/7/06	f	50	11	25	40	65	54	26	40	66	55	25	186
115	2/20/06	f	40	12	15	12	27	54	26	33	31	52	19	135
419	2/21/06	m	20	1	3	4	7	48	7	12	16	8	10	46
323	2/28/06	f	52	14	22	31	53	54	26	44	37	8	32	121
506	3/4/06	f	47	9	14	34	48	54	26	26	49	43	31	149
118	3/8/06	m	36	9	16	15	31	54	26	50	41	58	29	178
520	3/8/06	m	9	0	0	0	0	53	26	20	15	10	2	47
718	3/12/06	m	17	1	10	5	15	52	23	34	38	0	31	103
403	3/15/06	f	19	2	8	1	9	52	10	38	30	33	7	108
418	3/16/06	f	22	4	10	3	13	52	17	22	26	5	9	62
202	3/17/06	f	38	5	1	13	14	52	18	22	27	9	24	82
320	3/21/06	f	23	3	11	3	14	52	20	34	42	12	15	103
408	3/26/06	m	10	2	0	3	3	51	17	45	34	20	7	106
712	4/5/06	m	1	0	0	0	0	6	3	0	4	9	0	13
516	4/7/06	m	48	11	22	28	50	54	26	36	31	47	37	151
412	4/22/06	f	43	0	4	18	22	53	22	32	31	19	14	96
411	5/9/06	f	19	11	5	4	9	53	24	45	26	48	11	130
410	5/21/06	m	40	7	9	10	19	53	23	43	42	52	28	165
318	5/23/06	f	51	8	4	13	17	54	26	20	31	21	21	93
406	5/23/06	f	17	0	0	7	7	50	18	0	24	3	7	34
113	5/24/06	m	7	0	1	7	8	54	26	26	32	10	21	89
215	5/27/06	m	33	11	0	12	12	51	24	36	58	13	23	130
			36.74	9.91	13	20	33.14	52.45	23.59	36.1	40	33	24	134

APPENDIX B

MLPP AND DIBELS TESTS AND INSTRUCTIONS

Letter/Sound Identification

MLPP Second Edition/2000 Proof #6 4/20/01 138

A F K P W Z

B H O J U

C Y L Q M

D N S X I

E G R V T

Letter/Sound Identification

MLPP Second Edition/2000 Proof #6 4/20/01 138

a f k p w z

b h o j u a

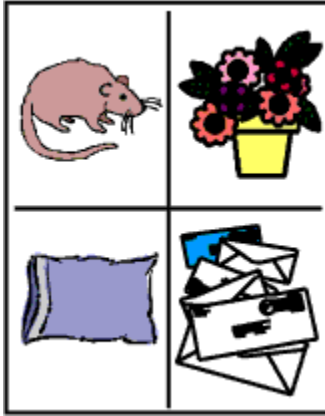
c y l q m

d n s x i

e g r v t g

<p><u>Initial Sound Fluency</u> Short Form Directions</p> <p>Make sure the long form of directions is readily available to clarify unexpected problems.</p> <p><u>Initial Sound Fluency</u></p> <p><i>This is mouse, flowers, pillow, letters (point to each picture while saying its name). Mouse (point to mouse) begins with the sound /m/. Listen, /m/, mouse. Which one begins with the sounds /f/?</i></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 2px;"> <p>CORRECT RESPONSE: Student points to flowers, you say:</p> </td> <td style="width: 50%; padding: 2px;"> <p>INCORRECT RESPONSE: If student gives any other response, you say:</p> </td> </tr> <tr> <td style="width: 50%; padding: 2px;"> <p><i>Good. Flowers begins with the sounds /f/.</i></p> </td> <td style="width: 50%; padding: 2px;"> <p><i>Flowers (point to flowers) begins with the sounds /f/. Listen, /f/, flowers. Let's try it again. 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Above and to the left are copies of Examiner Probe and Student stimulus pictures for ISF kindergarten test.



To the right is the LNF test for Kindergarten.
 Courtesy of
www.dibels.uoregon.edu

<u>Probe 1</u>										
c	c	N	u	Q	M	u	h	S	i	
n	b	e	N	F	f	o	a	K	K	
g	p	k	p	a	H	C	e	G	D	
b	w	F	i	h	O	x	j	I	K	
x	t	Y	q	L	d	f	T	g	v	
T	V	Q	o	w	P	J	t	B	X	
Z	v	U	P	R	I	V	C	I	W	
R	J	m	O	z	D	G	y	U	Y	
Z	y	A	m	X	z	H	S	M	E	
q	n	j	s	W	r	d	s	B	I	
r	A	E	L	c	c	N	u	Q	M	
TOTAL: _____ /110										

APPENDIX C

PROCEDURES FOR MLPP AND DIBELS TESTING

Procedure for MLPP

(Taken directly from the MLPP website)

1. Administer the assessment to individual children. The assessment area should be quiet and

free from major distractions. Sit beside the child. Seat the child comfortably in front of an appropriate height flat surface, such as a child's table. Turn the alphabet sheets face down until you are ready to use them.

2. At pre-emergent level, stop if the child struggles and begins to show frustration. Mark the

“stop point” on the answer sheet.

3. Say to the child, **I'm going to show you some letters. Let's see how many you know.** Then,

beginning with the upper case letters, ask the child to **name each letter** as you point to it. Use a *masking card* to cover rows below the row the child is looking at. Move across the lines from left to right as you or the child points to the letters so that the child is asked to identify the letters in random order. If the child gives you a sound or word, say, **You are right. That letter has that sound, but can you tell me the name of that letter?** Repeat with the lower case letter card, **name each letter.** If the child is unsuccessful, remove the masking card, and ask the child to look over the letters and tell you any s/he may know. Highlight the letters used in her/his name.

4. Use the lower case letter card a second time and ask **Make the sound the letter makes**. Use a

masking card to cover rows below the row the child is looking at. Move across the lines from left to right. Letters on the task have been randomized.

5. If the child experiences difficulty focusing on one letter at a time, use a window card that has a

square shape just big enough to show the letter. Cut out the square in the center of the card to highlight individual letters.

6. Reassess periodically until the child demonstrates knowledge of both letter names and sounds.

Then observe beginning use of letter names in classroom activities.

7. Mark the answer sheet by putting a check in the “N” column for a correct letter name response. Check the “S” column for a correct sound response. Record incorrect responses in the “I.R.” column. If the child tells you a word that begins with the letter, you may record that in the “Word” column for your own information, but it does not affect the score.

8. One point for each correct letter name. Total possible 54

9. Score one point for any one *letter sound* that is acceptable for that letter. Total possible 26

Sample Procedure for DIBELS

Taken directly from the DIBELS website

STANDARDIZED DIRECTIONS for Initial Sound Fluency (ISF)- Kindergarten

1. Place the ISF booklet with directions and items in front of you so that the student cannot see

what you record.

2. Place the student stimulus pictures, practice page first, in front of the student.

Directions to Student:

3. Say these specific directions to the student:

"This is mouse, flowers, pillow, letters (point to each picture while saying its name).

Mouse (point to mouse) begins with the sound /m/. Listen, /m/, mouse. Which one begins with the sounds /fl/?"

<p>Correct Response: Student points to flowers, you say:</p>	<p>Incorrect Response: If student gives any other response, you say:</p>
<p><i>Good. Flowers begins with the sounds /fl/.</i></p>	<p><i>Flowers (point to flowers) begins with the sounds /fl/. Listen, /fl/, flowers. Let's try it again. Which one begins with the sounds /fl/?</i></p>

"Pillow (point to pillow) begins with the sound /p/. Listen, /p/, pillow. What sound does letters (point to letters) begin with?"

<p>Correct Response: Student says /l/, you say:</p>	<p>Incorrect Response: If student gives any other response, you say:</p>
<p><i>Good. Letters begins with the sound /l/.</i></p>	<p><i>Letters (point to letters) begins with the sound /l/. Listen, /l/, letters. Let's try it again. What sound does letters (point to letters) begin with?</i></p>

"Here are some more pictures. Listen carefully to the questions."

Beginning Administration:

4. Introduce the picture page. Show the child the first page of student probe pictures.

Point to each picture and read the directions from the examiner booklet.

5. Present the first questions as written on the score sheet. After you finish asking the questions, begin your stopwatch. Stop your stopwatch as soon as the child responds. If the child does not respond after 5 seconds, score the questions as zero and present the next question.

Presenting the Next Word:

6. As soon as the student responds, stop your watch, score the response, and present the next question promptly and clearly. Begin your stopwatch after you have said the question, and stop it as soon as the student responds.

TIP FOR TIMING: The important thing to remember during the administration is that you are timing how long it takes the student to answer your question. When you are talking, the stopwatch IS NOT running. While the student is thinking of a response, the stopwatch IS running.

Score as You Go:

7. Score the child's responses as either correct (1 point) or incorrect (0 points).
8. If a child stops or struggles with a question for 5 seconds, score the question as zero, stop your watch, and present the next question.

Prompting Rule

9. If a child has done the examples correctly and does not answer the first questions correctly, say "Remember to tell me a picture that begins with the sound" (repeat stimulus sound). This prompt can be given once.

Presenting the Next Page:

10. After the first 4 questions, proceed to the next page of student probe pictures.

Introduce the page as written in the examiner booklet. Continue until the end of the questions.

Ending Administration:

11. When the child finishes the last question, record the total time on your stopwatch in seconds and add the number of correct responses. Record the total number correct and the time in seconds on the bottom of the scoring sheet.

12. Calculate the ISF Score using the formula:

$$\text{ISF Score} = (60 * \text{number correct}) / \text{Seconds}$$

SCORING PROCEDURES

1. Discontinue Rule. If a child has a score of 0 on the first five questions, discontinue the probe and give a score of 0.
2. If the child names the correct picture instead of pointing to it, score as correct.

Prompt:	Student says:	Score:
This is pie, letter, flower, and mouse. Which picture begins with /p/?	"pie"	0 1

3. If the child re-names a picture *and* the name begins with the correct (target) initial sound, score as correct. For example, if the target picture is "hand" for /h/ and the student points at road and says "highway", score as correct.

Prompt:	Student says:	Score:
This is road, barn, hand, and egg. Which picture begins with /h/?	"highway"	0 1

4. If the child re-names the picture and the name begins with an incorrect initial sound, score as incorrect. For example, if the target picture is "barn" for /b/ and the student points at barn but says "house", score as incorrect.

Prompt:	Student says:	Score:
This is road, barn, hand, and egg. Which picture begins with /b/?	"house"	0 1

5. Correct Initial Consonant Sound: If the word starts with an initial consonant sound, the child can respond with the first sound or initial sounds (i.e., up to and

including the first vowel). For example, if the word is "clock", a correct initial sound would be /k/ or /kl/ or klo/ but not /l/ or "clock".

Prompt:	Student says:	Score:
What sound does "clock" begin with?	/k/	0 1
What sound does "clock" begin with?	/kl/	0 1
What sound does "clock" begin with?	/klo/	0 1
What sound does "clock" begin with?	/l/	0 1
What sound does "clock" begin with?	"clock"	0 1

6. Words Beginning With a Vowel Sound. If the word starts with an initial vowel sound, the child can respond with the initial vowel sound or initial sounds (i.e., up to and including the first consonant). For example, if the word is "elephant", a correct initial sound would be /e/ or /el/, but not the name of the letter /ea/.

Prompt:	Student says:	Score:
What sound does "elephant" begin with?	/e/	0 1
What sound does "elephant" begin with?	/el/	0 1
What sound does "elephant" begin with?	/ea/	0 1
What sound does "elephant" begin with?	/ele/	0 1

7. Schwa Sound. The schwa sound (/u/) added to a consonant is not counted as an error. Some phonemes cannot be pronounced correctly in isolation without a vowel, and some early learning of sounds includes the schwa.
8. Articulation Difficulty: The student is not penalized for imperfect pronunciation due to dialect, articulation, or second language interference. For example, the student responds /th/ when asked for the first sound in "sink". If the student consistently says /th/ for /s/ as in "thircle" for "circle", he or she should be given credit for a correct initial sound. This is a professional judgment and should be based on the student's responses and any prior knowledge of his/her speech patterns. (See Pronunciation Guide.)

CALCULATING FINAL SCORE

To determine the final score, (number of initial sounds per minute) use the following formula:

ISF Score = $(60 * \text{number correct}) / \text{Seconds}$ For example, if the student has 12 correct initial sounds in 30 seconds, their rate is 24 correct initial sounds per minute.

$$\text{ISF Score} = (60 * 12) / 30 = 24$$

STANDARDIZED DIRECTIONS for Letter Naming Fluency (LNF)-Kindergarten

Setting the Scene:

1. Place the student copy of randomized alphabets in front of the student.
2. Place the examiner copy of randomized alphabets in front of you, but shielded so that the student cannot see what you record.

Directions to Student:

3. Say these specific directions to the student:

"Here are some letters" (point). "Tell me the names of as many letters as you can. When I say 'begin', start here" (point to first letter in upper left hand corner), "and go across the page" (point). "Point to each letter and tell me the name of that letter. Try to name each letter. If you come to a letter you don't know, I'll tell it to you. Put your finger on the first letter. Ready?"

Beginning Administration:

4. Say "Begin" and start your stopwatch.

Score as You Go:

5. Follow along on the examiner probe. Put a slash (/) through letters named incorrectly

Keep the Administration Going:

6. If a student stops or struggles with a letter for 3 seconds, tell the student the letter and mark it as incorrect.

Prompting for Correct Response:

7. If the student provides the letter sound rather than the letter name, say, "Remember to tell me the letter name, not the sound it makes." This prompt may be provided once during the administration. If the student continues providing letter sounds, mark each letter as incorrect and indicate what the student did at the bottom of the page.

Ending Administration:

8. At the end of 1 minute, place a bracket (]) after the last letter named and say "Stop."

SCORING PROCEDURES

1. **Discontinue Rule:** If a student does not get any correct letter names within the first 10 letters (1 row), discontinue the task and put a score of zero (0).

Probe 1										
c	c	N	u	Q	M	u	h	S	i	
n	b	e	N	F	f	o	a	K	K	
g	p	k	p	a	H	C	e	G	D	
b	w	F	i	h	O	x	j	I	K	
x	t	Y	q	L	d	f	T	g	v	
T	V	Q	o	w	P	J	t	B	X	
Z	v	U	P	R	I	V	C	I	W	
R	J	m	O	z	D	G	y	U	Y	
Z	y	A	m	X	z	H	S	M	E	
q	n	j	s	W	r	d	s	B	I	
r	A	E	L	c	c	N	u	Q	M	
TOTAL: 36 /110										

2. **3 Second Rule:** If the student hesitates for 3 seconds on a letter, score the letter as incorrect, provide the correct letter, point to the next letter, and say, "**What letter?**" This prompt may be repeated. For example, if the letters are "t L s" and the student says "t" (3 seconds pass), prompt by saying, "L", (point to s) "**What letter?**"
3. **Self Corrections:** If a student makes an error and corrects him or herself within 3 seconds, write "SC" above the letter and **do not** count it as an error.
4. **Incorrect Letter:** A letter is incorrect if the student substitutes a different letter for the stimulus letter (e.g., "b" for "d").
5. **Omissions:** A letter is incorrect if the student omits the letter.
6. **Similar Shaped Font:** For some fonts, including Times, the upper case letter "i", and the lower case letter "L" are difficult or impossible to distinguish. A response of **either** "i" or "L" is scored as correct in that instance.

7. **Articulation and Dialect:** The student is not penalized for imperfect pronunciation due to dialect, articulation, or second language interference. For example, if the student consistently says /th/ for /s/ and pronounces "thee" for "see" when naming the letter "C", he/she should be given credit for correct letter naming. This is a professional judgment and should be based on the student's responses and any prior knowledge of his/her speech patterns.
8. **Skipping Rows:** If a student **skips an entire row**, draw a line through the row and do not count the row when scoring.