

Measuring the Impact of a Summer Pre-Kindergarten Program on Academic Gains and School Readiness: Success by Six!

Debra Gratz¹, Karen H. Larwin²

¹ Prospect Elementary School, Girard, Ohio

² Department of Educational Foundations, Research, Technology & Leadership, Youngstown State University

Article Info

Article history:

Received Jan 4, 2014

Revised Jan 29, 2014

Accepted Feb 26, 2014

Keyword:

Pre-kindergarten

Early intervention

Kindergarten readiness

Academic gains

ABSTRACT

Early intervention prior to kindergarten is an effective strategy in closing the gaps in pre-readiness skills and appropriate behavior which may occur because of disparity in socioeconomic status, parenting styles, and preschool experience. This current investigation was designed to determine if the pre-kindergarten intervention had an impact on the student success in kindergarten. At the end of the academic year, results reveal that the achievement gap for students who were academically delayed was diminished; no significant differences exist between academically delayed students relative to students not identified as academically delayed. Results reveal that the impact of socioeconomic status was also diminished for participants in the summer pre-kindergarten program.

Copyright © 2014 Institute of Advanced Engineering and Science.
All rights reserved.

Corresponding Author:

Karen H. Larwin,
Department of Educational Foundations Research Technology and Leadership,
Youngstown State University,
One University Circle, Youngstown, Ohio.
Email: khlarwin@ysu.edu

1. INTRODUCTION

Throughout the United States, more than three million children enter a public kindergarten program yearly [1]. This is a significant time in their lives. Each child enters kindergarten with a skill set that varies tremendously from one child to the next. Differences in cognitive development, social-emotional development, health status, child rearing practices, and behaviors have been noted. Literature on kindergarten transition, movement without interruption from one experience to another, states that there is a qualitative shift as children move from a play-oriented environment to a more structured, academic based kindergarten classroom [2],[3]. Groundbreaking research has indicated the importance of early experiences in skill attainment on brain development which has sparked an interest in educators, policy makers, and the public to design initiatives to close these gaps in skill attainment. State and local leaders have implemented early childhood initiatives that include the encouragement of high quality child care through a quality rating and improvement system [1]. Increased access to programs such as Head Start and Early Head Start are geared for low-income families.

One-third of kindergarten teachers reported that at least half of their kindergarten class entering in the fall had issues, whether academic or behavioral, that the children would be dealing with in the school setting. Forty-six percent of the children had difficulty following directions, 36% lacked academic skills, 35% were from disorganized home environments, and 34% had difficulty working independently [3]. The data indicate that socio-behavioral adjustments and compliance issues were a relative concern for these children new to kindergarten [2], [4]. When children start their educational journey lacking in skills it is damaging to the children and expensive to the taxpayers.

A number of facets exist to the educational issue of closing the gaps through early intervention in the pre-Kindergarten years [5]. Socioeconomic status, differences in preschool experiences, and parental involvement have all been found to play a role. Children are believed to have a distinct advantage in their educational journey if they have a successful initial experience [6],[7]. The concept of the school in regard to school readiness needs to shift from the child fitting into the rigid expectations of the school to the idea that each child is an individual and successful school experiences require mutual adaptability. The approach should consider that schools need to accommodate individual differences rather than expecting children to enter with homogenous skills [7].

1.1 Parental Involvement

Parents are a child's first educators. This role should not change when children enter school. A partnership between school and home can help establish a collaborative environment that positively supports achievement and success [8]-[11]. Parental involvement is broadly defined as behavior of the parents with or on behalf of their children in the home and school setting as well as the expectations that parents hold for their children's future education [12].

The attitudes, behaviors, and activities of the parents are related to students' learning and educational success [11]. When families and schools work as partners, children experience higher achievement in school and tend to stay in school [10],[12],[13]. The types of experiences that the parents had could be either positive or negative and may influence the attitudes that their children have about school. Parental school involvement uniquely predicts social outcomes of the child seen within social skills, problem behaviors, and academic skills in math. The second dimension, perceived teacher responsiveness, warrants further consideration as a distinct dimension of the relationship between the home and school [9].

Schools play a huge role in the determination of level and role of parental development. Some critical factors include the teachers' beliefs of the role of the parents in the classroom and how much the teacher provides involvement activities for the parents. Offering a range of opportunities for a parent to be involved in is in the hands of the teacher and the school [10]. It is essential that the school climate welcomes parents into the school. Showing respect to parents' concerns and questions is essential. Personal trust is built when the teacher invites parents to be partners in their children's educations. Children who invite their parents to help with their learning can also prompt involvement. Developmental research has shown that children's behaviors can influence parents' practices [10].

1.2 Socioeconomic Differences

Impoverished children typically start school with significantly lower cognitive skills than their affluent peers. Academic-related parenting helps explain these socioeconomic gaps [14]. Families who are socioeconomically disadvantaged are burdened by inadequate income despite long working hours, irregular shifts, and are perhaps faced with inferior quality in afterschool care. Parents who are poorly educated may not be in the position to help their children in learning to read or master multiplication tables. Reform in education is centered on greater accountability and has magnified the impact of cognitive skills among the parents because of their need to monitor their children's homework and reinforce basic skills. Intergenerational transmission of inequality is the story to be told. Families who can help their children will do so and those who cannot help their children will see their children held back or drop out. The increasing number of hours that parents from low-income families spend at the workplace is negatively impacting their capacity to help their children over the hurdles. Some parents have no choice but to put their family's economic needs for surviving in this society ahead of the educational needs of their children [15].

Three factors- parents' educational attainment, the qualifications of the teacher, and outreach programs for the parents- were shown to reduce socioeconomic disparities in parental involvement with the school. In research conducted by Erika Hoff, the findings indicated that maternal speech was a variable worthy of consideration. Growth of vocabulary was observed between children who were products of high socioeconomic families and children who were from mid-socioeconomic families, which was linked to their mothers' speech [16]. Maternal speech affects the growth of language. Children who heard longer utterances were able to build vocabularies that were robust at faster rates than those children who heard short utterances. The mother who spoke in longer utterances used a richer vocabulary. The child was exposed to many words. These findings are consistent with the findings that specific elements of the development of language depend on specific exposure to language experiences.

The second factor, qualifications of the teachers, revealed a negative association between family poverty and school involvement in correlation with the teacher's qualifications. School-based involvement was weaker for children with highly-educated teachers than for children with less-educated teachers. Highly-educated teachers had more resources available to them which correlate to higher levels of self-efficacy, which could increase the ability of this teacher to engage low-income parents in the schooling process [17].

More research is necessary to understand the connection of teacher education and parental involvement, however, the thrust in the provision in the No Child Left Behind policy of highly qualified teachers may help to raise early achievement in those students who come from poverty by increased level of parental involvement [14].

The final factor, on-going parent outreach, indicated a larger socioeconomic gap in school based involvement when schools provided ongoing parent outreach. This doesn't suggest that parent outreach programs are not important for families from poverty, but that unintentionally, the parent outreach programs target middle and upper class parents [18]. Parent outreach programs should address the obstacles that may deter families from poverty involvement such as transportation and/or expenses [14].

1.3 Preschool Experiences

Another area to consider is the experiences that children are exposed to prior to kindergarten entry. If a child has been participating in a preschool experience, is this experience the same for each child if they did indeed attend preschool? Can students be specifically categorized students if they attended preschool, assuming that every child who attends preschool is exposed to the same type of experience? The preschool experiences that children are exposed to differ from one to another, so, it cannot be assumed that a child who had a preschool experience has acquired certain skills. No common preschool standards have been mandated by the state and preschool isn't mandated. The quality of early childhood education programs is tied to the qualifications of the teacher [19]. Brinks (2007) found that often a discrepancy exists between identified instructional strategies and literacy development for preschoolers among many programs [20].

One pre-school program modeled under the premise that the transition from preschool to kindergarten is a milestone in the life of each young child, a Shared Summer School approach for kindergarten transition was developed [21]. Both the preschool and kindergarten teachers taught children simultaneously prior to kindergarten. Shared Summer School was a half day program and it lasted six weeks with classes being held all five days. The targeted audience for entry into the program was children from local childcare providers, Head Start, and pre-Kindergarten who were considered to be at -risk. The purpose of the program was to develop supportive relationships between the elementary school and preschool children and their families, provide an effortless transition in activities and teaching approach from late preschool to early kindergarten, and increase social and academic skills of the children [21]. The program promoted continuity in instructional approach between both the preschool teacher and the kindergarten teacher; it improved children's achievement, and increased the involvement of parents in the school [21].

A reason for supporting a summer program is the fact that many delayed children are unlikely to advance a full 33 developmental months in nine calendar months. During the three summer months, children who come from households that do not actively promote learning fail to show progress in academic or language skills; however, children who come from families that provide academic learning support continue to progress the three summer months and continue to develop [22]. The achievement gap between the advantaged and disadvantaged children further increases when children's learning during the summer months does not occur. Even if the disadvantaged are in a highly supported school program during the academic year, if these children do not receive strong summer learning opportunities, they will be even further behind their advantaged peers.

1.4 Success by Six Program

The Success by Six Program is a relatively new pre-kindergarten summer program sponsored by United Way. Its purpose is to provide an early intervention summer program to aid children who are lagging behind their counterparts as they begin their educational journey in kindergarten. The goals and objectives of the program are to establish familiarity with the physical environment; to develop a relationship with the school personnel; to learn to adhere to classroom structure; to develop appropriate social skills; to overcome any readiness deficiencies identified through the screening process; and to ensure children who participate in this program will exhibit age-appropriate or developmentally appropriate physical, emotional, social and cognitive development.

Several factors aid in the selection process of which children are invited to attend the program. The program seeks to provide services to children who exhibited "red flag" behaviors during kindergarten screening which may include the inability to separate from the family member, poor social interaction, inability to follow simple directions, and reports by family members of problems with preschool skills and children who are younger than their peers. In addition to behaviors, low performance on the Developmental Indicators for the Assessment of Learning (DIAL-3) instrument and the Success by Six screener will qualify students to be invited to attend the summer program. Additional considerations are made where a family history of mental or physical illness or reports of limited exposure to learning experiences, when

recommendations by educators in the Head Start Program are made, and where there has been no to limited prior preschool experience.

The current investigation looks specifically at the impact of the Success by Six program, as a pre-kindergarten summer program, on student achievement. This study is unique in that student achievement measures are examined at baseline (kindergarten screening), at the beginning of the school year, and at the close of the school year.

2 RESEARCH METHOD

The current investigation is a quasi-experimental design analyzing the effectiveness of the Success by Six Program on closing the achievement gaps of children that exist prior to entering kindergarten. The quasi-experimental design was appropriate as students included in this investigation were part of pre-existing groups, based on kindergarten screening scores. Guidelines for participant inclusion in the Success by Six Program are provided by the funders (United Way) of the program. Therefore, assignment was not random since consideration for participation in the program was dictated by the funder of the programming. The goal of the current investigation is to examine if there is an impact of the pre-kindergarten intervention on student academic achievement?

2.1 Participants/Setting

All students entering kindergarten had the opportunity to be offered an invitation to be placed in the Success by Six Program, a summer intervention program, if they met the established criteria. The DIAL-3 assessment instrument measured the students in the categories of concepts, language, motor, and behavior. A late birth date, lack of preschool experience, recommendation by the Head Start teacher, and the score on the Success by Six Screener was the criteria considered. This provided an initial sample of 56 participants who were placed in the treatment group, 34 participants who were placed in the intend-to-treat group, and 137 students who were in the control group. The intend-to-treat group was comprised of students who were invited to participate, but did not attend.

The setting for the proposed study was at a K-3 elementary building located in northeast Ohio. Two classrooms were used. The district is an urban, low middle-income district with close to 68% of the students receiving free/reduced lunch. There was one certified kindergarten teacher in each classroom and one instructional aide. Both of the teachers have approximately thirty years' experience in education and many of those years were at the kindergarten level. Classroom units ranged from 12-15 students. Bussing was provided, however, families were given the option to transport children.

2.2 Instrumentation

The DIAL-3 was a standardized assessment that assessed all five early childhood areas. The first area to be assessed was motor skills. This involved the gross motor skills that included catching, jumping, hopping, and skipping. It also included the fine motor skills of building with blocks, cutting, copying shapes and letters, and writing. The second area was language. Skills included in this area focused on answering simple personal questions, such as name, age and sex, articulation, naming or identifying objects and action, and phonemic awareness tasks. The third area was concepts. In this category, students were asked to point to named body parts, identify or name colors, rote counting, counting blocks, identifying concepts in a triad of pictures, and sorting shapes. The self-help development area included the child's development of personal care skills of dressing, eating, and grooming, and the fifth area was social development. This area focused on the child's development of social skills with other children and parents, including rule compliance, sharing, self-control, and empathy. Extensive bias reviews support the appropriateness of this assessment from various socioeconomic, cultural, and ethnic backgrounds. The estimated reliability coefficient of .87 for the assessment is reported by the developers. This assessment is used in correlation with the pre-testing use of the Success by Six Screener as an instrument that will serve as the pre-posttest instrument for this research study.

Another component of the DIAL -3 assessment instrument was the behavior point system that was utilized through observations. There were nine categories of behavior that were considered through observation as the child was administered the assessment. The nine areas included: 1) Separation from adult, 2) Crying/whining, 3) Verbal response to questions, 4) Persistence, 5) Attention, 6) Activity level, 7) Participation, 8) Impulsivity, and 9) Understanding of directions.

Each of the above categories had three levels to select that were numbered 0, 1, and 2. If an assessor marked a 0, the behavior was appropriate. If a 1 was marked by the assessor that indicated that there was some work to be done in this behavior area for the individual. If a 2 was marked by the assessor that indicated that the behavior was inappropriate in that specific category. The behavioral observations

checklist, which included motor, concepts, and language was located at the bottom of each subtest page. The adult who was assessing that particular subtest was the adult responsible for marking the behavioral checklist of that child's behavior in the screening situation. The three scores were tabulated which translated to the behavior score for that child.

The Success by Six Screener instrument was provided to participating schools by the United Way, who funded the Success by Six Program. Items on the screener included the recitation of the alphabet song, counting object by 5, 10, and 15, identifying eight colors, identifying four shapes, identifying numbers to 10, identifying lowercase and uppercase letters, beginning sounds, rhyming words, sentence completion, and areas to check for behaviors. The sections were each given a score and then were tabulated for a final score for the entire screener instrument.

The Kindergarten Readiness Assessment-Literary (KRA-L) assessment was a state assessment given to every kindergartener in the state of Ohio within the first month of school. It was designed to help educators in the evaluation of literacy skills at the beginning of the kindergarten year. The KRA-L does not assess all areas of reading readiness; rather it assesses literacy skills which correlate to learning to read. The results can indicate that a more comprehensive assessment may be needed to determine what steps to take in literacy instruction with the particular student. It measured six indicators for success which included answering when and why questions, sentence repetition, rhyming identification, rhyming production, letter identification, and initial sound. The score fell into three bands. Band 1 indicated a need for intense instruction; Band 2 indicated a need for targeted instruction; and Band 3 indicated a need for enriched instruction. Scores of 0-13 indicated a need for intensive instruction. Scores of 14-23 indicated a need for targeted instruction. Scores of 24-29 indicated the need for enriched instruction to continue the educational growth of these individuals.

2.3 Procedures

Families who had a child who would be attending a fall kindergarten program were asked to enroll their child in school at the beginning of January of the year prior to their kindergarten experience. After a child was enrolled, a spring screening date and time was given to the parent and the child. At the kindergarten screening, every potential child enrolled was assessed with the DIAL-3 assessment instrument at various stations. Two teachers and an intervention specialist conducted the assessment. Each individual was responsible for one of the subtests as well as the behavior checklist on the bottom of the page. The three subtests included motor, language, and concepts. A hearing and vision screening was conducted by the school nurse and other medical personnel associated with the school. A speech and language assessment, which is part of the DIAL-3, was conducted by two speech pathologists employed by the district. The Success by Screener was administered by another intervention specialist in the district. The parents filled out a DIAL-3 information form, as well as a school composed information sheet in order for school personnel to gain some background knowledge on each potential student. The preschools in the area were also given an information form to complete, and a section to make a recommendation for a child to be considered for the Success by Six Program was on the form.

When all of the information was collected, the teachers and administration analyzed the data in correlation with the criteria set by the United Way for the Success by Six Program, and individuals were selected and invited to participate in the program. This group of students represented the treatment group. The control group was comprised of the children who were enrolled but did not meet the criteria for the treatment group. The intend-to-treat group was comprised of the children who had similar deficits based on the same criteria but either declined to take part in the program or registered in the summer after the program was completed.

In the fall of the Kindergarten year, all students who were in kindergarten were mandated by the state of Ohio to be assessed with the KRA-L assessment tool. Students' scores in the treatment, control group, and intend-to-treat group were analyzed. At the end of the Kindergarten year, all kindergarten students were assessed with the Success by Six Screener to determine growth. The scores for the students in the treatment group, control group, and intend-to-treat group were analyzed. The independent variable in this study was the participation in the Success by Six Program. The dependent variable was the gain score on the post test screener and the KRA-L score.

2.4 Daily Schedule for Summer Program

Every day the teacher followed a schedule so that all of the activity flowed and the attention span of the children was taken into consideration. From 8:00 a.m. until 8:30 a.m., the children arrive and were involved in a morning meeting which included puzzles, books, and calendars. The concept instruction took place from 8:30 a.m. until 9:30 a.m. Letters and numbers were introduced as well as phonics and story time. Learning centers were developed to practice new skills and the students rotated from one center to another

between 9:30 a.m. and 10:30 a.m. A restroom break and snack took place between 10:30 a.m. and 11:00 a.m. From 11:00 a.m. until 11:15 a.m., the students enjoyed free play and/or recess. This supported socialization skills. Art, music, or concept review took place between 11:15 a.m. and 11:30 a.m. Lunch was provided at 11:30 a.m., and the students prepared for dismissal by 12:00 p.m.

3 RESULTS AND ANALYSIS

3.1 Demographics

Descriptive data were aggregated from the students who comprised the incoming kindergarten class in each year at the school. The data reveals that out of the 171 participants in the control group, 80.1% were not asked to participate in the Success by Six Program because they did not meet the necessary criteria. Approximately 5.8% of the participants were asked to attend the program but declined the invitation, and 14% of the participants could have been invited to attend the program had they been screened in April. The fact that they enrolled and were screened in late August made them ineligible for the program since the program ran late July and early August. There were 56 students in the Success by Six treatment group.

The gender comparison indicates that in the control group, $n = 81$ (47.4%) of the participants were male and $n = 90$ (52.8%) of the participants were female. In the treatment group, $n = 36$ (64.3%) of the participants were male and $n = 20$ (35.7%) of the participants were female. In addition, students in the treatment group were, on average, 35 days younger than the students in the treatment group. The breakdown of socioeconomic status of the students indicates that $n = 94$ (55%) of the participants in the control group were socioeconomically disadvantaged, whereas $n = 38$ (67.9%) of the participants in the treatment group were socioeconomically disadvantaged.

3.2 Preliminary Analysis

The preliminary analysis included students in the treatment group relative to students who were identified for the control group by their screening score in April of the pre-kindergarten year. The first analysis examined the average score for both the participants in the control and treatment group on all of the subgroup tests and total on the DIAL-3 assessment. Overall, the average scores on the subtests in all three areas: motor ($M = 73.36$, $sd = 26.22$), concepts ($M = 62.46$, $sd = 27.98$), and language ($M = 63.33$, $sd = 29.45$) were higher for the control group members as opposed to the treatment group participants on motor ($M = 41.54$, $sd = 31.05$), concepts ($M = 31.32$, $sd = 20.50$) and language ($M = 29.80$, $sd = 23.34$) measures. Similarly, the total score for the control group ($M = 68.11$, $sd = 28.08$) was higher than the treatment group ($M = 31.02$, $sd = 21.29$).

Behavior was assessed by a point system with certain behaviors assigned a set of points in relation to the severity of the behaviors at screening. Table 5 indicates the results of the behavior. Each problem behavior was given a point value in regard to the severity of that behavior. Some of the behavior categories' notes included wiggling, separation anxiety with adult, and repeating or following directions. All of the assessment points were added together. The higher point value indicated more negative behaviors. The average behavior score was three times larger in the treatment group ($M = 7.46$, $sd = 7.55$) as oppose to the control group ($M = 2.45$, $sd = 3.84$). One of the criteria for invitation into the Success by Six Program is the point number associated with the behaviors of the child at the spring screening. Behavior is a notable factor when considering qualifications for the program. Table 1 indicates the average score for both the participants in the control and treatment group on the pre Success by Six Screener, the post Success by Six Screener, and the KRAL score.

Table 1: Pre, Post, and KRAL scores across treatment groups

Group		Mean	Std. Dev.	Skew	Kurtosis
Control	Pre-Test	71.25	23.49	-0.73	-0.73
	Post-Test	95.92	9.02	-6.53	54.37
	KRAL	21.09	5.81	-0.75	0.12
Treatment	Pre-Test	47.62	22.64	0.31	-0.86
	Post-Test	91.24	10.07	-2.33	5.77
	KRAL	15.52	4.92	0.01	0.04

The control group had an average gain from the pre-test to the post-test of 24.67 points. The participants in the treatment group had an average gain of 43.62 points. The average mean of the KRAL score indicates that the average mean score of the control group was 23.63 points higher than the average

mean score of the participants in the treatment group on the *pre-test* assessment; the control group was 5.57 points higher than the average mean score of the participants in the treatment group on the *post-test* assessment.

3.3 Multivariate Analysis of Program Impact

Multivariate Analysis of variance (MANOVA) provides two perspectives on the year end data. First, it provides an examination of both measures (Success by Six screener, and KRAL) simultaneously, therefore eliminating any overlap influence due to the significant correlation between these variables. Second, this analysis provides an examination of the individual assessments across the independent variables.

The MANOVA revealed significant differences for students based on attendance to Success by Six, $F(4,438) = 8.182$, $p < .001$, and for students across different socio-economic statuses, $F(2,220) = 3.5987$, $p < .001$. No significant interaction between socio-economic status and program participation was revealed. The Test of Between-Subjects Effects revealed a similar pattern of results when examining each assessment independently, presented in Table 2.

Table 2: Tests of Between-Subjects Effect

Source	Dependent Variable	F	Sig.
Attended Successby6	KRAL Score	16.42	0.00
	SXS_Change	0.91	0.41
Free Lunch	KRAL Score	7.03	0.01
	SXS_Change	1.50	0.22
Attended Successby6*Free Lunch	KRAL Score	0.29	0.74
	SXS_Change	0.67	0.51

The Test of Between-Subject Effects examined the data independently for the two dependent variables. As indicated in Table 3, the student's attendance or nonattendance of the Success by Six Program and the student's socio-economic status were significantly different on the KRAL, but not found to be significantly different for the gain in Success by Six scores. No significant interaction was found.

A closer look at the student results shed some light on these findings. Data from all students whose scores qualified them to participate in the program but who did not attend because of declining the invitation or late enrollment were included as another comparison group: *Intend-to-treat*. Of interest were the students who attended Success by Six Program and performed at about the same level as students not identified for inclusion as seen in Table 3.

Table 3: Performance from Pre to Post for Treatment and Control on Success by Six Screener

Group	Pre	Post	Gain
Control Mean (sd)	72.89(22.86)	96.31(8.69)	29.46(77.38)
Treatment Mean(sd)	48.44(22.53)	92.08(8.79)	42.05(20.20)
Intend to Treat Mean (sd)	49.10(25.02)	85.38(16.3)	39.87(23.26)

Further analysis reveals the degree of the differences for each group across socio-economic status groups, as illustrated in Figure 1. Figure 1 demonstrates the average means change score when comparing the pretest to the posttest on the Success by Six screener, and demonstrating different results for students who received free/reduced lunches relative to those who did not. The groups being compared include the control group (0), treatment group (1), and the *intend-to-treat* group (2). The *thin* dashed-line represents the participants in each group who were not socioeconomically disadvantaged and the *thick* dashed-line represents the participants in each group who were socioeconomically disadvantaged.

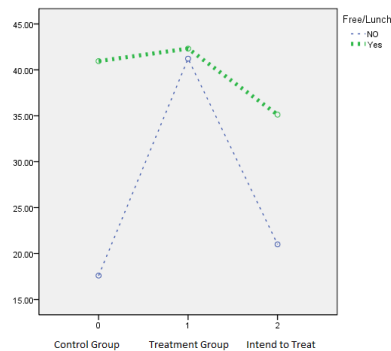


Figure 1: Means of Success by Six Change Scores Across Socio-Economic Groups

As indicated in Figure 1, the participants in the treatment group gained the most points from pretest to posttest with socioeconomic status not relevant in points gained. The difference between the free/reduced lunch students across the three groups is notable for the control group and the *intend-to-treat* group.

4 CONCLUSION

The current investigation demonstrated the potential impact of a four week pre-kindergarten intervention. Preliminary analysis revealed that students in the treatment group were substantially lower on the DIAL-3 indicator, in comparison to students in the control group. These results are in accordance to the data collected by the Ohio Business Roundtable, suggesting that 60% of the students in Ohio begin school not ready to succeed in kindergarten [23].

Most notably, the results of the current research demonstrated that at the end of the kindergarten school year, data was analyzed for gains between the pre- and post-testing on the Success by Six Screener. The results indicated that the control group had a 24.67 point gain while the treatment group had a 43.62 point gain from the pre to the post testing. The summer pre-intervention had a significant impact on the students that were enrolled in the program. The students who met the criteria to attend the Success by Six Program started out significantly behind many of their peers on the pre-screening measures, however, ended up statistically equivalent to their peers at the end of the kindergarten year. The achievement gap that existed during the pre- screening closed, resulting in no significant differences between students in the different groups on the post-test screening results.

As with this investigation's sample of students, abundant variability in student knowledge, behavior, and social development is revealed each year at the early kindergarten screening. Attendance in a preschool situation, parents' involvement in the home setting, age of the child, and the socioeconomic status of the family are all elements that help define children's achievement levels when they arrive at kindergarten [24]. There is evidence that a "good start" to schooling is influential in the later well-being of the child [25]. School readiness is contingent, not only the children, but the school, community, and family [26]. Investments in closing the gap made in the early years far outweigh the costly investments in the secondary years [5],[23]. Waiting for these children to fail in school and then providing needed remediation through compensatory programs, pull-outs, or retention does not sufficiently enable these students to close the gaps and achieve at grade level [27].

Consistent with this study's findings, research suggests that intense interventions aid in closing the achievement gaps and fostering the appropriate behaviors needed to be successful in kindergarten [28],[29]. According to Reynolds et al., participation in the extended childhood intervention programs is associated with lower rates of grade retention as well as special education identification. Domitrovich et al.'s research suggests that extended pre-kindergarten intervention led to significant improvements in children's early literacy and numeracy skills. Closing the achievement gaps, fostering appropriate behaviors for success in the structured environment, and fostering a partnership with home and school are imperative. Children who do not have a positive early transition to school are often the children who experience early failure, become inattentive, disruptive, or withdrawn [5],[25],[27]. This is the impetus to strive to close the achievement gap so that this research does not become reality.

In one of the earliest studies on the impact of preschool programs, the High/Scope Perry Preschool Study identified the lasting effects of the program on the participants' later educational achievement, economic success, and avoidance of criminal activity [5]. The results of this study demonstrated that the no-

program group was significantly outscored by the program group on both an in-school achievement test when the students were 14 years old (in reading, language, and arithmetic) and later, on a general literacy test when the students were 19 years old. As the study continued, it showed that according to social services records and interviews at the age of 27 only 59% of the program group received welfare assistance in comparison to 89% of the no-program group, and 36% in the program group compared to 13% in the no-program group owned their own homes [5]. Even though it is not likely that the gap can be eliminated entirely, a prekindergarten summer intervention program can substantially reduce the existing achievement gap and prepare students to take on the challenges that are presented in kindergarten settings [30].

4.1 Limitations of the Study

There were limitations of this study that need to be taken into consideration in understanding the impact of the Success by Six program. One of the limitations of this study is the diversity of attitudes, previous school experience of the parents, self-efficacy, and parental knowledge of how to work to prepare their child for kindergarten. The socioeconomic status of the parents may also be a limitation due to resources, or lack thereof, that the parents have to provide the opportunities for their children. Secondly, student eligibility for free/reduced lunch as an indicator for socioeconomic status is not a precise measure. Although it is consistent with NCLB parameters, more precise measures may be helpful in identifying student needs [31],[32].

Another limitation is the screening process, itself. There are two assessments that are administered by six different assessors. Each assessor is responsible for one area of the instrument. The fact that the children and the assessors may be unfamiliar could account for a lower score due to the fact that the children are uncomfortable; however, students in both the treatment and control group have a similar screening experience. Every effort is made to assure that this is not the case on the post assessment. The teacher in the kindergarten classroom at the end of the year is the person who administers the post assessment. The students are familiar with this individual.

4.2 Future Research



The current study indicates the impact that the program has in closing achievement gaps ascertained when the students' screener scores are analyzed. It would be interesting to follow these students to determine if there are sustained effects of the program by viewing the scores on the third grade state assessment, and determining if those students who attended The Success by Six Program attain the same scores as their counterparts who did not meet the criteria to attend the program. Lastly, it would be interesting to determine if summer pre-k interventions can have lasting effects on the participants' later educational achievement and economic success revealed by longer pre-kindergarten interventions [5],[25],[28].

REFERENCES

- [1] Daily, S., Burkhauser, M., & Halle, T. *School readiness practices in the United States*. National Civic League Publication, 2012.
- [2] Wildenger, L., & McIntyre, L. "Family concerns and involvement during kindergarten transition", *Journal of Child Family Studies*, Vol. 20. Pp. 387-396, 2010.
- [3] Rimm-Kaufman, S., & Pianta, R. "An ecological perspective on the transition to kindergarten: A theoretical framework to guide empirical research", *Journal of Applied Research*, Vol/Issue: 21(5). Pp. 147-166, 2000.
- [4] Schweinhart, L. *How the High Scope Perry Preschool Study grew: A researcher's tale*, Phi Delta Kappa Center for Evaluation, Development, and Research, Vol. 32. Pp. 2-9, 2002.
- [5] Kagan, S., & Neuman, M. (1998). "Lessons from three decades of transition research", *The Elementary School Journal*, Vol/Issue: 98(4). Pp. 365-379, 1998.
- [6] McBryde, C., Ziviani, J., & Cuskelly, M. "School readiness and factors that influence decision making", *Occupational Therapy International*, Vol/Issue: 11(4). Pp. 193-208, 2004.
- [7] Larocque, M., Kleiman, I., & Darling, S. "Parental involvement: The missing link in school achievement", *Preventing School Failure*, Vol/Issue: 55(30). Pp. 115-122, 2011.
- [8] Powell, D., Son, S., File, N., & San Juan, R. "Parent-school relationships and children's academic and social outcomes in public school pre-kindergarten", *Journal of School Psychology*, Vol/Issue: 48(4). Pp. 269-292, 2010.
- [9] Berthelsen, D., & Walker, S. "Parents' involvement in their children's education", *Family Matters*, Vol. 79. Pp. 34-41, 2008.
- [10] Hoover-Dempsey, K., Walker, J., Sandler, H., Whetsel, D., Green, C., Wilkins, A., & Closson, K. "Why do parents become involved? Research findings and implications", *The Elementary School Journal*, Vol/Issue: 106(2). Pp. 106-130, 2005.
- [11] Reynolds, A., & Clements, M. "Parental involvement and children's school success". In *School-Family partnerships, promoting the social, emotional, and academic growth of children*. New York, NY: Teachers College Press, 2005.
- [12] Pomerantz, E., Moorman, E., & Litwack, S. "The how, whom, and why of parents' involvement in children's academic lives: More is not always better", *Review of Educational Research*, Vol/Issue: 77(3). Pp. 373-410, 2007.

- [13] Cooper, C. E. "Family poverty, school-based parental involvement, and policy-focused protective factors in kindergarten", *Early Childhood Research Quarterly*, Vol/Issue: 25(4). Pp. 480-492, 2010.
- [14] Newman, K., & Chin, M. "High stakes: Time poverty, testing, and the children of the working poor", *Qualitative Sociology*, Vol/Issue: 26(1). Pp. 3-34, 2003.
- [15] Hoff, E. "The specificity of environmental influence: Socioeconomic status affects early vocabulary development via maternal speech", *Child Development*, Vol/Issue: 74(5). Pp. 1368-1378, 2003.
- [16] Castro, D., Bryant, D., Peisner-Feinberg, E., & Skinner, M. "Parent involvement in HeadStart programs: The role of parent, teacher and classroom characteristics", *Early Childhood Research Quarterly*, Vol/Issue: 19(3). Pp. 413-430, 2004.
- [17] Lareau, A. *Unequal childhoods, class, race, and family life*, Berkeley, CA: University of California Press, 2003.
- [18] Honig, A. S., & Hirshfeld, A. "Which counts more for excellence in childcare staff: Years in service, education level, or ECE coursework?", *Early Child Development and Care*, Vol. 45. Pp. 31-46, 1998.
- [19] Brinks, R. "Intensive professional development in early literacy instruction for preschool teachers", *Doctoral dissertation*, Western Michigan University, Kalamazoo, MI, 2007. Retrieved from ProQuest Dissertations & Thesis D&I, n4
- [20] Dail, A. & McGee, L. "Transition to kindergarten: Reaching back to preschoolers and parents through shared summer school", *Childhood Education*, Vol/Issue: 84(5). Pp. 305-311, 2008.
- [21] Entwisle, D. R. "The role of schools in sustaining benefits of early childhood programs", *The Future of Children*, Vol. 5. Pp. 133-144, 1995.
- [22] Hilbert, D., Eis, S.D. "Early intervention for emergent literacy development in a collaborative community pre-kindergarten", *Early Childhood Education Journal*, doi: 10.1007/s10643-013-0588-3, 2013.
- [23] Yoshikawa, H., Weiland, C., Brooks-Gunn, J., Burchinal, M., Espinosa, L., Gormley, W., Ludwig, J., Magnuson, K., Phillips, D., Zaslow, D. *Investing in Our Future: The Evidence Base on Preschool Education*, 2013. Retrieved http://www.fitchburgstate.edu/uploads/files/CMRC/resources/Evidence_Base_on_Preschool_Education_FINAL.pdf
- [24] Hair, E., Halle, T., Terry-Humen, E., Lavelle, B., & Calkins, J. "Children's school readiness in the ECLS-K: Predictions to academic, health, and social outcomes in first grade", *Early Childhood Research Quarterly*, Vol. 21. Pp. 431-454, 2006.
- [25] Ramey, C., & Ramey, S. "Early learning and school readiness: Can early intervention make a difference?", *Merrill-Palmer Quarterly*, Vol/Issue: 50(4). Pp. 471-491, 2004.
- [26] Domitrovich, C.E., Morgan, N.R., Cooper, B.R., Shah, H.K., Jacobson, H.K., Greenberg, M.T. "One versus two years: Does length of exposure to an enhanced preschool program impact the academic functioning of disadvantaged children in kindergarten", *Early Childhood Research Quarterly*, Vol/Issue: 28(4). Pp. 704-713, 2013.
- [27] Reynolds, A., Temple, J., Robertson, D., & Mann, E. "Long-term effects of an early childhood intervention on educational achievement and juvenile arrest", *American Medical Association*, Vol/Issue: 285(18). Pp. 2339-2346, 2001.
- [28] Neuman, S. "From rhetoric to reality: The case for high-quality compensatory pre-kindergarten programs", *Phi Delta Kappan*, Vol/Issue: 85(4). Pp. 286-291, 2004.
- [29] Lubinski, S.T., & Crane, C.C. "Beyond free lunch: Which family background measures matter?", *Education Policy Analysis Archives*, Vol/Issue: 18(11). Pp. 1-39, 2010.
- [30] Marks, G.N. "Issues in the conceptualization and measurement of socioeconomic background: Do different measures generate different conclusions?", *Social Indicators Research*, Vol/Issue: 104(2). Pp. 225-251, 2011.

BIBLIOGRAPHY OF AUTHORS

	<p>Debra Gratz, Ed.D. received her Ed.D in Educational Leadership in 2013 from Youngstown State University. She is currently serving as an elementary principal in the Girard City School District. Her previous experiences include working as an elementary principal in a rural district, K-8 principal in a non-public school setting, an eighth grade teacher and a third grade teacher. The focus of her research is the effect of an early intervention summer program prior to the kindergarten experience to close academic, social/emotional, and gaps in behavior development. Her school has been recognized as a School of Promise as well as receiving the High Performing School Award in the state of Ohio.</p>
	<p>Karen Larwin, PhD. acquired her Ph.D. from Kent State University in Evaluation, Measurement, and Statistics in 2007. She currently serves as a professor at Youngstown State University. Dr. Larwin has participated as the evaluator on multiple federal and state-wide grant supported projects over the past decade. Her primary teaching focus is in the area of research methods, quantitative methods, evaluation, and measurement. She is currently the Lead Chair for the American Evaluation Association's Quantitative Methods: Theory and Design TIG.</p>