

**A STUDY OF THE INSTRUCTIONAL EFFECTIVENESS
OF
Robert-Leslie Publishing's
The InvestiGator Club[®]
*Prekindergarten Learning System***

Report Number 298

June 2007

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A STUDY OF THE INSTRUCTIONAL EFFECTIVENESS OF Robert-Leslie Publishing's *The InvestiGator Club® Prekindergarten Learning System*

EXECUTIVE SUMMARY

This report describes a year-long study of the instructional effectiveness of *The InvestiGator Club Prekindergarten Learning System*, a new classroom-tested, research-based preschool program from Robert-Leslie Publishing. This executive summary gives an overview of the study's findings. More detailed information about the study procedures, data analysis, and findings are provided within the text of the full report, beginning on page 3.

Background Information

Robert-Leslie Publishing contracted with the Educational Research Institute of America (ERIA) to conduct a study of the instructional efficacy of *The InvestiGator Club Prekindergarten Learning System*, the company's new preschool program. ERIA conducted the nationwide study during the 2006–2007 academic year.

An experimental pretest/posttest design was used. The outcome measure for the study was the program assessment, which evaluates students' abilities to perform a variety of tasks within ten areas of learning: language development, literacy, mathematics, science, social studies, creative arts, approaches to learning, physical health/development, social/emotional development, and technology.

Research sites represented a variety of preschool programs, including public, private, and Head Start. Thirty teachers and more than 500 students from nine states (California, Colorado, Connecticut, Florida, Idaho, Illinois, Maryland, Oklahoma, and South Dakota) participated in the study. The teachers were new users of *The InvestiGator Club*, though most had previously taught preschool classes and all were part of a pilot set up by Robert-Leslie Publishing. Teachers were asked to use *The InvestiGator Club* program as the central component of instruction for one year and administer the program assessment as the pretest and posttest measure for the study.

The following research question guided the design of the study and the data analysis:

- *Is The InvestiGator Club Prekindergarten Learning System effective in increasing preschool students' skills and knowledge in a variety of areas of learning?*

ERIA shipped and collected all pretest and posttest materials and conducted all analyses for this study. In addition to an analysis of the full-study sample (total group), analyses for various subgroups based on minority status, socio-economic status, special services, and gender were conducted. Results for the total group and subgroups are presented in the full report. An analysis of the validity and reliability of the testing instrument was conducted alongside the program efficacy study to ensure that the testing instrument adequately assessed the content and was at an appropriate difficulty level. The full report also includes results of Fidelity of Treatment questionnaires and program surveys.

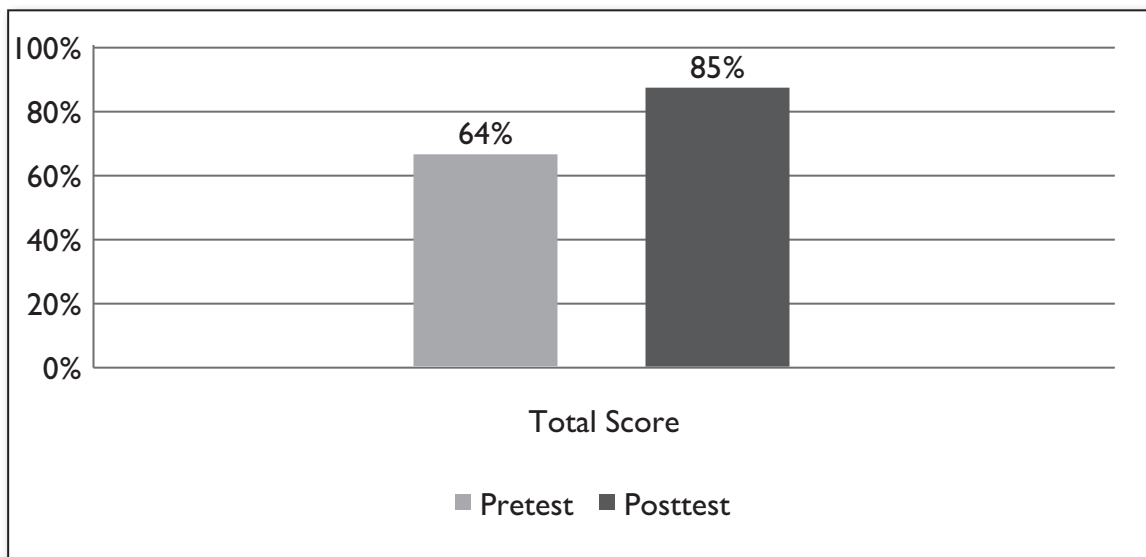
Summary of Results

The total number of students that comprised the final sample included only those who were administered *all subtests* of the pretest and *all subtests* of the posttest. This sample size is 500. Table I and Figure I below provide a summary of the increases students showed on the total scores from pretest to posttest. A complete statistical analysis that includes subtest scores and findings for subgroups within the sample follows in the full report. The results are very positive; students made impressive gains after one year of instruction using *The InvestiGator Club Prekindergarten Learning System*.

Table I
***The InvestiGator Club*[®] Instructional Efficacy Study**
Comparison of Average Scores from Pretesting to Posttesting for
Total Test for Total Group
(N=500)

Test		Number of Items	Mean Score	SD	t-test	Significance
Pretest	Total	60	38.1	13.0	-23.3043	<.0001
Posttest	Total	60	50.7	9.6		

Figure I
***The InvestiGator Club*[®] Instructional Efficacy Study**
Pretest/Posttest Comparison of Mean Percent Correct for Total Group
(N=500)



Pretest to posttest gains for the total study sample (as shown above) and for the various subgroups (results for which appear in the full report) were consistently statistically significant. The results of these analyses provide strong evidence of the instructional efficacy of The InvestiGator Club Prekindergarten Learning System.

A STUDY OF THE INSTRUCTIONAL EFFECTIVENESS OF Robert-Leslie Publishing's *The InvestiGator Club® Prekindergarten Learning System*

This report describes a year-long study of the instructional effectiveness of *The InvestiGator Club Prekindergarten Learning System*, a new preschool program from Robert-Leslie Publishing.

FULL REPORT

Background Information

Robert-Leslie Publishing contracted with the Educational Research Institute of America (ERIA) to conduct a study of the instructional efficacy of *The InvestiGator Club Prekindergarten Learning System*, the company's new preschool program. The nationwide study was conducted during the 2006–2007 academic year.

Research sites represented a variety of preschool programs, including public, private, and Head Start. Thirty teachers and more than 500 students from nine states participated in the study. The teachers were new users of *The InvestiGator Club*, though most had previously taught preschool classes and all were part of a pilot set up by Robert-Leslie Publishing.

The following research question guided the design of the study and the data analysis:

- Is *The InvestiGator Club Prekindergarten Learning System* effective in increasing preschool students' skills and knowledge in a variety of areas of learning?

Design of the Study

A quasi-experimental pretest/posttest research design was used for this study. Teachers were asked to use *The InvestiGator Club* program as the central component of instruction for one year and administer the program assessment as the pretest and posttest measure for the study. Teachers were expected to complete all of the units that comprise the content of the program as described in the accompanying Teacher Guide materials, but this was not required. Teachers were encouraged to adjust program use and schedules to accommodate the needs of their students, as this would simulate a more realistic use of program materials.

Following is the timeline for the study:

June–August 2006: Robert-Leslie Publishing representatives recruit and train pilot sites. ERIA contacts sites to secure a research sample within the pilot.

August–September 2006: Pretest materials are shipped to sites and administered to students. Completed pretests are returned to ERIA.

September 2006–May 2007: *The InvestiGator Club Prekindergarten Learning System* is the focus of instruction at research sites.

April–May 2007: Posttest materials are shipped to sites and administered to students. Completed posttests are returned to ERIA for analysis.

Description of Sample

The research sample for this study was drawn from 18 sites that represented a variety of preschool programs. These included public and private preschools located in nine states—California, Colorado, Connecticut, Florida, Idaho, Illinois, Maryland, Oklahoma, and South Dakota—in various settings (urban, suburban, and rural) and enrolling students from diverse ethnic and socio-economic backgrounds. Among the sites were preschool programs within elementary schools in a large city school district, several suburban city school districts, and an Indian reservation, as well as private preschool programs that are part of community and faith-based organizations.

Instructional Content

Following is a description of *The InvestiGator Club Prekindergarten Learning System*, the program under study, as provided by the program’s publisher:

The InvestiGator Club Prekindergarten Learning System is a comprehensive program of club membership, instruction, teacher support, Spanish and ELL support, and materials for the pre-K classroom. This culturally rich program provides a fully integrated preschool education in literacy, math, science, social studies, oral language, fine arts, and music. Children are taught basic readiness skills such as the alphabet, numbers, shapes, and colors, and they are also encouraged to experiment, build structures, appreciate fine art, sing and dance, and engage in dramatic play. The program uses engaging stories, charming characters, and children’s own curiosity to motivate them to think, solve problems, communicate, and investigate their world. The curriculum also focuses on social and emotional needs as well as physical abilities for young children. Great care is taken to ensure that adaptations and suggestions are offered to accommodate a multitude of special needs. The teaching approach emphasizes interactive learning and invites the entire family to get involved.

Components, lessons, and activities in *The InvestiGator Club* are the result of extensive classroom testing, teacher input, and the latest early childhood research. Written by teachers for teachers, each Teacher Guide offers flexible lesson plans with built-in staff development features. Teachers can teach the way they want to, knowing that they’re meeting key national standards and learning goals for pre-K.

PUTTING RESEARCH INTO PRACTICE

The latest research in how young children learn has validated many of the most time-honored classroom practices—story time, shared writing, learning centers, dramatic play. It has also created a new sense of urgency for educators committed to giving all children the experiences and skills they need to be successful learners.

CHILDREN’S LEARNING BEGINS AT HOME

Valuing family members is critical to children’s success in their earliest school years. *The InvestiGator Club* provides activities, take-homes, and other ideas for family involvement.

CHILDREN LEARN WHEN WE TEACH THEM

The InvestiGator Club provides explicit instruction and model lessons in the substantive Teacher Guide for every Investigation.

CHILDREN LEARN BY DOING

The InvestiGator Club is chock full of active, hands-on activities. We understand the power of play and imagination in young children's development.

CHILDREN LEARN FROM EACH OTHER

Creating a community of learners is one of our missions. *The InvestiGator Club* provides a variety of daily opportunities to solve problems together, brainstorm ideas, and discuss and share stories.

The InvestiGator Club provides everything the research says a good program must include:

- oral language development
- support for second-language learners
- a print-rich environment
- quality children's fiction and nonfiction books
- rich, in-depth, and integrated content across all areas of learning
- "best practices" in literacy for early readers and writers
- opportunities for problem solving
- math and science processes
- individualized instruction for reaching all learners
- provisions for social-emotional growth
- ongoing assessment tools
- staff development

The InvestiGator Club aligns with and supports:

- Early Reading First
- Head Start Child Outcomes
- NAEYC/IRA Joint Position Statement, "Learning to Read and Write: Developmentally Appropriate Practices for Young Children"
- State guidelines

Outcome Assessments

The outcome measure for the study was the program assessment, which evaluates student performance on a variety of tasks within ten areas of learning and development: language development, literacy, mathematics, science, social studies, creative arts, approaches to learning, physical health/development, social/emotional development, and technology. The program assessment is closely aligned to *The InvestiGator Club* content to allow teachers to evaluate what is taught within the program. This individually administered test has an inventory format that guides teachers in asking students to demonstrate such skills as identifying letters, counting, comparing and sorting objects, recognizing different types of sounds, identifying colors, describing attributes of one's self, solving problems, understanding cause/effect relationships, tracing, cutting, balancing, jumping, and a number of other skills in the ten areas of learning and development listed above. Each of the ten areas is evaluated by the test with six tasks. Teachers are asked to indicate whether a student shows proficiency on each task by giving students a score of 1 for Proficient (the student successfully completes the task) or 0 for Not Proficient (the student does not complete the task successfully). The test contains a total of 60 measures.

The program assessment was used as both the pretest and posttest for this study. This means that students were evaluated on the same tasks at the beginning of the school year and at the end. Researchers at ERIA compared average pretest and posttest scores and analyzed score gains.

As an added assurance of the testing instrument's reliability, an additional analysis within the current study was conducted using all posttest data (i.e., score data for all students who took the posttest). For the reliability measurement, the data was analyzed using a traditional item-analysis technique. Each of the tasks that comprise the test was judged as a single item with one point for each correct ("proficient") response. The purpose of the item analysis was to determine whether each test item and the test overall can be considered a reliable measurement.

Note: Because only posttests were used in the item analyses, the N here does not match exactly the sample size used in the group pretest/posttest results that follow, as the latter analyses included only students for whom pretests and posttests could be matched.

Table 2 provides results of the item analysis. The reliability of the test was .94. This reliability index is quite high, indicating that one can place confidence in the test results as a reliable assessment of student learning.

Table 2
Outcome Assessment:
Test Reliability Analysis

Total Number of Test Items	60
Total Number of Students (N)	517
Mean Score Attained	50.6
Mean Percent Correct	84%
Minimum Score Attained	0
Maximum Score Attained	60
Reliability Index	.94
Mean Difficulty of Items	.84
Mean Discrimination of Items	.48

Data Analyses

All of the pretests and posttests were returned to ERIA for analysis. As would be the case in any study of this kind, not all students were in attendance for administration of both the pretest and posttest (due to late enrollment, moves to other schools, illness, etc.). Scores for students with pretests and posttests that could be matched were included within the analysis.

Paired comparison *t*-test analyses were computed for pretest/posttest gains with the $<.05$ level of significance used as the level to accept or reject the hypothesis that scores increased.

Analyses were conducted for the total sample and for four subgroups. Students' score data was disaggregated according to criteria for individual students provided by teachers.

Five separate analyses were conducted and are reported:

1. Total Group Analysis: pretest/posttest comparison for all students for whom both a pretest and posttest were available and could be matched.
2. Minority Group Analysis: pretest/posttest comparison for students identified by teachers as from minority backgrounds compared with students who were identified as majority group.
3. Special Services Analysis: pretest/posttest comparison for students identified as receiving special services (ESEA Title I, Migrant Education, Special Education IEP, or otherwise qualified handicapped under Section 504 of the Rehabilitation Act of 1973) compared with students who were identified as not receiving such services.
4. Socio-Economic Group Analysis: pretest/posttest comparison for students identified as from low socio-economic backgrounds compared with those identified as being from higher socio-economic backgrounds.
5. Gender Analysis: pretest/posttest comparison of students according to gender.

An analysis of the validity and reliability of the testing instrument was conducted alongside the efficacy study of the program to ensure that the instrument adequately assessed the content and was at an appropriate difficulty level. Test reliability results were reported previously within the report. Additionally, teachers completed Fidelity of Treatment questionnaires and program surveys, the results of which appear later in the report.

Results of the Analyses

Total Group Results

Table 3 provides the paired comparison *t*-test results for the Total Group on both the total test and subtest measures. The Total Group includes all students in the research sample for whom pretests and posttests could be matched. All score gains from pretest to posttest were statistically significant (<.0001). This level of significance indicates that such a change would have occurred by chance less than once out of 10,000 times if the study were repeated.

Table 3
Comparison of Average Scores from Pretesting to Posttesting for
Total Test and Subtests
TOTAL GROUP (all students in research sample)
(N=500)

Test		Number of Items	Mean Score	SD	t-test	Significance
Pretest	Total	60	38.1	13.0	-23.3043	<.0001
Posttest	Total	60	50.7	9.6		
Pretest	Language Development	6	5.4	1.1	-8.0550	<.0001
Posttest	Language Development	6	5.9	0.6		
Pretest	Literacy	6	2.3	2.0	-23.5423	<.0001
Posttest	Literacy	6	4.2	1.9		
Pretest	Mathematics	6	3.9	1.7	-16.6886	<.0001
Posttest	Mathematics	6	5.1	1.2		
Pretest	Science	6	3.0	2.1	-17.9581	<.0001
Posttest	Science	6	4.7	1.5		
Pretest	Creative Arts	6	4.7	1.7	-11.5810	<.0001
Posttest	Creative Arts	6	5.6	1.0		
Pretest	Social/Emotional Development	6	4.6	1.7	-12.1094	<.0001
Posttest	Social/Emotional Development	6	5.6	1.1		
Pretest	Approaches to Learning	6	2.7	2.3	-17.7476	<.0001
Posttest	Approaches to Learning	6	4.6	1.9		
Pretest	Physical Health/Development	6	4.2	1.6	-13.5979	<.0001
Posttest	Physical Health/Development	6	5.4	1.2		
Pretest	Social Studies	6	3.2	2.0	-13.8336	<.0001
Posttest	Social Studies	6	4.5	1.6		
Pretest	Technology	6	4.2	1.8	-12.4929	<.0001
Posttest	Technology	6	5.2	1.3		

Figures 2–4 provide a graphic comparison of the average mean scores (total number of tasks out of 60 on which students demonstrated proficiency) from pretest to posttest for the entire study sample.

Figure 2
Pretest/Posttest Comparison of Mean Score Results for Total Group (N=500)

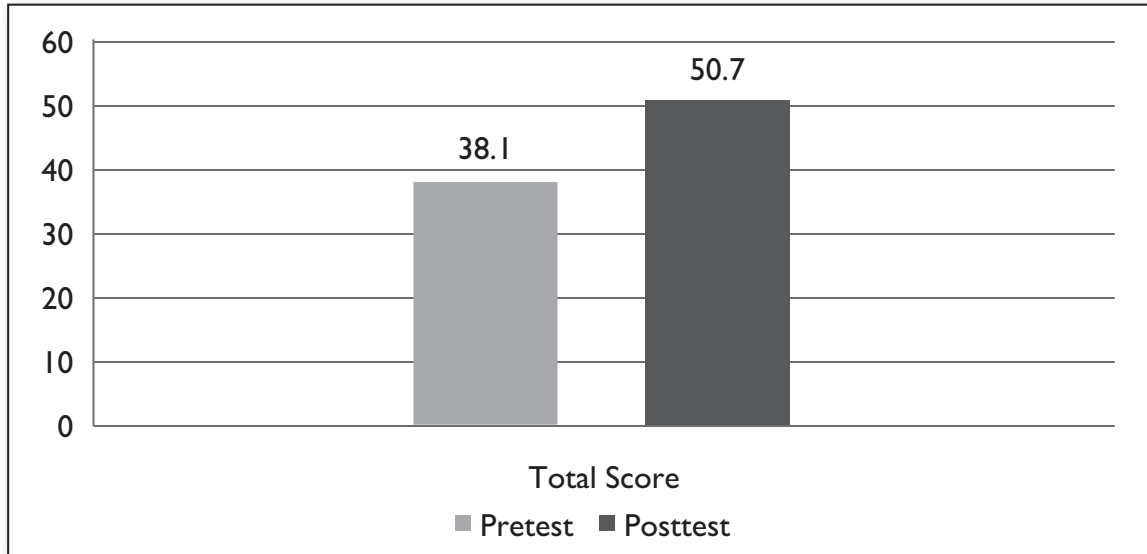


Figure 3
Pretest/Posttest Comparison of Five Subtest Results for Total Group (N=500)

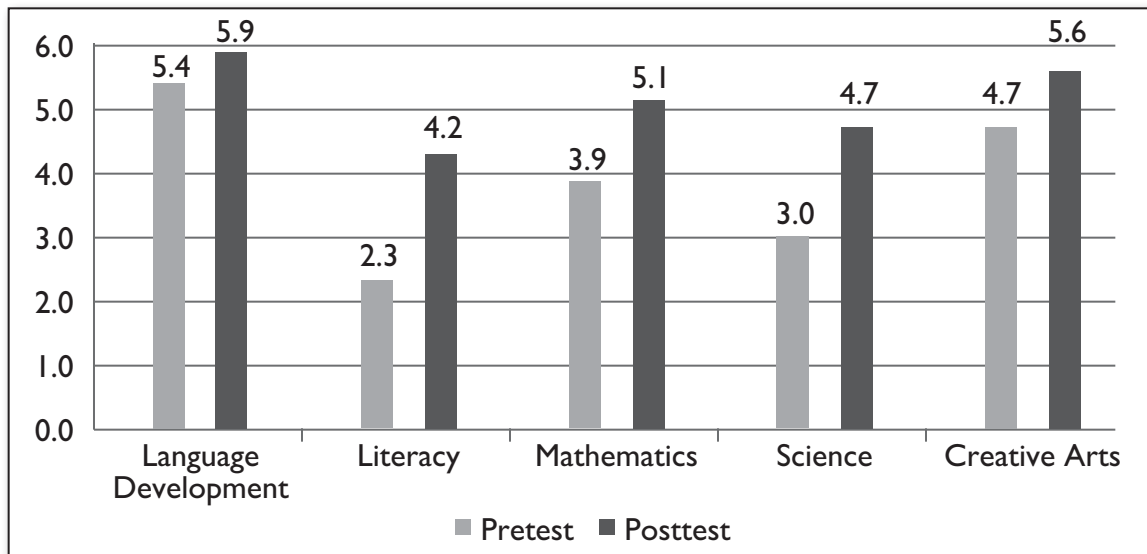
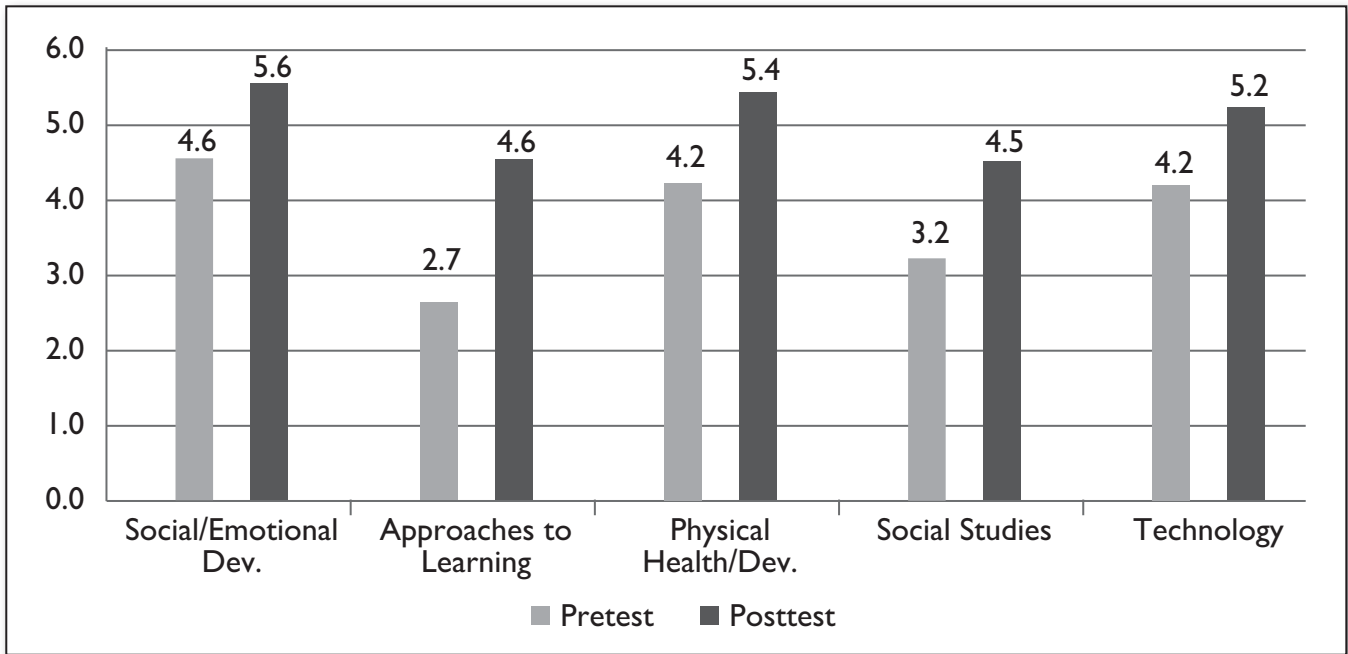


Figure 4
Pretest/Posttest Comparison of Five Subtest Results for Total Group
(N=500)



Minority Group Analysis

A second analysis was conducted to allow comparison between the students who were identified by their teachers as belonging to an ethnic minority group compared with those who were identified as belonging to a non-minority group. On each student’s test, teachers were asked to select from a list the ethnic group that best described the student. Because this information was dependent upon teacher coding, it must be viewed with caution (see note in Data Analyses section above). Of the total, 246 students were identified as being from minority backgrounds and 203 students as from non-minority backgrounds. No information was provided for 51 students.

Tables 4 and 5 show average test scores (representing the number of tasks on which students demonstrated proficiency) for each subgroup and an analysis of pretest to posttest gains. The results show that both the minority group students and the non-minority group students increased their scores and the gains were statistically significant ($<.0001$), indicating a difference that would occur by chance less than one out of 10,000 repetitions.

Table 4
Comparison of Average Scores from Pretesting to Posttesting for
Total Test and Subtests
MINORITY STUDENT SUBGROUP
(N=246)

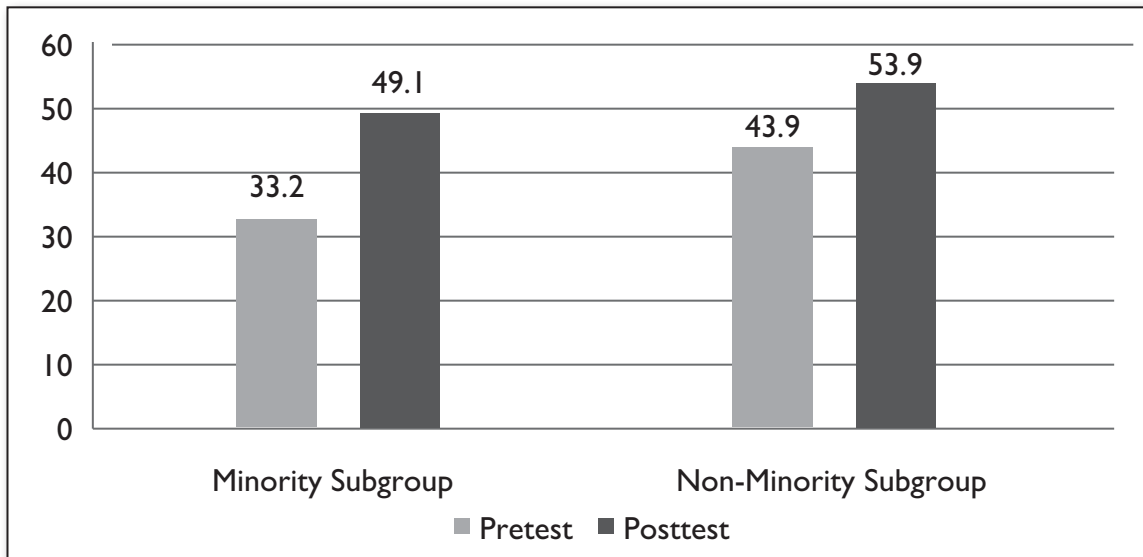
Test		Number of Items	Mean Score	SD	t-test	Significance
Pretest	Total	60	33.2	12.7	-21.5031	<.0001
Posttest	Total	60	49.1	8.6		
Pretest	Language Development	6	5.2	1.3	-8.1765	<.0001
Posttest	Language Development	6	5.9	0.4		
Pretest	Literacy	6	1.6	1.7	-17.5064	<.0001
Posttest	Literacy	6	3.7	1.9		
Pretest	Mathematics	6	3.3	1.7	-15.2122	<.0001
Posttest	Mathematics	6	4.9	1.3		
Pretest	Science	6	2.2	2.0	-17.1310	<.0001
Posttest	Science	6	4.5	1.5		
Pretest	Creative Arts	6	4.1	2.0	-11.4852	<.0001
Posttest	Creative Arts	6	5.6	1.0		
Pretest	Social/Emotional Development	6	4.1	1.8	-12.5088	<.0001
Posttest	Social/Emotional Development	6	5.6	0.9		
Pretest	Approaches to Learning	6	2.0	2.1	-14.3414	<.0001
Posttest	Approaches to Learning	6	4.2	1.9		
Pretest	Physical Health/Development	6	4.0	1.6	-10.9150	<.0001
Posttest	Physical Health/Development	6	5.2	1.2		
Pretest	Social Studies	6	2.7	1.9	-11.2218	<.0001
Posttest	Social Studies	6	4.2	1.6		
Pretest	Technology	6	3.8	1.8	-11.3936	<.0001
Posttest	Technology	6	5.3	1.2		

Table 5
Comparison of Average Scores from Pretesting to Posttesting for
Total Test and Subtests
NON-MINORITY STUDENT SUBGROUP
(N=203)

Test		Number of Items	Mean Score	SD	t-test	Significance
Pretest	Total	60	43.9	10.8	-12.1290	<.0001
Posttest	Total	60	53.9	9.4		
Pretest	Language Development	6	5.7	0.7	-2.7397	<.0001
Posttest	Language Development	6	5.9	0.8		
Pretest	Literacy	6	3.2	2.1	-14.2125	<.0001
Posttest	Literacy	6	5.0	1.5		
Pretest	Mathematics	6	4.5	1.5	-8.6258	<.0001
Posttest	Mathematics	6	5.5	1.1		
Pretest	Science	6	3.7	1.9	-9.5599	<.0001
Posttest	Science	6	5.1	1.3		
Pretest	Creative Arts	6	5.3	1.1	-4.0452	<.0001
Posttest	Creative Arts	6	5.7	1.0		
Pretest	Social/Emotional Development	6	5.2	1.3	-5.1921	<.0001
Posttest	Social/Emotional Development	6	5.7	1.0		
Pretest	Approaches to Learning	6	3.4	2.2	-10.3757	<.0001
Posttest	Approaches to Learning	6	5.2	1.5		
Pretest	Physical Health/Development	6	4.4	1.6	-9.1619	<.0001
Posttest	Physical Health/Development	6	5.6	1.1		
Pretest	Social Studies	6	3.8	1.8	-7.9853	<.0001
Posttest	Social Studies	6	4.9	1.4		
Pretest	Technology	6	4.7	1.5	-5.7080	<.0001
Posttest	Technology	6	5.4	1.3		

Figure 5 provides a comparison of average scores from pretest to posttest for students identified as minority group compared with those identified as non-minority group.

Figure 5
Pretest/Posttest Comparison of Total Test Score
for Minority Students (N=246) and Non-Minority Students (N=203)



Special Services Group Analysis

A third analysis was conducted to allow comparison between the students identified as receiving special services (ESEA Title I, Migrant Education, Special Education IEP, or otherwise qualified handicapped under Section 504 of the Rehabilitation Act of 1973) to those identified as not receiving such services. Special-service status was supplied by teachers. Of the total, 93 students were identified as receiving special services and 318 students as not receiving such services. No information was provided for 89 students.

Tables 6 and 7 show average test scores (representing the number of tasks on which students demonstrated proficiency) for each subgroup and an analysis of pretest to posttest gains. The results show that both the special services group students and the group of students not receiving special services increased scores and the gains were statistically significant ($<.0001$), indicating a difference that would occur by chance less than one out of 10,000 repetitions.

Table 6
Comparison of Average Scores from Pretesting to Posttesting for
Total Test and Subtests
STUDENTS RECEIVING SPECIAL SERVICES SUBGROUP
(N=93)

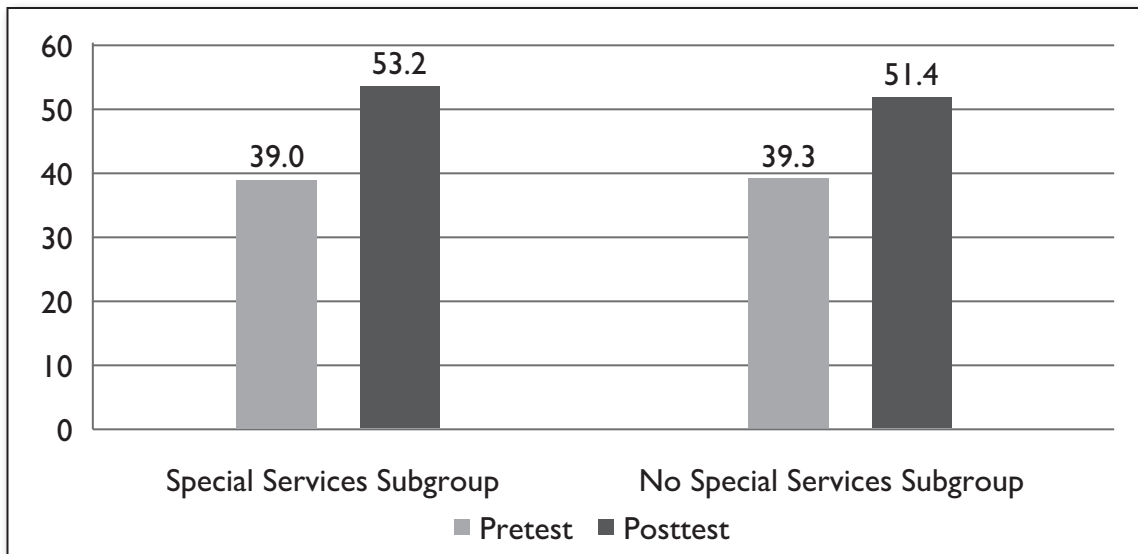
Test		Number of Items	Mean Score	SD	t-test	Significance
Pretest	Total	60	39.0	12.9	-14.2690	<.0001
Posttest	Total	60	53.2	7.5		
Pretest	Language Development	6	5.5	0.9	-4.9661	<.0001
Posttest	Language Development	6	5.9	0.2		
Pretest	Literacy	6	2.5	2.1	-10.3467	<.0001
Posttest	Literacy	6	4.5	1.9		
Pretest	Mathematics	6	3.6	1.7	-12.0680	<.0001
Posttest	Mathematics	6	5.3	1.0		
Pretest	Science	6	3.4	1.9	-11.2348	<.0001
Posttest	Science	6	5.2	1.0		
Pretest	Creative Arts	6	4.8	1.7	-5.8912	<.0001
Posttest	Creative Arts	6	5.8	0.8		
Pretest	Social/Emotional Development	6	4.8	1.5	-6.4989	<.0001
Posttest	Social/Emotional Development	6	5.8	0.7		
Pretest	Approaches to Learning	6	3.0	2.2	-9.4963	<.0001
Posttest	Approaches to Learning	6	5.2	1.5		
Pretest	Physical Health/Development	6	4.1	1.5	-8.6669	<.0001
Posttest	Physical Health/Development	6	5.5	1.0		
Pretest	Social Studies	6	3.1	1.8	-7.6943	<.0001
Posttest	Social Studies	6	4.5	1.4		
Pretest	Technology	6	4.2	1.8	-7.4722	<.0001
Posttest	Technology	6	5.6	0.9		

Table 7
Comparison of Average Scores from Pretesting to Posttesting for
Total Test and Subtests
STUDENTS NOT RECEIVING SPECIAL SERVICES SUBGROUP
(N=318)

Test		Number of Items	Mean Score	SD	t-test	Significance
Pretest	Total	60	39.3	12.5	-17.7925	<.0001
Posttest	Total	60	51.4	9.4		
Pretest	Language Development	6	5.4	1.1	-5.7398	<.0001
Posttest	Language Development	6	5.9	0.7		
Pretest	Literacy	6	2.4	2.0	-18.3682	<.0001
Posttest	Literacy	6	4.3	1.8		
Pretest	Mathematics	6	4.0	1.7	-12.5565	<.0001
Posttest	Mathematics	6	5.2	1.2		
Pretest	Science	6	3.0	2.1	-14.0987	<.0001
Posttest	Science	6	4.8	1.5		
Pretest	Creative Arts	6	4.8	1.7	-7.9094	<.0001
Posttest	Creative Arts	6	5.6	1.0		
Pretest	Social/Emotional Development	6	4.7	1.6	-9.2556	<.0001
Posttest	Social/Emotional Development	6	5.6	1.0		
Pretest	Approaches to Learning	6	2.8	2.3	-13.9920	<.0001
Posttest	Approaches to Learning	6	4.8	1.7		
Pretest	Physical Health/Development	6	4.3	1.6	-10.9649	<.0001
Posttest	Physical Health/Development	6	5.4	1.1		
Pretest	Social Studies	6	3.4	1.9	-10.2585	<.0001
Posttest	Social Studies	6	4.6	1.6		
Pretest	Technology	6	4.4	1.6	-8.3569	<.0001
Posttest	Technology	6	5.3	1.3		

Figure 6 provides a comparison of average scores from pretest to posttest for students receiving special services compared with those who do not.

Figure 6
Pretest/Posttest Comparison of Total Test Score
for Students Receiving Special Services (N=93) and
Students Not Receiving Special Services (N=318)



Socio-Economic Group Analysis

A third subgroup analysis was conducted to allow comparison between the students identified as economically disadvantaged and those identified as not economically disadvantaged. Socio-economic status (SES) was supplied by teachers. On each student's test, teachers were asked to indicate whether the student is "economically disadvantaged" or "not economically disadvantaged." Because this information was dependent upon teacher coding, it must be viewed with caution (see note in Data Analyses section above). Of the total, 163 students were identified as being economically disadvantaged and 189 students as not economically disadvantaged. No information was provided for 148 students.

Tables 8 and 9 show average test scores (representing the number of tasks on which students demonstrated proficiency) for each subgroup and an analysis of pretest to posttest gains. The results show that both the low SES group students and the higher SES group students increased scores and the gains were statistically significant ($<.0001$), indicating a difference that would occur by chance less than one out of 10,000 repetitions.

Table 8
Comparison of Average Scores from Pretesting to Posttesting for
Total Test and Subtests
LOW SES SUBGROUP
(N=163)

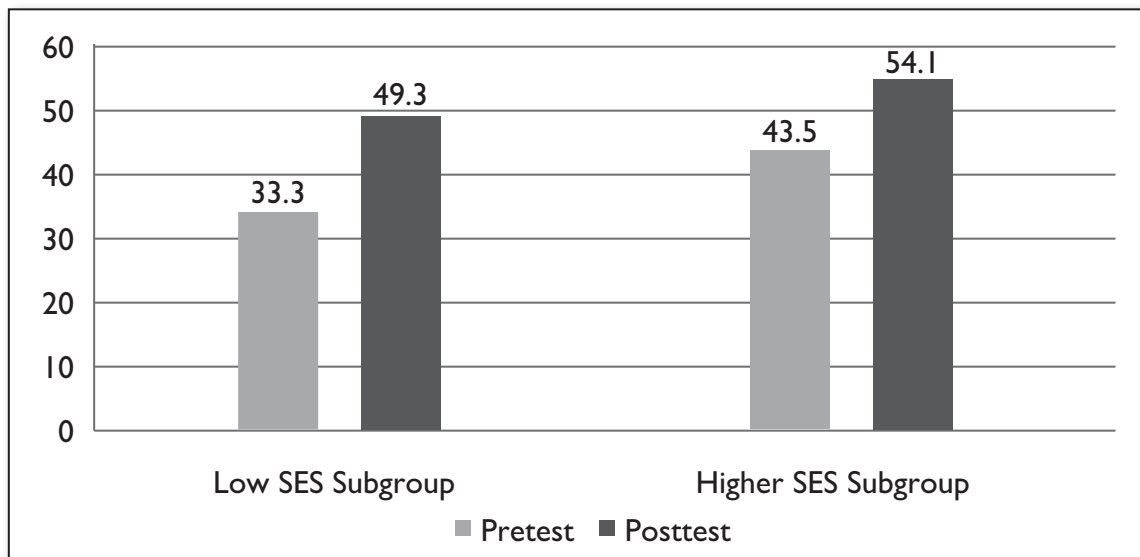
Test		Number of Items	Mean Score	SD	t-test	Significance
Pretest	Total	60	33.0	12.0	-19.6207	<.0001
Posttest	Total	60	49.3	8.4		
Pretest	Language Development	6	5.2	1.3	-6.6058	<.0001
Posttest	Language Development	6	5.9	0.4		
Pretest	Literacy	6	1.4	1.5	-14.9379	<.0001
Posttest	Literacy	6	3.7	1.8		
Pretest	Mathematics	6	3.1	1.7	-13.9203	<.0001
Posttest	Mathematics	6	4.9	1.1		
Pretest	Science	6	2.2	2.0	-16.4635	<.0001
Posttest	Science	6	4.7	1.4		
Pretest	Creative Arts	6	4.1	2.0	-9.0615	<.0001
Posttest	Creative Arts	6	5.5	1.1		
Pretest	Social/Emotional Development	6	4.2	1.8	-9.7877	<.0001
Posttest	Social/Emotional Development	6	5.5	0.9		
Pretest	Approaches to Learning	6	2.1	2.0	-13.4859	<.0001
Posttest	Approaches to Learning	6	4.4	1.8		
Pretest	Physical Health/Development	6	4.1	1.5	-8.6226	<.0001
Posttest	Physical Health/Development	6	5.2	1.1		
Pretest	Social Studies	6	2.7	1.8	-10.3406	<.0001
Posttest	Social Studies	6	4.2	1.6		
Pretest	Technology	6	4.0	1.7	-8.9774	<.0001
Posttest	Technology	6	5.3	1.0		

Table 9
Comparison of Average Scores from Pretesting to Posttesting for
Total Test and Subtests
HIGHER SES SUBGROUP
(N=189)

Test		Number of Items	Mean Score	SD	t-test	Significance
Pretest	Total	60	43.5	11.8	-12.6697	<.0001
Posttest	Total	60	54.1	7.8		
Pretest	Language Development	6	5.6	0.9	-4.0018	<.0001
Posttest	Language Development	6	5.9	0.5		
Pretest	Literacy	6	3.2	2.1	-12.6453	<.0001
Posttest	Literacy	6	4.9	1.6		
Pretest	Mathematics	6	4.4	1.6	-9.5075	<.0001
Posttest	Mathematics	6	5.4	1.1		
Pretest	Science	6	3.8	2.0	-8.1340	<.0001
Posttest	Science	6	5.0	1.4		
Pretest	Creative Arts	6	5.2	1.3	-4.7214	<.0001
Posttest	Creative Arts	6	5.8	0.8		
Pretest	Social/Emotional Development	6	5.1	1.3	-5.9787	<.0001
Posttest	Social/Emotional Development	6	5.8	0.8		
Pretest	Approaches to Learning	6	3.4	2.3	-10.3389	<.0001
Posttest	Approaches to Learning	6	5.3	1.4		
Pretest	Physical Health/Development	6	4.2	1.7	-11.0044	<.0001
Posttest	Physical Health/Development	6	5.6	1.0		
Pretest	Social Studies	6	3.8	1.9	-6.8017	<.0001
Posttest	Social Studies	6	4.9	1.4		
Pretest	Technology	6	4.7	1.5	-6.3734	<.0001
Posttest	Technology	6	5.5	1.1		

Figure 7 provides a comparison of average scores from pretest to posttest for students identified as economically disadvantaged compared with those identified as not economically disadvantaged.

Figure 7
Pretest/Posttest Comparison of Total Test Score
for Low SES Students (N=163) and Higher SES Students (N=189)



Gender Group Analysis

A final subgroup analysis was conducted to allow comparison between male and female students. The gender for each student was indicated by teachers. Of the total, 214 students were identified as being male and 227 students as female. No information was provided for 59 students.

Tables 10 and 11 show average test scores (representing the number of tasks on which students demonstrated proficiency) for each subgroup and an analysis of pretest to posttest gains. The results show that both male students and female students increased scores and the gains were statistically significant ($<.0001$), indicating a difference that would occur by chance less than one out of 10,000 repetitions.

Table 10
Comparison of Average Scores from Pretesting to Posttesting for
Total Test and Subtests
MALE STUDENTS SUBGROUP
(N=214)

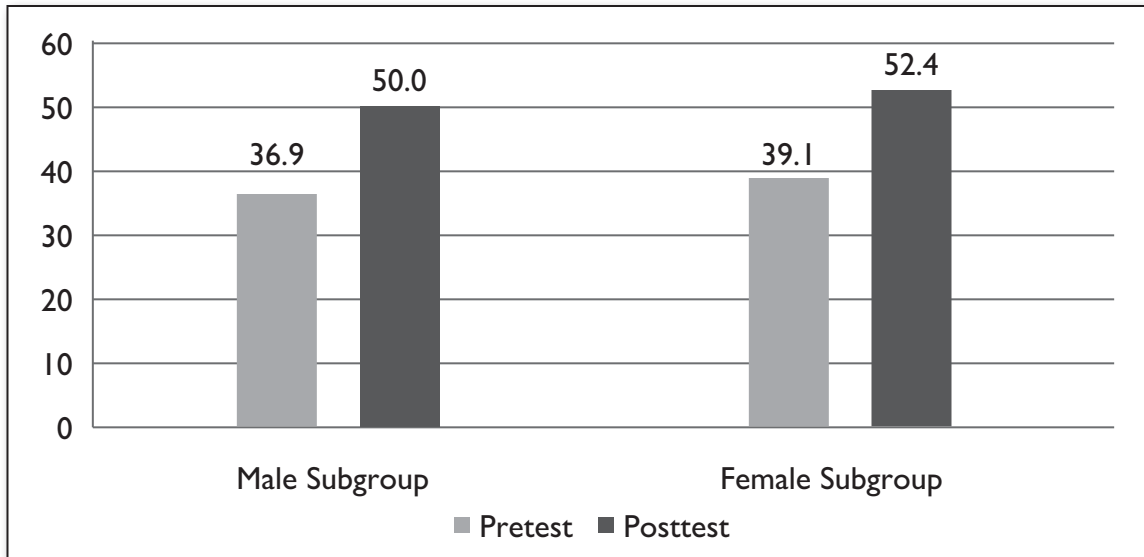
Test		Number of Items	Mean Score	SD	t-test	Significance
Pretest	Total	60	36.9	13.9	-15.3452	<.0001
Posttest	Total	60	50.0	9.7		
Pretest	Language Development	6	5.3	1.2	-6.1069	<.0001
Posttest	Language Development	6	5.9	0.5		
Pretest	Literacy	6	2.3	2.1	-13.2777	<.0001
Posttest	Literacy	6	4.0	1.9		
Pretest	Mathematics	6	3.7	1.8	-11.7984	<.0001
Posttest	Mathematics	6	5.1	1.3		
Pretest	Science	6	2.7	2.1	-13.1926	<.0001
Posttest	Science	6	4.7	1.4		
Pretest	Creative Arts	6	4.6	1.9	-6.8726	<.0001
Posttest	Creative Arts	6	5.5	1.2		
Pretest	Social/Emotional Development	6	4.4	1.8	-8.8178	<.0001
Posttest	Social/Emotional Development	6	5.5	1.0		
Pretest	Approaches to Learning	6	2.6	2.3	-11.6547	<.0001
Posttest	Approaches to Learning	6	4.5	1.9		
Pretest	Physical Health/Development	6	4.1	1.6	-9.2718	<.0001
Posttest	Physical Health/Development	6	5.3	1.2		
Pretest	Social Studies	6	3.0	1.9	-9.9694	<.0001
Posttest	Social Studies	6	4.4	1.6		
Pretest	Technology	6	4.2	1.8	-8.3782	<.0001
Posttest	Technology	6	5.3	1.2		

Table II
Comparison of Average Scores from Pretesting to Posttesting for
Total Test and Subtests
FEMALE STUDENTS SUBGROUP
(N=227)

Test		Number of Items	Mean Score	SD	t-test	Significance
Pretest	Total	60	39.1	12.2	-17.1362	<.0001
Posttest	Total	60	52.4	8.8		
Pretest	Language Development	6	5.5	1.0	-4.8806	<.0001
Posttest	Language Development	6	5.9	0.6		
Pretest	Literacy	6	2.4	2.0	-18.4960	<.0001
Posttest	Literacy	6	4.6	1.8		
Pretest	Mathematics	6	4.0	1.7	-11.7205	<.0001
Posttest	Mathematics	6	5.2	1.2		
Pretest	Science	6	3.1	2.1	-12.9416	<.0001
Posttest	Science	6	4.9	1.4		
Pretest	Creative Arts	6	4.8	1.6	-8.7227	<.0001
Posttest	Creative Arts	6	5.7	0.8		
Pretest	Social/Emotional Development	6	4.8	1.5	-8.9737	<.0001
Posttest	Social/Emotional Development	6	5.7	0.8		
Pretest	Approaches to Learning	6	2.7	2.2	-13.0326	<.0001
Posttest	Approaches to Learning	6	4.9	1.7		
Pretest	Physical Health/Development	6	4.2	1.6	-10.5288	<.0001
Posttest	Physical Health/Development	6	5.4	1.2		
Pretest	Social Studies	6	3.4	1.9	-9.2611	<.0001
Posttest	Social Studies	6	4.7	1.5		
Pretest	Technology	6	4.3	1.6	-8.5939	<.0001
Posttest	Technology	6	5.3	1.2		

Figure 8 provides a comparison of average scores from pretest to posttest for male and female students.

Figure 8
Pretest/Posttest Comparison of Total Test Score
for Male Students (N=214) and Female Students (N=227)



Conclusions

This report presents the results of a study of the instructional effectiveness of *The InvestiGator Club Prekindergarten Learning System*, a new preschool program from Robert-Leslie Publishing. A total of 500 students from nine states and a diverse range of preschool settings and ethnic and socio-economic backgrounds comprised the research sample.

The results of the various analyses were very positive in demonstrating the effectiveness of the program in increasing the students' knowledge and skills in ten areas of learning and development.

- Proficiency, as evidenced by score increases, improved statistically significantly for the total group of students.
- Proficiency, as evidenced by score increases, improved statistically significantly for the students who were categorized as belonging to an ethnic minority group as well as for those who were categorized as majority group.
- Proficiency, as evidenced by score increases, improved statistically significantly for the students who received special services as well as for those who did not receive such services.
- Proficiency, as evidenced by score increases, improved statistically significantly for the students who were categorized as economically disadvantaged as well as for those who were categorized as not economically disadvantaged.
- Proficiency, as evidenced by score increases, improved statistically significantly for both male and female students.
- The Fidelity of Treatment survey revealed that the program was a central part of the learning in the teachers' classrooms, but use was not rigid or restrictive—teachers made adaptations and brought in other materials and activities to complement the program and meet students' needs.
- The teacher ratings of the program components, curriculum, and other aspects of the program were all very positive.

This study sought to determine if The InvestiGator Club Prekindergarten Learning System program is instructionally effective. The results of this study provide a very positive response to that question.