

Rhymes 'n' Times Research Study

Introduction

Within the past decade, there has been a surge of studies focusing on primary education methodologies, and in particular, the effectiveness and efficiency of multi-sensory education. Multi-sensory is a term describing an instructional approach that combines visual (seeing), auditory (hearing), kinesthetic (movement), and tactile (touch) elements into a learning task. In theory, the incorporation of multiple senses within the learning process ultimately engages all students because all 4 learning styles are addressed. Thus, the implication is that not only will all students learn, but all students will learn at a faster rate because the concerted sensory coordination to a specific learning task will be maximized.

Rhymes 'n' Times was launched into the educational community in August 2000 and has since received copious praise from all of the parents, teachers, and administrators who have witnessed its success. This study is intended to quantify its success in terms of student performance on comprehensive exams which include all multiplication facts, 0–12's.

The study included 114 students, 90 of whom were classified as Regular Education students, and 24 of whom were classified as Special Education students. Six Rhymes 'n' Times classroom kits were disseminated to six independent teachers in 6 separate classrooms within the state of Louisiana. Of these six classrooms, four were third-grade classrooms and two were fourth-grade classrooms. The Special Education students involved in the study were integrated with the Regular students for all Rhymes 'n' Times lessons and activities. The size of the individual classrooms ranged from 14 to 28 students.

Prior to implementation of the Rhymes 'n' Times program, a comprehensive pretest consisting of all multiplication facts, 0–12, was disseminated to each student in order to quantify all preliminary knowledge of the times tables. The performance of each child was then recorded for statistical analysis. Each of the six teachers then independently utilized the Rhymes 'n' Times program within their classrooms for a duration of 3 weeks. Upon completion of the program, a posttest (identical to the pretest taken only 3 weeks prior) was administered to each of the 114 students involved in the study. The performance of each child was again recorded for statistical analysis. Performance of the study group is illustrated below in the Analysis section of this report.

Analysis

The results from the pretests and posttests were segregated into a Regular Education compilation and a Special Education compilation. The results presented below remain segregated in order to accurately represent the effectiveness of Rhymes 'n' Times with both Regular and Special Education students. **Table I** illustrates the results of Rhymes 'n' Times with Regular Education students. **Table II** illustrates the results of Rhymes 'n' Times with Special Education Students.

<i>Pretest</i>		<i>Posttest</i>	
Mean	30.5	Mean	92.133
Standard Error	2.8645	Standard Error	0.8858
Median	23.5	Median	95.5
Mode	9	Mode	100
Standard Deviation	27.175	Standard Deviation	8.403
Sample Variance	738.5	Sample Variance	70.611
Kurtosis	-0.296	Kurtosis	-0.482
Skewness	0.8845	Skewness	-0.894
Range	100	Range	30
Minimum	0	Minimum	70
Maximum	100	Maximum	100
Sum	2745	Sum	8292
Count	90	Count	90
Confidence Level(95.0%)	5.6918	Confidence Level(95.0%)	1.76

Table I. Descriptive statistics illustrating the performance of Regular students on the pretest and posttest.

<i>Pretest</i>		<i>Posttest</i>	
Mean	10.708	Mean	46.333
Standard Error	3.4565	Standard Error	5.1509
Median	3	Median	45.5
Mode	0	Mode	51
Standard Deviation	16.933	Standard Deviation	25.234
Sample Variance	286.74	Sample Variance	636.75
Kurtosis	6.0524	Kurtosis	-0.657
Skewness	2.5008	Skewness	0.3763
Range	65	Range	89
Minimum	0	Minimum	8
Maximum	65	Maximum	97
Sum	257	Sum	1112
Count	24	Count	24
Confidence Level(95.0%)	7.1503	Confidence Level(95.0%)	10.655

Table II. Descriptive statistics illustrating the performance of Special Education students on the pretest and posttest.

To visually display the pretest and posttest results, the histograms below illustrate the relative frequency of scores on the pretests and posttests for Regular and Special Education students. The diagrams are displayed as **Chart I, II, III, and IV**, respectively.

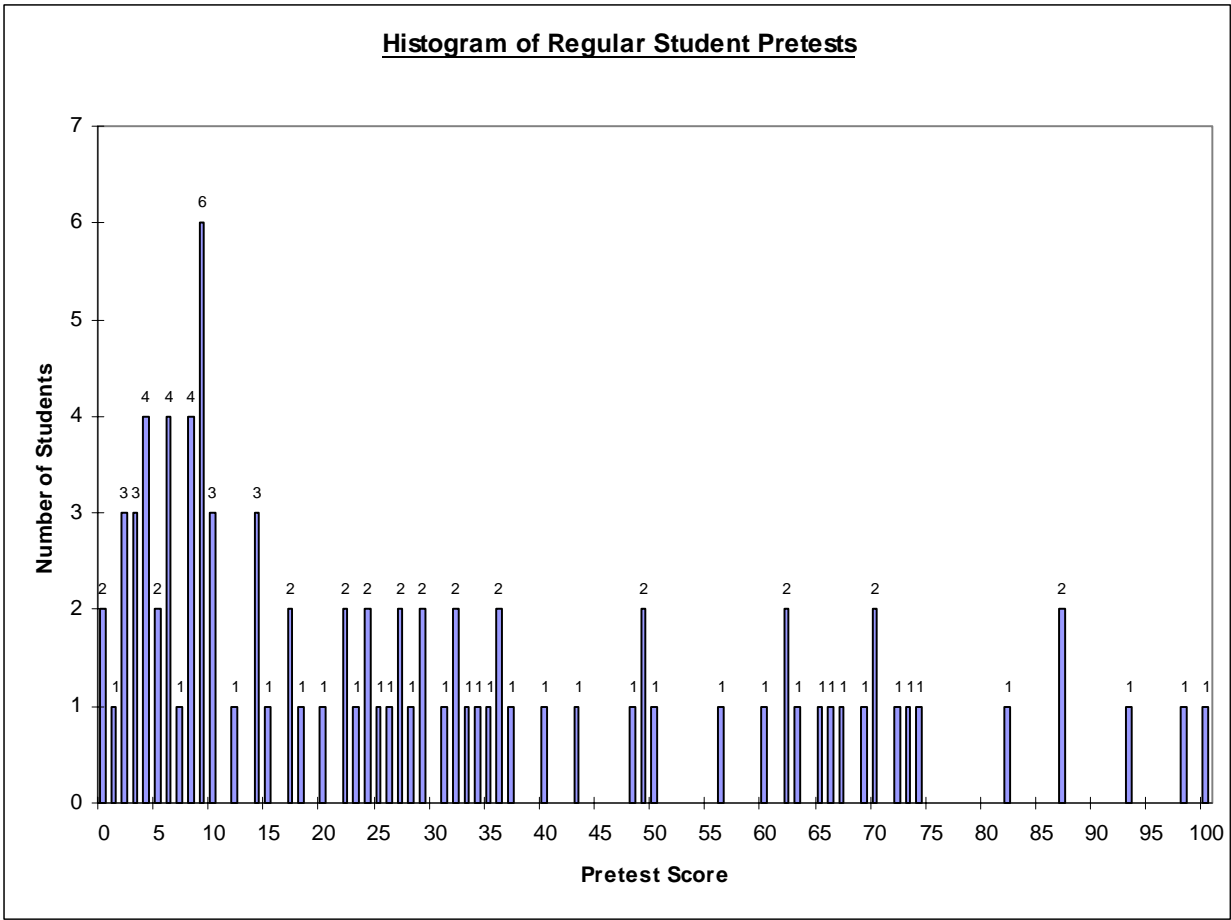


Chart I. Histogram illustrating the relative frequency of Regular student pretest scores.

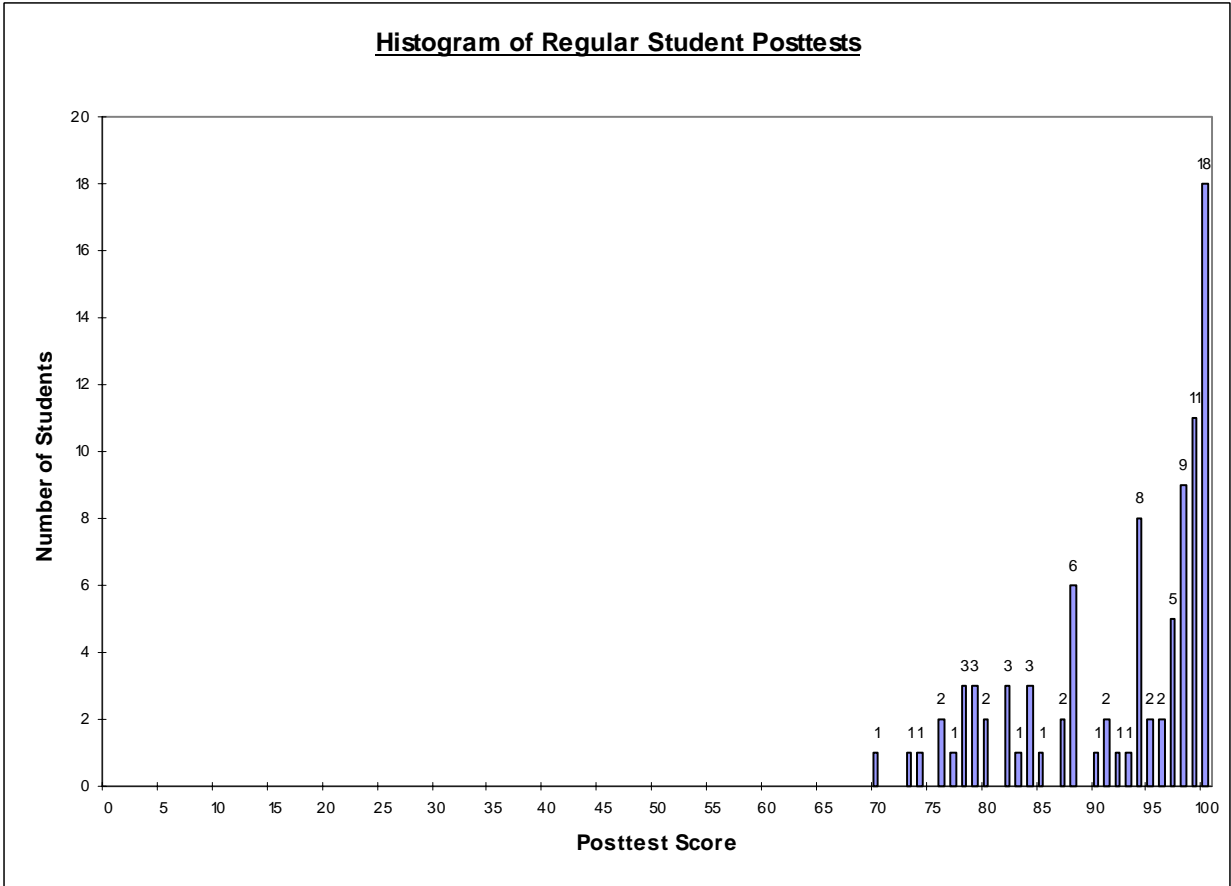


Chart II. Histogram illustrating the relative frequency of Regular student posttest scores.

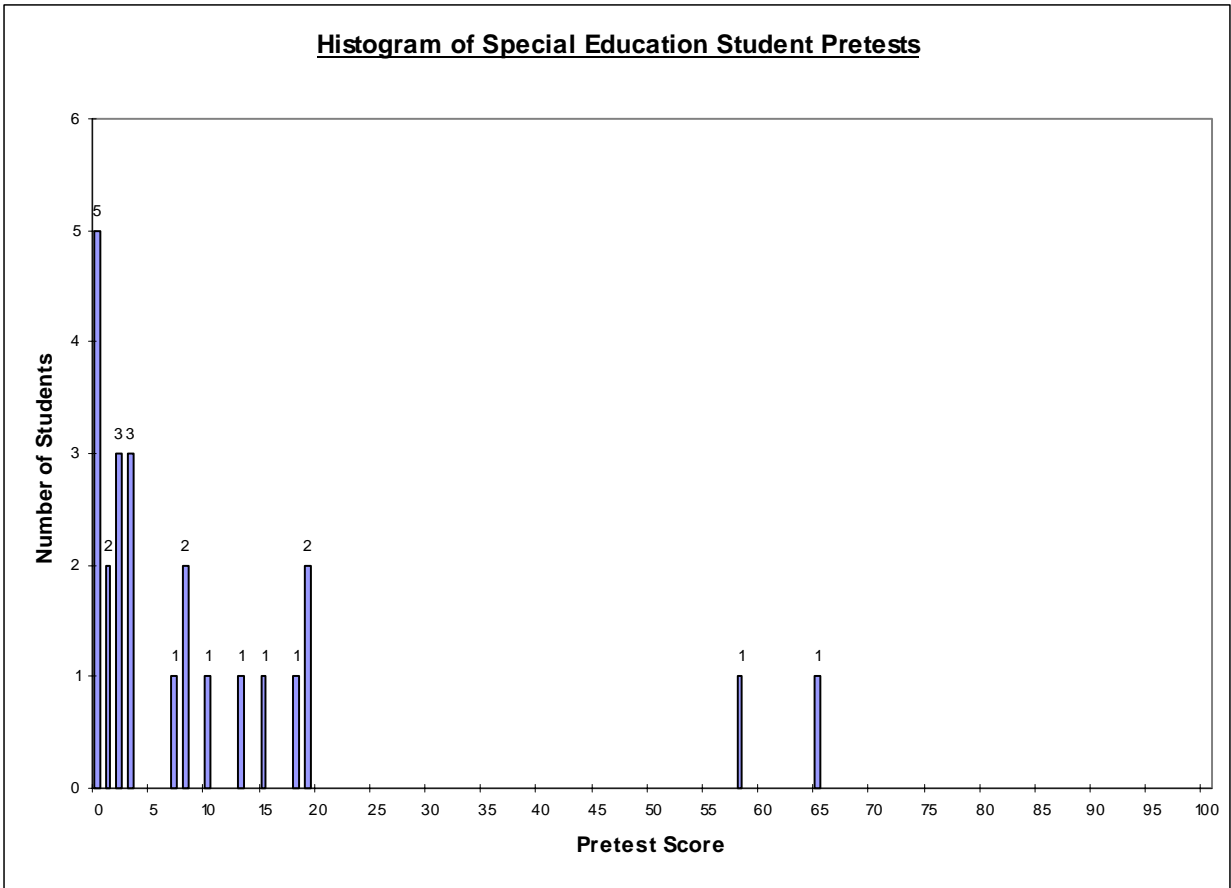


Chart III. Histogram illustrating the relative frequency of Special Education pretest scores.

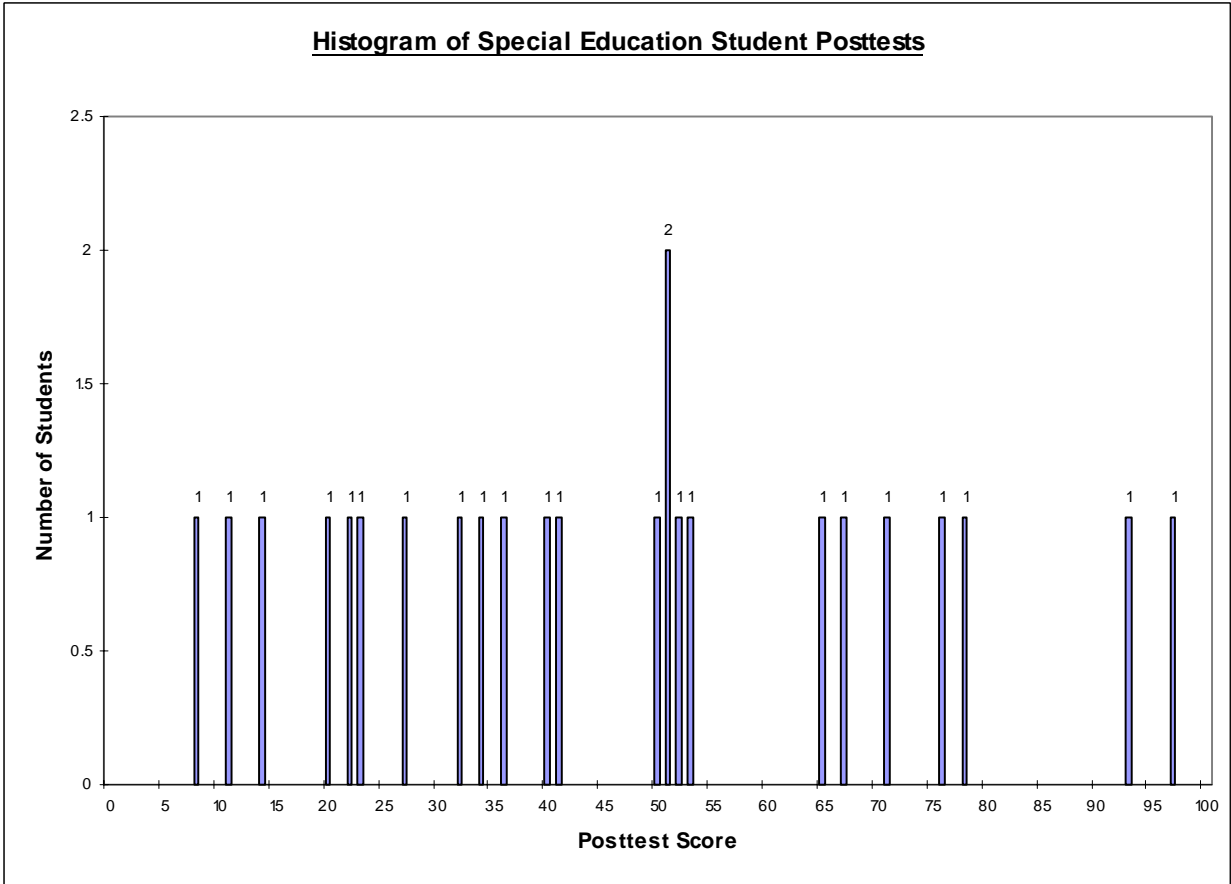


Chart IV. Histogram illustrating the relative frequency of Special Education posttest scores.

The bar graphs below visually represent the average student scores on the pretest and posttest. The diagrams are displayed as **Chart V and VI**, respectively.

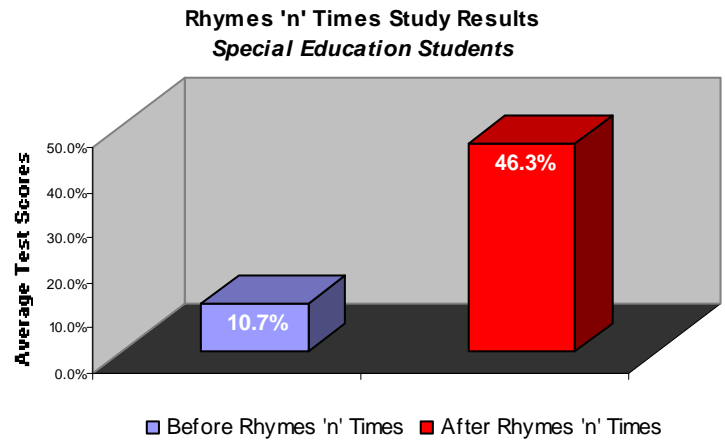
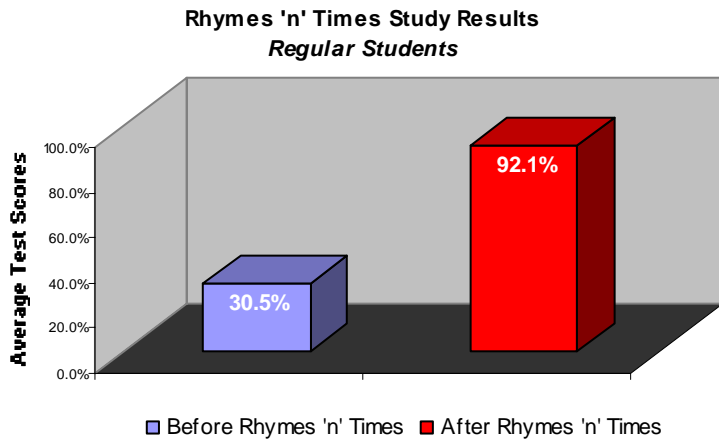


Chart V. Bar chart illustrating the average performance of Regular students on the pretest and posttest.

Chart VI. Bar chart illustrating the average performance of Special Education students on the pretest and posttest.

Conclusions

The descriptive statistics above indicate that Rhymes ‘n’ Times has an outstanding performance record for both Regular and Special Education students, especially considering these results were obtained in **ONLY 3 WEEKS!**

Regular Student Performance

The descriptive statistics of this study reveal a drastic and definitive increase in knowledge of the average Regular student. These numbers indicate that before using the Rhymes ‘n’ Times program, the average Regular student knew only 30.5% of all multiplication facts. Upon completion of the program in **ONLY 3 WEEKS**, their knowledge was increased to 92.1% of all facts, 0–12. Analysis of the Regular student pretest histogram reveals that 78 out of the 90 Regular students scored less than 70% on the pretest, with 30 students scoring less than 10%. After **ONLY 3 WEEKS** of using the multi-sensory Rhymes ‘n’ Times program, no student scored less than 70% on the posttest. In fact, 18 students scored 100%, 11 students scored 99%, and 9 students scored 98%.

Special Education Student Performance

The descriptive statistics of this study reveal the amazing effectiveness and efficiency of the Rhymes ‘n’ Times program with Special Education Students. The numbers indicate that prior to utilizing Rhymes ‘n’ Times, the average Special Education student knew only 10.7% of the multiplication facts. Upon completion of the program in **ONLY 3 WEEKS**, their knowledge was increased to 46.3% of all facts, 0–12. Analysis of the Special Education histograms reveals a dispersion of results that reflects the varying disabilities of each student. Nevertheless, 22 of the 24 students involved in the study scored below 20% on the pretest. Incredibly, after **ONLY 3 WEEKS** of utilizing Rhymes ‘n’ Times, only 3 students scored below 20% on the posttest, 12 scored greater than 50%, and 2 students scored greater than 90%.