Analysis and Results

The data obtained by survey of teachers was entered in a spreadsheet. It was transferred to Statistical Package for Social Services (SPSS vs 18) and analyzed for frequencies and percentages. Inferential statistical was also conducted using SPSS in order to test the proposed hypothesis. The statistical software enables the researcher to process the data in different ways, also it helps in identification of relationships and generating the graphical presentations. The data obtained from students was also treated in the same manner.

The inferential statistics helps in generalizing the research results for wider population. The inferential statistics like analysis of variance (ANOVA) and General linear model (GLM) of covariance helps the researcher to test the observed relationships. ANOVA is often used as a statistical test to test the mean difference between three or more groups. The General Linear Model is most often used test in applied and social research. It acts a basis for t – test, analysis of variance (ANOVA), Analysis of covariance (ANCOVA), regression analysis and other multivariate analysis techniques such as factor analysis, cluster analysis and canonical correlation. $y=b0 + bx +e$ where y = a set of outcome variables, x = a set of independent variables, b0=the set of intercepts, b = a set of coefficients, one each for each x. In this study, GLM is used as multivariate analysis method. This method also helps in inclusion of categorical and ordinal variables.

Descriptive analysis

Five teachers responded to the survey by the researcher. On analysis of the baseline characteristics, 80% of the teachers were from Southampton Intermediate school (N=4) and another teacher was from West wind Academy and Southampton Intermediate school. On inquiry of the teachers about their working pattern, about 80% of the teachers were working all the time in the school (N=4) and another teacher who worked for 5 years was not working in the school for entire time. Sixty percent of teachers were teaching 8^{th} grade (N=3), one teacher (20%) was teaching for both 7^{th} and 8^{th} grade and one teacher was teaching 7^{th} grade only. The balanced literacy period of 80% of the teachers was for a span of 60 minutes (N=4). The balanced literacy periods were continuous by all the teachers (100%, N=5).

Table 1. Demographic characteristics of the teachers

	Frequency	Percent
What is the name of the school where you were working during 2004 to 2007?		

Southampton Intermediate School	4	80.0
West wind Academy and Southampton Intermediate School	1	20.0
Were you working there the entire time?		
No	1	20.0
Yes	4	80.0
If you answered no, what years did you teach there?		
	5	100.0
What grade level(s) did you teach at that time?		
7	1	20.0
7 and 8	1	20.0
8	3	60.0
How long was your Balanced Literacy class period?		
50 Minutes	1	20.0
60 minutes	4	80.0
Was your Balanced Literacy class period Continuous or Interrupted?		
Continuous	5	100.0

Table no 2 shows instructions of the balanced literacy program. Most of the (80%) of the teachers worked occasionally with students in small groups based on the children literacy needs (N=4) and one teacher worked few times a week. Forty of the teachers differentiated core instruction for their students based needs both occasionally and weekly (N=2 each) and one teacher few times a week. All the teachers allowed their students to take reading materials from classroom and library to home on daily basis (100%, N=5). About 40% of the teachers expressed that they had students to work in the literacy centers or station that were designed to support occasionally (N=2) and one teacher never allowed them. Forty percent of the teachers supported student literacy by offering a wide variety of leveled reading materials weekly (N=2) one teacher each allowed them occasionally, few times a week and on daily basis. Overall the instructions of balanced literacy program were followed by the teachers either occasionally or weekly.

Table 2. Instructions of balanced literacy program

	Frequency	Percent
I worked with students in small groups based on their literacy needs:		
Occasionally	4	80.0
Few times a week	1	20.0
I differentiated core instruction for my students based on their needs		
Occasionally	2	40.0
Weekly	2	40.0

	Frequency	Percent
Few times a week	1	20.0
I allowed my students to take reading materials from the classroom library home		
Daily	5	100.0
I had students work in literacy centers or stations that were designed to support		
Never	1	20.0
Occasionally	2	40.0
Weekly	1	20.0
Few times a week	1	20.0
I supported student literacy by offering a wide variety of leveled reading materials in		
Occasionally	1	20.0
Weekly	2	40.0
Few times a week	1	20.0
Daily	1	20.0

Table no 3 summarizes the teaching and training experience in the program. A few times a week, about 40% of the teachers used the strategies from the balanced literacy unit maps during instruction (N=2), one teacher never used, another used occasionally and one teacher used daily. Weekly and few times in a week, 40% of the teachers asked students to summarize and reflection on readings that they read in class (N=2 each) and another teacher asked daily. About forty percent of the teachers used mentor authors and texts to model literacy skills during mini lessons both weekly and few times a week (N=2 each) and one teacher used daily.

Table 3. Training and Teaching experience in the program

	Frequency	Percent
I used the strategies from the Balanced Literacy Unit Maps during instruction		
Never	1	20.0
Occasionally	1	20.0
Few times a week	2	40.0
Daily	1	20.0
I asked students to summarize and reflect on readings that we read in class		
Weekly	2	40.0
Few times a week	2	40.0
Daily	1	20.0
I used mentor authors and texts to model literacy skills during mini lessons		
Weekly	2	40.0
Few times a week	2	40.0
Daily	1	20.0

From the following table we can observe that, 80% of the teachers discussed with students the words used in reading materials to check for few times a week (N=4) and one teacher discussed weekly. Forty percent of the occasionally and weekly the teachers kept track of their own student's progress in reading and writing through conferences (N=2 each) and one teacher had daily. Forty percent of the teachers had their students keep track of their own progress occasionally and few times a week (N=2 each) and another teacher weekly. About 60% of the teachers expressed that they spent a portion of classroom time on activities like read alouds, independent few times a week (N=3) and one occasionally and another daily. Forty percent each of the teachers never and 40% weekly met their grade level colleagues to discuss about balanced literacy program and one teacher expressed it has few times a week.

Table 4. Experience in the balanced literacy program

	Frequency	Percent
I discussed with students the words used in reading materials to check for		
Weekly	1	20.0
Few times a week	4	80.0
I kept track of my own student's progress in reading and writing through conferences		
Occasionally	2	40.0
Weekly	2	40.0
Daily	1	20.0
I had my students keep track of their own progress		
Occasionally	2	40.0
Weekly	1	20.0
Few times a week	2	40.0
I spent a portion of classroom time on activities like Read Alouds, Independent		
Occasionally	1	20.0
Few times a week	3	60.0
Daily	1	20.0
Apart from staff meetings, I met with my grade - level colleagues to discuss Balanced		
Never	2	40.0
Weekly	2	40.0
Few times a week	1	20.0

From the following table we can observe that, 60% of the teachers attended professional development trainings regarding balanced literacy program and 40% didn't attend any such program. Majority (60%) of the teachers attended professional training outside of the school district in balanced literacy program and about 40% didn't attend any such program. About 60%

of the teachers were teaching in a balanced literacy model over two years and 40% of them were teaching under two years.

Table 5. Training regarding balanced literacy program

	Frequency	Percent
Did you attend any professional development trainings regarding Balanced Literacy		
No	2	40.0
Yes	3	60.0
Have you had any professional training outside of the school district in Balanced		
No	2	40.0
Yes	3	60.0
How many years had you been teaching in a Balanced Literacy Model?		
Under Two Years	2	40.0
Over Two Years	3	60.0

From the following table we can observe that 59.4% of the students of 8th grade were male students and 40.6% were females. On examining the race of the students, 83% were whites, 6.7% were blacks, 4.2% were Asian students, 1.8% were American Indians and 4.2% were Hispanics. About 72.7% belonged to high socio economic status, 17.3% belonged to Medium and 10% of the student belonged to Low class of socio-economic status. About 120 students were enrolled before implementation of balanced literacy program in the year 2005, 113 in the year 2006 during implementation and 97 after implementation of the program participated in the study.

Table 6. Characteristics of Students

	Frequency	Percent
Gender		
Male	196	59.4
Female	134	40.6
Ethnicity		
White	274	83.0
Black	22	6.7
Asian	14	4.2
American Indian	6	1.8
Hispanic	14	4.2
SES		
High	240	72.7
Medium	57	17.3

	Frequency	Percent
Low	33	10.0
Group		
Grade 8 ELA Score from June, 2005 (Before Implementation of Balanced Literacy Program)	120	36.4
Grade 8 ELA Score from January, 2006 (During Implementation of Balanced Literacy Program)	113	34.2
Grade 8 ELA Score from January, 2007 (After Implementation of Balanced Literacy Program)	97	29.4

From the following table we can observe that the overall mean score in the study group was 684.43 ranging from 679.69 to 689.18 within 95% of the confidence interval with a standard deviation of 43.795.

Descriptives

			Statistic
Scores	Mean		684.43
	Std. Deviation		43.795
	95% Confidence Interval for Mean	Lower Bound	679.69
		Upper Bound	689.18

From the following table we can observe that the mean score for 8th grade students before implementation of the balanced literacy program was 719.42 with a standard deviation 34.186 ranging from 713.24 to 725.60 with a confidence interval, during implementation phase was 656.18 with a standard deviation of 33.171 ranging from 649.99 to 662.36 with a confidence interval and after implementation was 674.07 with a standard deviation of 35.536 ranging from 666.91 to 681.36 within 95% confidence interval.

Descriptives

	Group			Statistic
Scores	Grade 8 ELA Score from June, 2005 (Before Implementation of Balanced Literacy Program)	Mean		719.42
		95% Confidence Interval for Mean	Lower Bound	713.24
			Upper Bound	725.60
		Std. Deviation		34.186
	Grade 8 ELA Score from January, 2006 (During Implementation of Balanced Literacy Program)	Mean		656.18
		95% Confidence Interval for Mean	Lower Bound	649.99
			Upper Bound	662.36

		Std. Deviation		33.171
Grade 8 ELA Score from January, 2007 (After Implementation of Balanced Literacy Program)		Mean		674.07
		95% Confidence Interval for Mean	Lower Bound	666.91
			Upper Bound	681.23
		Std. Deviation		35.536

Bivariate analysis

In order to determine whether there is a significant difference between the groups regarding the scores, a one way analysis of variance was applied using SPSS.

ANOVA

Scores

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	247494.912	2	123747.456	105.507	.000
Within Groups	383534.122	327	1172.887		
Total	631029.033	329			

From the table above we can observe a statistically significant difference between the groups and scores, at a significance level of 0.05 with 2 degrees of freedom and 172 within group mean squares (variance estimate). The critical value of F is 3. Since its computed value is 105.507, which is more than the critical value.

ANCOVA

In order to determine the association between the scores and groups before and after implementation of balanced literacy program, a general linear model was applied using SPSS.

Tests of Between-Subjects Effects

Dependent Variable:Scores

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	127911.945[a]	4	31977.986	20.657	.000
Intercept	8340253.129	1	8340253.129	5387.577	.000
Gender	434.055	1	434.055	.280	.597
Ethnicity	1830.646	1	1830.646	1.183	.278
SES	.051	1	.051	.000	.995
Group	123537.599	1	123537.599	79.802	.000
Error	503117.088	325	1548.053		
Total	1.552E8	330			
Corrected Total	631029.033	329			

Tests of Between-Subjects Effects

Dependent Variable:Scores					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	127911.945[a]	4	31977.986	20.657	.000
Intercept	8340253.129	1	8340253.129	5387.577	.000
Gender	434.055	1	434.055	.280	.597
Ethnicity	1830.646	1	1830.646	1.183	.278
SES	.051	1	.051	.000	.995
Group	123537.599	1	123537.599	79.802	.000
Error	503117.088	325	1548.053		
Total	1.552E8	330			
Corrected Total	631029.033	329			

a. R Squared = .203 (Adjusted R Squared = .193)

From the table above we can observe that there was a significant difference for group with p value of 0.000<0.05 of the balanced literacy program at 0.05 levels. The p value for Gender was 0.597>0.05, Ethnicity was 0.278>0.05 and socio – economic status was 0.995>0.05 which were not significant at 0.05 levels.

You can accept or Reject this section.

RQ1: How does Balanced Literacy impact and affect state test scores at the 8th grade level from before implementation in 2005 to after implementation in 2006?

In order to determine whether there is significant difference between tests scores of the 8th grade level from before implementation in 2005 to after implementation in 2006, an independent sample t test was applied using SPSS.

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Scores	Equal variances assumed	.288	.592	14.317	231	.000	63.240	4.417	54.537	71.943
	Equal variances not assumed			14.330	230.789	.000	63.240	4.413	54.544	71.935

From the table above we can observe that the t test statistic was 14.317 and its corresponding p

value was 0.000<0.05. Since p value is less than 0.05 we can conclude that there is a significant difference between the test scores of the 8th grade level from before implementation in 2005 to after implementation in 2006.

RQ2: Does the effect of training in the Balanced Literacy program have an impact on NYS 8th Grade English Language Arts Exam (reading and writing scores), between the years of 2006 and 2007?

In order to determine whether there is significant difference between tests scores of the 8th grade level between the years 2006 and 2007, an independent sample t test was applied using SPSS.

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Scores	Equal variances assumed	.026	.871	-3.771	208	.000	-17.895	4.745	-27.250	-8.540
	Equal variances not assumed			-3.751	198.247	.000	-17.895	4.770	-27.302	-8.488

From the table above we can observe that the t test statistic was -3.771 and its corresponding p value was 0.000<0.05. Since p value is less than 0.05 we can conclude that there is a significant difference between the tests scores of the 8th grade level between the years 2006 and 2007.