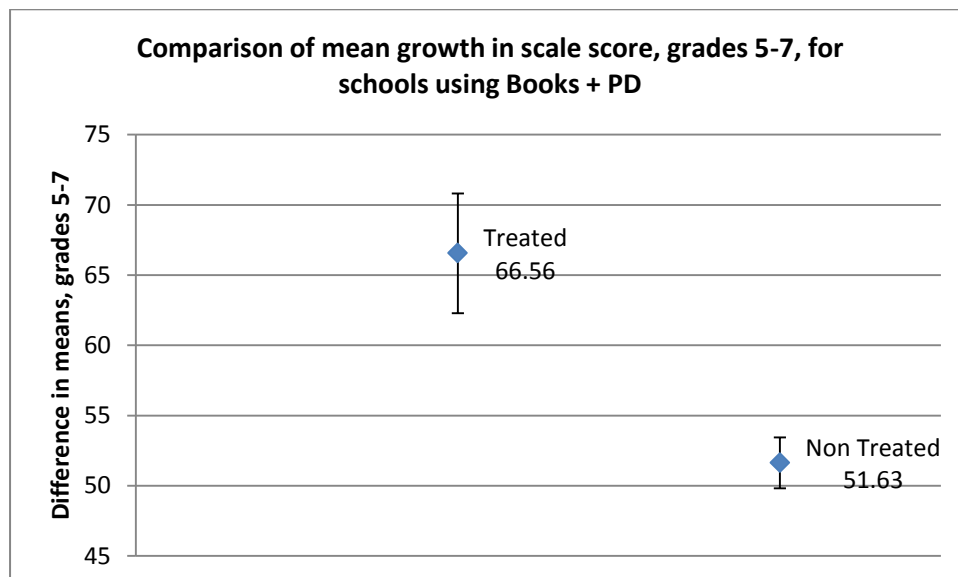# Grades 5-7 Data for schools using Back-to-Front Maths compared with statistically similar schools

When Schools using Back-to-Front Maths books and at least one day of Professional Development were compared to "Like" schools from the MySchool website:

Absolute difference in means between grade 5 and grade 7 for the same cohort

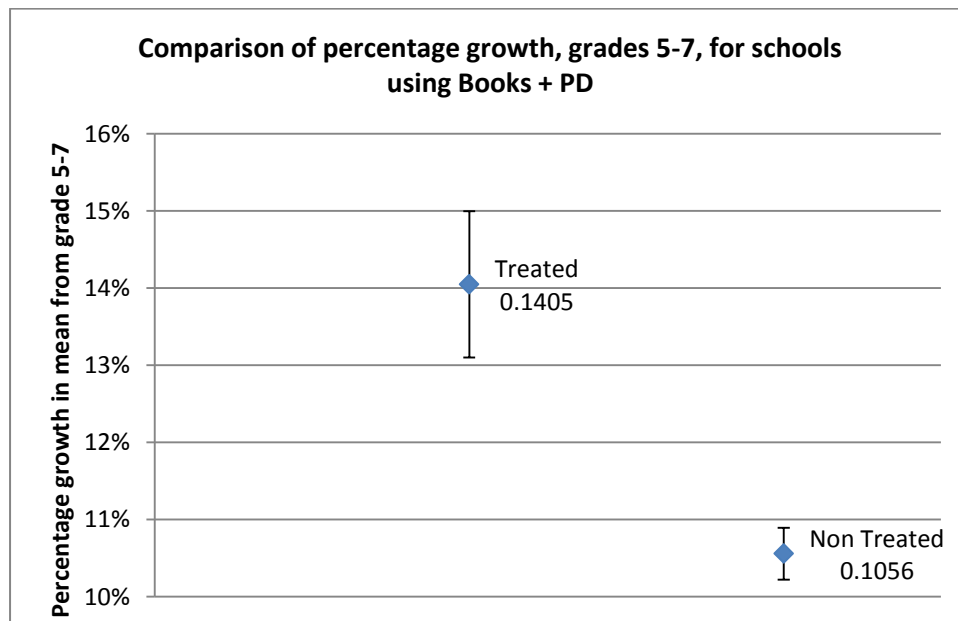|	B2F books and PD	Like schools
Mean absolute growth (Grade 7 mean – Grade 5 mean)	66.55	51.625
Standard Error	4.27	1.81
Sample Variance	164.0278	26.26786
Number of students sitting NAPLAN	519	unknown
P(T<=t) two-tail, unequal variance	0.008	
t Stat	3.22	
P(Z<=z) two-tail	0.0013	
z	3.219	

What this means:
B2F schools had higher cohort growth between grade 5 and 7 than statistically similar schools. The difference between the means was approximately 3.2 standard deviations, with an over 99% probability that the means are not the same.

When Schools using Back-to-Front Maths books and at least one day of Professional Development were compared to "Like" schools from the MySchool website:

Percentage difference in means between grade 5 and grade 7 for the same cohort

	B2F books and PD	Like schools
Mean % growth (Mean absolute growth/Grade 5 mean)	14.05%	10.56%
Standard Error	0.0095	0.0034
Sample Variance	0.0008	9.08E-05
Number of students sitting NAPLAN	519	unknown
P(T<=t) two-tail, unequal variance	0.006	
t Stat	3.48	
P(Z<=z) two-tail	0.0005	
z	3.4705	

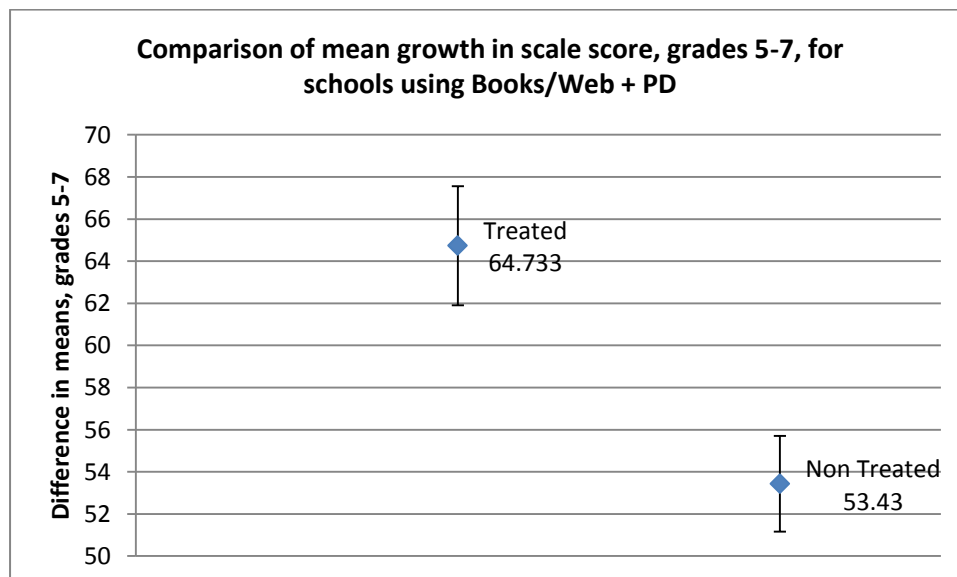Comparison of percentage growth, grades 5-7, for schools using Books + PD

What this means:
B2F schools had higher cohort percentage growth between grade 5 and 7 than statistically similar schools. The difference between the means was approximately 3.5 standard deviations, with an over 99% probability that the means are not the same.

When Schools using Back-to-Front Maths books or web and at least one day of Professional Development were compared to "Like" schools:

Absolute difference in means between grade 5 and grade 7 for the same cohort

	B2F books/ web and PD	Like schools
Mean absolute growth (Grade 7 mean – Grade 5 mean)	64.733	53.43
Standard Error	2.821	2.27
Sample Variance	119.352	72.264
Number of students sitting NAPLAN	971	unknown
P(T<=t) two-tail, unequal variance	0.0044	
t Stat	3.121	
P(Z<=z) two-tail	0.0018	
z	3.1212	

Comparison of mean growth in scale score, grades 5-7, for schools using Books/Web + PD
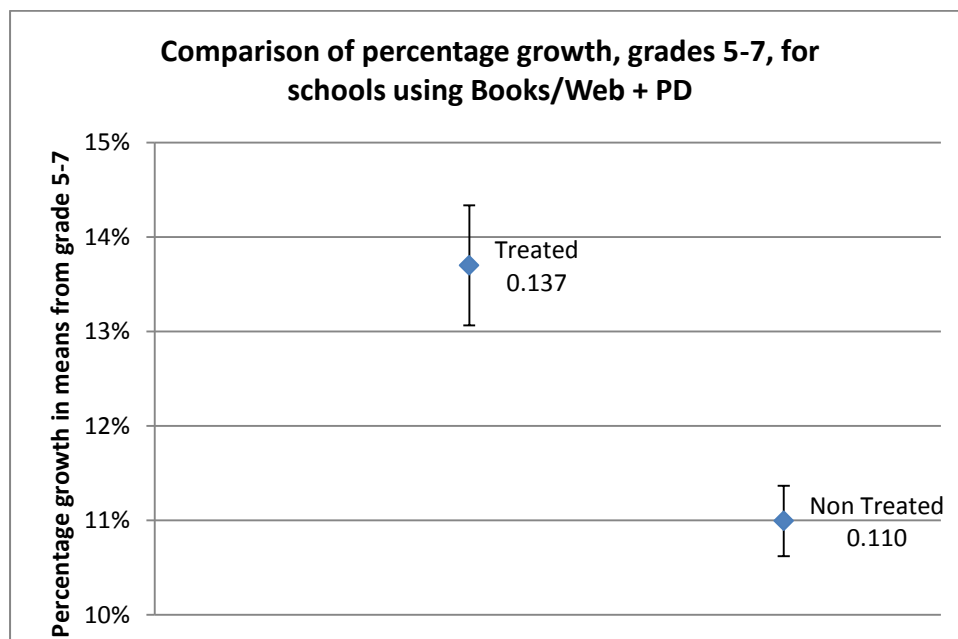
What this means:
B2F schools had higher cohort growth between grade 5 and 7 than statistically similar schools. The difference between the means was approximately 3.1 standard deviations, with an over 99% probability that the means are not the same.

When Schools using Back-to-Front Maths books or web and at least one day of Professional Development were compared to "Like" schools:

Percentage difference in means between grade 5 and grade 7 for the same cohort

	B2F books/ web and PD	Like schools
Mean % growth (Mean absolute growth/Grade 5 mean)	13.7%	11.0%
Standard Error	0.006	0.004
Sample Variance	0.000605	0.000194
Number of students sitting NAPLAN	971	unknown
P(T<=t) two-tail, unequal variance	0.0013	
t Stat	3.673	
P(Z<=z) two-tail	0.0001	
z	3.6735	

Comparison of percentage growth, grades 5-7, for schools using Books/Web + PD
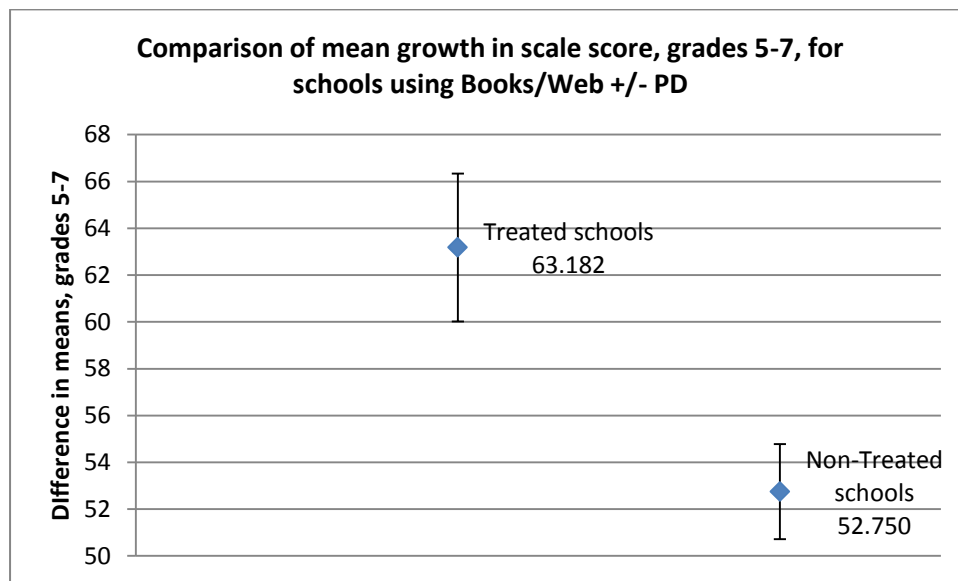
What this means:
B2F schools had higher percentage cohort growth between grade 5 and 7 than statistically similar schools. The difference between the means was approximately 37 standard deviations, with an over 99% probability that the means are not the same.

When Schools using Back-to-Front Maths books or web with or without Professional Development were compared to "Like" schools:

Absolute difference in means between grade 5 and grade 7 for the same cohort

	B2F books/ web	Like schools
Mean absolute growth (Grade 7 mean – Grade 5 mean)	63.182	52.750
Standard Error	3.160	2.030
Sample Variance	219.680	82.408
Number of students sitting NAPLAN	1252	unknown
P(T<=t) two-tail, unequal variance	0.0087	
t Stat	2.7775	
P(Z<=z) two-tail	0.0055	
z	2.7775	

Comparison of mean growth in scale score, grades 5-7, for schools using Books/Web +/- PD
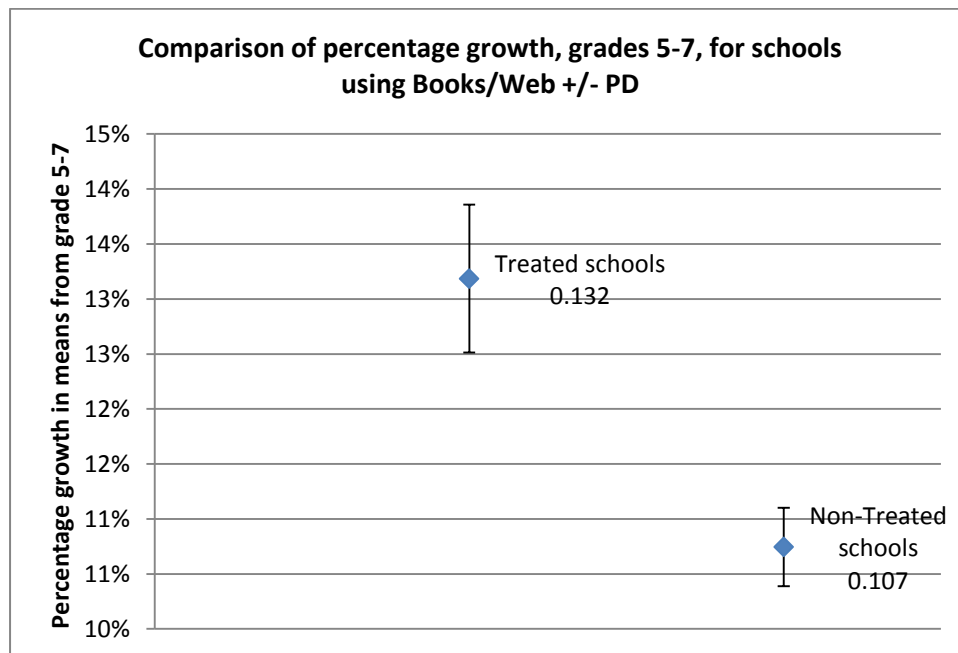
What this means:

B2F schools (implementing with or without Professional Development) had higher cohort growth between grade 5 and 7 than statistically similar schools. The difference between the means was approximately 2.8 standard deviations, with an over 99% probability that the means are not the same.

When Schools using Back-to-Front Maths books or web (with or without Professional Development) were compared to "Like" schools:

Percentage difference in means between grade 5 and grade 7 for the same cohort

	B2F books/ web	Like schools
Mean % growth (Mean absolute growth/Grade 5 mean)	13.2%	10.7%
Standard Error	0.007	0.004
Sample Variance	0.0010	0.0003
Number of students sitting NAPLAN	1252	unknown
P(T<=t) two-tail, unequal variance	0.0030	
t Stat	3.2089	
P(Z<=z) two-tail	0.0013	
z	3.2091	

Comparison of percentage growth, grades 5-7, for schools using Books/Web +/- PD

What this means:
B2F schools (implementing with or without Professional Development) had higher percentage cohort growth between grade 5 and 7 than statistically similar schools. The difference between the means was approximately 3.2 standard deviations, with an over 99% probability that the means are not the same.