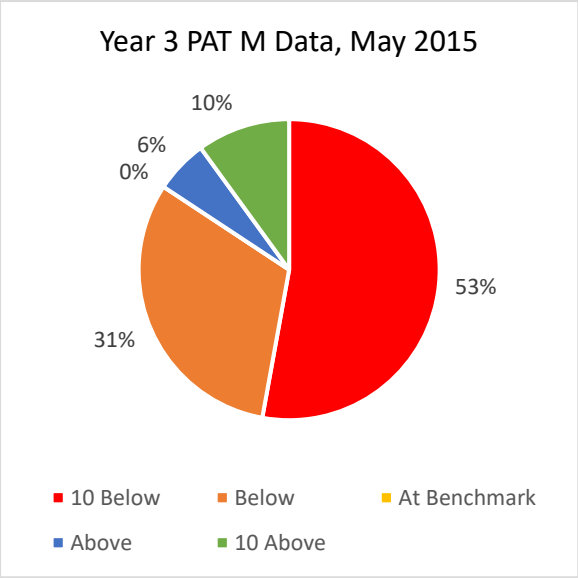
SA Partnership Student Data 2015-2016

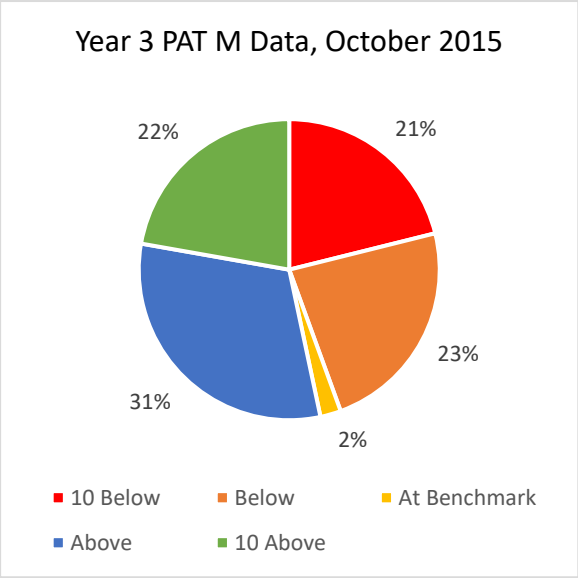
2015: Grade 3-4 Pedagogy Project

PAT Maths Data from May to October:
Results from 75 students with teachers directly involved in the project were analysed with data included in the table below. This shows an overall effect size of 0.69 in the six month period between May and October. This is equivalent growth to that normally achieved by a highly effective teacher in 12 months[i].

PAT Data for those directly involved in the project	May	October
Mean	15.48	19.88
Standard Error	0.78	0.71
Median	15	20
Mode	11	14
Standard Deviation	6.74	6.13
Sample Variance	45.42	37.59
Count	75	75
t Stat for null hypothesis	-5.80	
P(T<=t) two-tail for null hypothesis	0.0000002	
Z stat for null hypothesis	-4.18	
Effect Size	**0.69**	
Statistically significant at	**99.99%**	
Growth of 0.47 standard deviations, or 19%, was statistically significant at 95%		

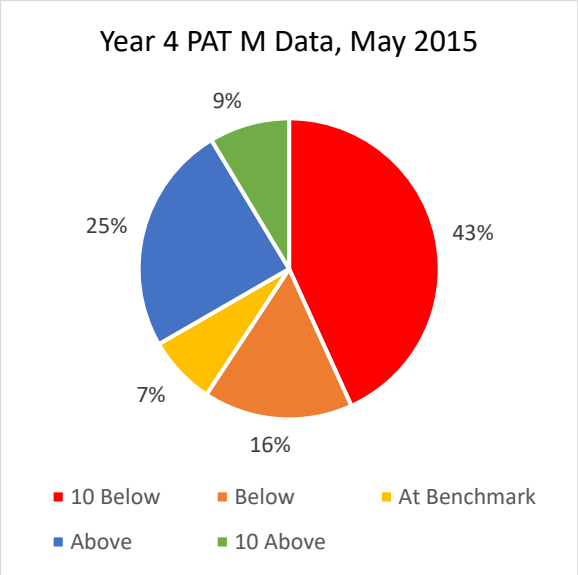
Grade 3 PAT M Growth for 90 Students, May to October 2015

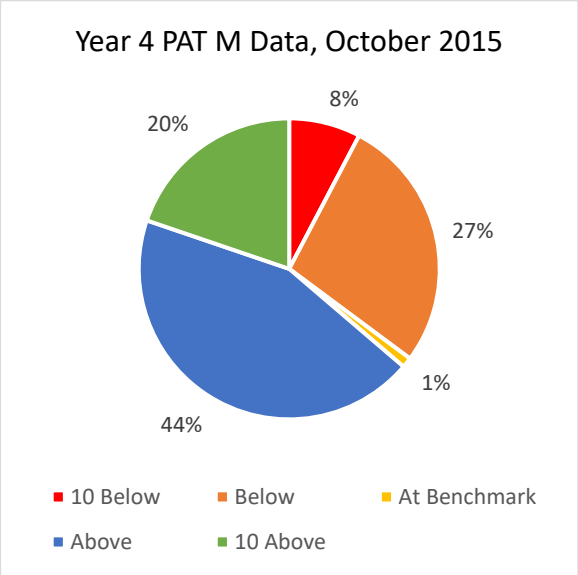




The growth in student results for grade three was found to be consistent across all sub-sections of the data.

Grade 4 PAT M Growth for 91 Students, May to October 2015





The growth in student results for grade four was found to be consistent across all sub-sections of the data.

Intervention Data: 8 weeks

Results from 384 students across the partnership were analysed using the Place Value Interventions Program which was written for this project. With an effect size of 0.77 this project is considered highly successful. Findings are included in the table below.

Place Value Intervention Data: 8 weeks	**Pre Test**	**Post Test**
Mean	10.90	13.76
Standard Error	0.20	0.19
Median	11	14
Mode	12	17
Standard Deviation	3.83	3.63
Sample Variance	14.67	13.15
Count	384	384
t Stat for null hypothesis	-18.68	
P(T<=t) two-tail for null hypothesis	8.01E-56	
Z Stat for null hypothesis	-10.61	
Effect Size	**0.77**	
Statistically significant at	**99.99%**	
Growth of 0.70 standard deviations, or 24%, was statistically significant at 95%		

2016: Mathematical Leadership Project

Place Value Intervention Data: 8 weeks
Results from 137 junior primary (R-3) and 229 primary (4-7) students across were analysed. Findings are included in the tables and descriptions below. Data has not yet been supplied by the secondary school teachers.

Junior primary showed an effect size of 1.02. Student growth of 38% (90% of a standard deviation) was found to be statistically significant at 95%. The t-Stat for the null hypothesis was over 16.

Junior primary R-3	**Pre Test**	**Post Test**
Mean	8.78	12.52
Standard Error	0.30	0.33
Median	8	13
Mode	8	14
Standard Deviation	3.54	3.82
Sample Variance	12.54	14.60
Count	137	137
t Stat for null hypothesis	16.60	
P(T<=t) two-tail for null hypothesis	1.67E-34	
Effect size	**1.02**	
Statistically significant at	**99.99%**	
Growth of 0.90 standard deviations, or 38%, was statistically significant at 95%		

Primary showed an effect size of 0.88. Student growth of 14% (77% of a standard deviation) was found to be statistically significant at 95%. The t-Stat for the null hypothesis was over 13.

Primary 4-7	**Pre Test**	**Post Test**
Mean	13.91	16.09
Standard Error	0.19	0.13
Median	14	17
Mode	14	17
Standard Deviation	2.92	2.04
Sample Variance	8.51	4.15
Count	229	229
t Stat (null growth)	13.54	
P(T<=t) two-tail null hypothesis	4.7E-31	
Effect size	**0.88**	
Statistically significant at	**99.99%**	
Growth of 0.77 standard deviations, or 14%, was statistically significant at 95%		

There was found to be a statistically significant difference in the results between schools that participated in the webinar series and those that did not, with those participating having double the effect size and statistically significant percentage growth.

2016: R-2 Understanding Project

Place Value Intervention Data: 8 weeks

Results from 497 students were analysed, giving an effect size of 0.71. Student growth of 38% (66% of a standard deviation) was found to be statistically significant at 95%. The t-Stat for the null hypothesis was over 24. Findings are included in the table below.

Junior primary R-3	**Pre Test**	**Post Test**
Mean	6.65	9.37
Standard Error	0.16	0.18
Median	6	9
Mode	6	8
Standard Deviation	3.55	4.07
Sample Variance	12.61	16.59
Count	497	497
t Stat for null hypothesis	-24.78	
P(T<=t) two-tail for null hypothesis	8.2E-89	
Effect size	**0.71**	
Statistically significant at	**99.99%**	
Growth of 0.66 standard deviations, or 38%, was statistically significant at 95%		

SA Partnership Teacher Change Data 2015-2016

Results from 91 teachers and leaders across four different projects were collected using Likkert-style surveys and analysed to determine whether their beliefs changed in four different domains. Two control statements were also included, which showed no significant change. Overall findings are included in the table below, showing an effect size range of 0.55-1.15, with a mean of 0.86. These changes were all found to be statistically significant at well over 99.99%.

Statement	Pre test Mean	Post test Mean	Effect Size (Cohen's d)	T stat for null hypothesis	P (T<=t) two-tail	Stat sig.
Domain 1: the nature of mathematics						
Maths is mostly about memorising rules, formulae and content.	3.99	4.46	0.55	-6.70	1.7E-09	99.99%
Domain 2: mathematical ability						
Maths ability is fairly well fixed – you are either good at maths or you aren't.	4.23	4.66	0.68	-7.05	3.6E-10	99.99%
Domain: effective teaching practices						
Teaching is most effective when: we give a clear explanation of how to solve a question, provide practical examples and get students to practice what we have shown them until they can repeat it.	3.43	4.26	0.79	-7.77	1.2E-11	99.99%
Understanding in maths is generally developed through memorisation.	3.88	4.52	0.91	-8.24	1.3E-12	99.99%
Children who have difficulty with maths need to focus on memorising basic facts and practicing skills	3.64	4.40	0.89	-8.96	4.2E-14	99.99%
When students don't understand something then it is my job to tell them again until they can remember it.	4.12	4.67	0.93	-7.62	2.4E-11	99.99%
When students don't practice their skills frequently then they forget maths that they used to really understand.	2.97	4.02	1.07	-9.51	3.3E-15	99.99%
Domain: the nature and use of problem solving						
Problem-solving is mostly applying maths that you know to word problems	3.66	4.53	1.15	-9.23	1.1E-14	99.99%
Solving challenging problems is more important for students who need extending rather than those who need support	4.05	4.57	0.81	-5.56	2.8E-07	99.99%

[i] Hattie, J. (2009). *Visible Learning*, Taylor & Francis e-Library