

# System Leadership Supported Schools Impact Analysis

**Evaluation and Performance**

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National College for  
Teaching & Leadership

# Overview

System leaders (National Leaders of Education and Local Leaders of Education) are outstanding head teachers or principals who use their skills and experience to support schools in challenging circumstances. In addition to leading their own schools, system leaders work to increase the leadership capacity of other schools to help raise standards.

We compared the performance outcomes of secondary schools supported by system leaders in the 2010/11 and 2011/12 academic years with those of a similar group of schools that were not engaged with system leadership provision. On average, we found that:

- Schools supported by a system leader in the 2010/11 academic year improved their overall performance more than the comparator group, based on change in Key Stage 4 results between 2010 and 2012. This difference was statistically significant.
- Schools supported by a system leader in the 2011/12 academic year improved their overall performance more than the comparator group, based on change in Key Stage 4 results between 2011 and 2012. This difference was statistically significant.

Our matching method uses a range of information about schools, for example the proportion of students eligible for free school meals and historic performance, to select a similar group of schools. However, because we have not been able to take into account unmeasured variables such as parental involvement or teaching style, our conclusions need to be understood in the context of the broader system leadership landscape.

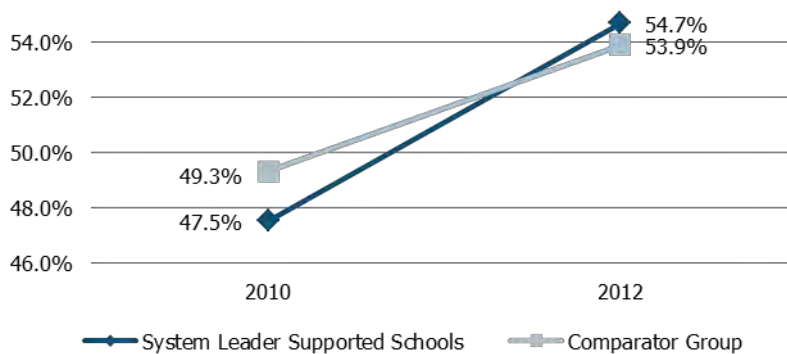
This year we have not reviewed impact on Key Stage 2 results due to the large changes to assessments. Key Stage 2 assessments in 2012 included a greater teacher assessed component, and results are not comparable to those from 2011 assessments.



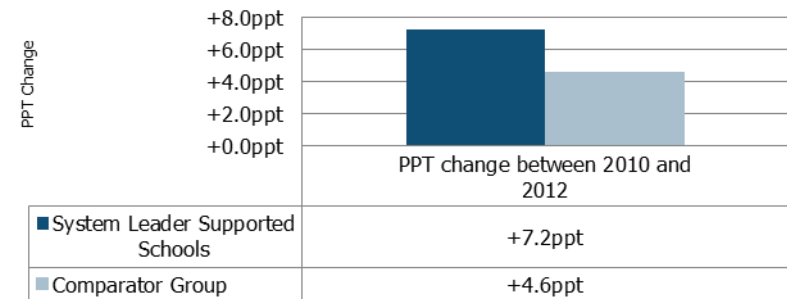
# Impact on the key stage 4 performance of schools supported by a system leader in 2010/11

- Schools supported by a system leader in the 2010/11 academic year improved their overall performance more than the comparator group, based on change in Key Stage 4 results between 2010 and 2012. This difference was statistically significant.
- On average, schools supported by a system leader in the 2010/11 academic year increased their KS4 performance<sup>1</sup> 2.6 percentage points more than the comparator group between 2010 and 2012.

**Percentage of pupils achieving 5+ A\*-C or equivalents including A\*-C in both English and mathematics GCSEs**



**Percentage point change between 2010 and 2012 in the Percentage of pupils achieving 5+ A\*-C or equivalents including A\*-C in both English and mathematics GCSEs**



# 2010/11 system leader supported schools and the comparator group

The schools included in this analysis are:

- Schools supported by a system leader in the 2010/11 academic year.
- A comparator group of schools selected using a propensity score matching method, to be similar in a range of key variables.

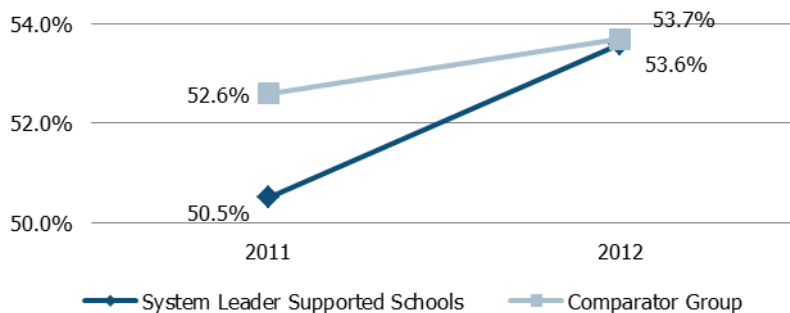
Variable	System Leader Supported Schools	Comparator Group
Number of Schools	142	371
<b>Average</b>		
Key Stage 2 Average Points Score of Key Stage 4 cohort (2011)	26.8%	26.8%
Percentage of pupils achieving 5+ A*-C or equivalents including A*-C in both English and mathematics GCSEs (2010 and 2011)	46.9%	45.9%
Number of pupils on roll (all ages) (2012)	986	970
Percentage of Key Stage 4 disadvantaged pupils who are either eligible for free school meals (FSM) or have been looked after continuously (CLA) by the Local Authority for 6 months (2012)	18.0%	17.9%
Percentage Ofsted Overall Outstanding Judgement (Prior to July 2011, where available)	12%	16%
Percentage Ofsted Overall Good Judgement (Prior to July 2011, where available)	30%	31%
Percentage Ofsted Overall Satisfactory Judgement (Prior to July 2011, where available)	43%	43%
Percentage Ofsted Overall Inadequate Judgement (Prior to July 2011, where available)	15%	10%
Percentage of schools located in an urban location (2012)	95.7%	96.2%



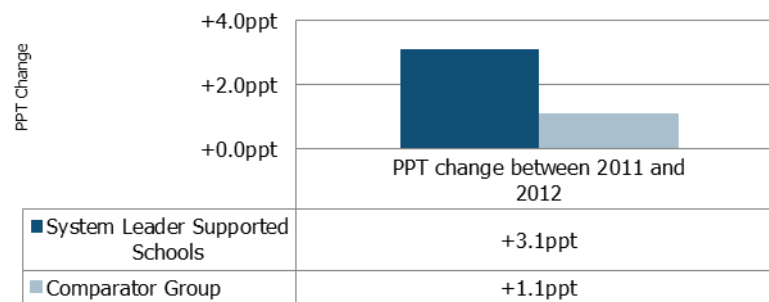
# Impact on the key stage 4 performance of schools supported by a system leader in 2011/12

- Schools supported by a system leader in the 2011/12 academic year improved their overall performance more than the comparator group, based on change in Key Stage 4 results between 2011 and 2012. This difference was statistically significant.
- On average, schools supported by a system leader in the 2011/12 academic year increased their KS4 performance<sup>1</sup> 2 percentage points more than the comparator group between 2011 and 2012.

**Percentage of pupils achieving 5+ A\*-C or equivalents including A\*-C in both English and mathematics GCSEs**



**Percentage point change between 2011 and 2012 in the Percentage of pupils achieving 5+ A\*-C or equivalents including A\*-C in both English and mathematics GCSEs**



# 2011/12 system leader supported schools and the comparator group

The schools included in this analysis are:

- Schools supported system leaders in the 2011/12 academic year.
- A comparator group of schools selected using a propensity score matching method, to be similar in a range of key variables.

Variable	System Leader Supported Schools	Comparator Group
Number of Schools	182	436
<b>Average</b>		
Key Stage 2 Average Points Score of Key Stage 4 cohort (2011)	27.0%	27.1%
Percentage of pupils achieving 5+ A*-C or equivalents including A*-C in both English and mathematics GCSEs (2010 and 2011)	49.3%	51.1%
Number of pupils on roll (all ages) (2012)	1025	999
Percentage of Key Stage 4 disadvantaged pupils who are either eligible for free school meals (FSM) or have been looked after continuously (CLA) by the Local Authority for 6 months (2012)	19.0%	18.7%
Percentage Ofsted Overall Outstanding Judgement (Prior to July 2011, where available)	11.0%	13.0%
Percentage Ofsted Overall Good Judgement (Prior to July 2011, where available)	22.0%	24.0%
Percentage Ofsted Overall Satisfactory Judgement (Prior to July 2011, where available)	57.0%	58.0%
Percentage Ofsted Overall Inadequate Judgement (Prior to July 2011, where available)	10.0%	5.0%
Percentage of schools located in an urban location (2012)	96.1%	95.4%

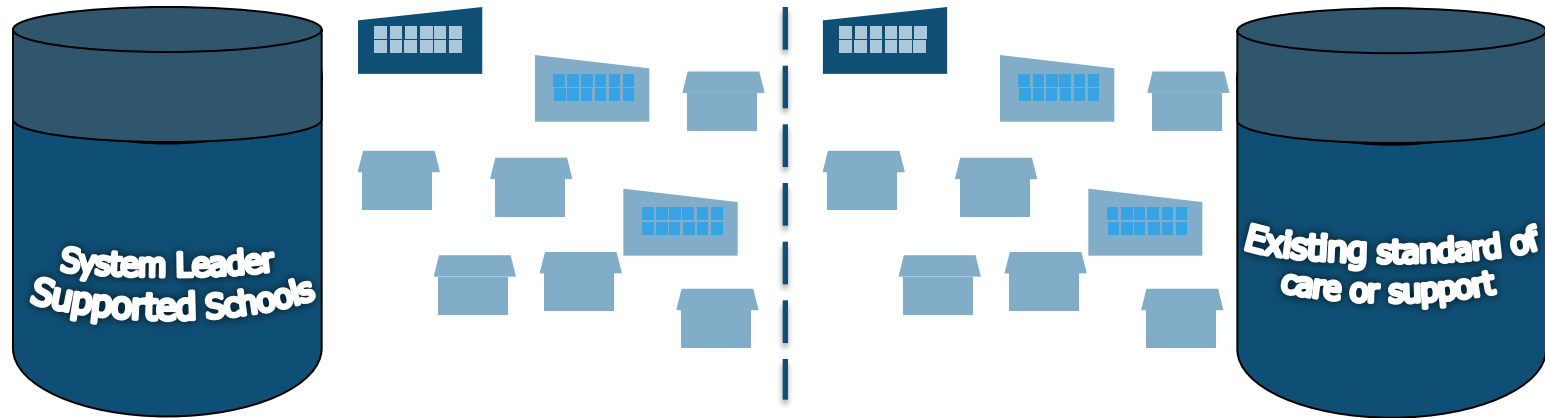


## Appendix 1

# METHODOLOGY



# Propensity score matching as a substitute for a randomised controlled trial



- In a randomised controlled trial participants are selected to receive a treatment or an existing standard of care randomly. Randomisation ensures that the two groups of participants have comparable characteristics prior to treatment.
- In a propensity score matched analysis, participants in the treatment group are not randomly selected. A comparator group, already known to be receiving the existing standard of care or support and not the treatment being tested by this study, is selected based on similarity across key variables.
- By comparing to the existing standard of care, we remove the issue of determining what other interventions schools are already or concurrently involved in.





# How have we constructed the comparator groups?

1. Review availability of variables that have known associations with school performance.
2. Identify variables with close correlation to streamline input to matching process.
3. Select variables.
4. Generate propensity scores.
5. Check overlap of distribution of propensity scores.
6. Match schools.
7. Analyse difference in propensity scores between groups.
8. Analyse characteristics of sample vs. control group on all variables, checking for the difference in average or spread of each variable between groups.
9. Repeat steps 3-8.
10. Select final variable set based on matching rate and quality.
11. Compare outcomes in system leader supported schools and control group.



# Variables used to create the 2010/11 comparator group

## Used in Matching

- Key Stage 2 Average Points Score of Key Stage 4 cohort (2010)
- Percentage of pupils achieving 5+ A\*-C or equivalents including A\*-C in both English and mathematics GCSEs (average of 2009 and 2010)
- Number of pupils on roll (all ages) (2012)
- Percentage of Key Stage 4 disadvantaged pupils who are either eligible for free school meals (FSM) or have been looked after continuously (CLA) by the Local Authority for 6 months (2012)
- Percentage Ofsted Overall Outstanding Judgement (Prior to July 2010, where available)
- Percentage Ofsted Overall Good Judgement (Prior to July 2010, where available)
- Percentage Ofsted Overall Satisfactory Judgement (Prior to July 2010, where available)
- Percentage Ofsted Overall Inadequate Judgement (Prior to July 2010, where available)
- Percentage of Schools located in an urban location (2012)

## Not Used in Matching

- Percentage of Key Stage 4 pupils with statements of SEN (Special Educational Need) or on School Action Plus – highly correlated to KS4 FSM
- Percentage of Key Stage 4 pupils with English as an additional language (EAL) – highly correlated to KS4 FSM
- Pupil Teacher Ratio – missing data
- TA Teacher Ratio – missing data
- Teaching Methods – not measured consistently
- Level of Parental Engagement – not measured consistently
- Academy Sponsor Led – not chosen



# Variables used to create the 2011/12 comparator group

## Used in Matching

- Key Stage 2 Average Points Score of Key Stage 4 cohort (2011)
- Percentage of pupils achieving 5+ A\*-C or equivalents including A\*-C in both English and mathematics GCSEs (average of 2010 and 2011)
- Number of pupils on roll (all ages) (2012)
- Percentage of Key Stage 4 disadvantaged pupils who are either eligible for free school meals (FSM) or have been looked after continuously (CLA) by the Local Authority for 6 months (2012)
- Percentage Ofsted Overall Outstanding Judgement (Prior to July 2011, where available)
- Percentage Ofsted Overall Good Judgement (Prior to July 2011, where available)
- Percentage Ofsted Overall Satisfactory Judgement (Prior to July 2011, where available)
- Percentage Ofsted Overall Inadequate Judgement (Prior to July 2011, where available)
- Percentage of Schools located in an urban location (2012)

## Not Used in Matching

- Percentage of Key Stage 4 pupils with statements of SEN (Special Educational Need) or on School Action Plus – highly correlated to KS4 FSM
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- Pupil Teacher Ratio – missing data
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## **Appendix 2**

# **DETAILED RESULTS OF STATISTICAL TESTS**



# Change in performance in 2010/11 system leader supported schools

Mean change measured in KS4 performance from 2010 to 2012:

System leader supported schools : 7.2 percentage points

All control group: 4.6 percentage points

Test of significance of the change:

One-Sample two-tailed t-test for the null hypothesis that Change to 2012 = 0

Test statistics (t) = 18.4762

P = 0.0000

The null hypothesis is rejected (there was change in overall KS4 performance over the period)

Difference in change in KS4 performance from 2010 to 2012 between NLE Supported Schools and control group:

Two-sample one-tailed t-test for null hypothesis that change in system leader schools is not greater than change in the comparator group

Test statistic (t) = -2.8475

P = 0.0024

The change in system leader supported schools is greater than the change in the comparator group



# Change in performance in 2011/12 system leader supported schools

Mean change measured in KS4 performance from 2011 to 2012:

System leader supported schools : 3.1 percentage points

All control group: 1.1 percentage points

Test of significance of the change:

One-Sample two-tailed t-test for the null hypothesis that Change to 2012 = 0

Test statistics (t) = 3.8746

P = 0.0000

The null hypothesis is rejected (there was change in overall KS4 performance over the period)

Difference in change in KS4 performance from 2010 to 2012 between NLE Supported Schools and control group:

Two-sample one-tailed t-test for null hypothesis that change in system leader schools is not greater than change in the comparator group

Test statistic (t) = -2.6054

P = 0.0048

The change in system leader supported schools is greater than the change in the comparator group

