

# School lunch and learning behaviour in Secondary Schools: an intervention study



Date July 10

# Introduction

- Anecdotal evidence from teachers and parents suggest improvements in children's behaviour and academic performance when they eat healthier food.
- Lack of robust evidence to support the conclusion that improved food results in improved behaviour - Previous studies have focussed on single foods, nutrients or meals and on populations that are not generalisable to a normal school setting.

# Study aims

Does providing and promoting healthier school food at lunchtime and improving the dining room environment result in improvements in pupils' learning related behaviour in the classroom after lunch?

# Research to date

- A School Food Trust study carried out in 2007 showed that a combined nutrition-environment intervention in six primary schools in Sheffield had a beneficial impact on pupils' learning behaviour.
- Can this result be repeated in Secondary schools? These have many more pupils, multiple food provision points and a more complex dining room environment.

# Study Design

- 15 week controlled intervention trial involving 11 secondary schools in 4 Local Authorities in England; Essex, Leicester, Manchester and Sheffield.
- 14 pupils recruited in each school, 7 from Y7 and 7 from Y9.
- Schools randomised into 2 groups:
  - 1) *Intervention; Nutritional and Environmental interventions (15 weeks)*
  - 2) *Control (15 weeks)*

# Interventions

Nutrition Interventions	Environmental Interventions
Food adapted to meet all food-based standards for school meals	Appearance of dining rooms improved – painting, decorating, graffiti workshops
Grab and go options to increase flow-through were introduced.	Layout of dining rooms improved to improve flow-through and maximise socialising whilst eating
Menus promoted to pupils and parents via open days, leaflets etc	Dining room supervisor training
Tasting and cooking sessions for pupils	Using pupils as food ambassadors to promote school meals

# Behavioural measures

- Behaviour was measured using Systematic Observation over a five day period at two time points (baseline and follow up)
- Observations were carried out by trained fieldworkers.
- Observations looked at learning behaviour;
  - *pupil concentration = 'on-task'*
  - *disengagement/disruption = 'off-task'*

# Data analysis and reporting

- Compared observations in the intervention group with the control group at baseline and at 15 weeks.
- Multilevel logistical regression.
- Results are reported as odds ratios (OR) with a 95% confidence interval and associated p value.
- Using our coding strategy, an OR above 1.0 shows that an outcome is more likely in the intervention group than in the control group, less than 1.0 shows an outcome is less likely.

# Results – On task behaviour

Behaviour	Odds Ratio	Confidence Interval	P value	Significance
<b>All Settings</b>	1.18	1.05 – 1.33	0.005	Yes
<b>Individual</b> (when pupils were working alone)	1.24	0.97 – 1.58	0.088	No
<b>Teacher-pupil</b> (teacher-led session)	0.82	0.64 – 1.04	0.103	No
<b>Pupil-pupil</b> (pupils working in pairs/groups)	1.04	0.86 – 1.25	0.716	No

# Results – Off task behaviour

Behaviour	Odds Ratio	Confidence Interval	P value	Significance
<b>All Settings</b>	0.86	0.75 – 0.98	0.021	Yes
<b>Individual</b> (when pupils were working alone)	0.88	0.68 – 1.14	0.321	No
<b>Teacher-pupil</b> (teacher-led session)	0.87	0.78 – 1.36	0.82	No
<b>Pupil-pupil</b> (pupils working in pairs/groups)	0.87	0.71 – 1.06	0.171	No

# Discussion - Behaviour

- Our results suggest that a combined nutrition-environment intervention in 11 secondary schools increases on-task behaviour and decreases off-task behaviour.
- Pupils were more likely to be on task in schools where we improved the quality and promotion of school food along with the quality of the environment in which pupils ate their lunch.

# Thanks to all the authors/contributors to this study

**Ed Baines** (Institute of Education, University of London)

**Lesley Wood** (The School Food Trust)

**Claire Storey** (The School Food Trust)

**Michael Nelson** (The School Food Trust)

**Pauline Ashfield-Watt** (The School Food Trust)

**Jo Pearce** (The School Food Trust)