The moment for plant-based eating is Now

Nudging adolescents towards plant-based food choices

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- Study overview – nudge strategies to shift adolescents’ food choice towards plant-based foods
- Design, implementation & test of nudges
- Results & Recommendations for further research

Alpro Foundation 20 years symposium
Background – school nutrition & food choice

School children [8.6M; 4.6M Primary & 3.2M Secondary state schools England]
Spend 190 days of the year in school

Childhood Obesity in England
Reception (4-5y) 9.3% obese => Year 6 (10-11y) 19.8% obese
Secondary schools: 1/3 of all 11-15 year olds overweight (including obese)
Boys – 14% overweight & 20% obese
Girls – 17% overweight & 19% obese

Eating Habits
↓ children’s risk of health problems, both long & short term
establishing good eating habits that will be carried into adulthood

school food environment is an obvious setting for a public health intervention

school food is a way of addressing dietary disparities between children of different socio-economic backgrounds

Adolescents’ diet & food choice

- Adolescents’ diet falls short of dietary recommendations
- Excessive intakes of saturated fat and sugar, along with low fruit and vegetable consumption
- Poor food choice; fast or grab-and-go foods; low intake of plant-based foods
- Mirrored in school canteens, where students commonly bypass freshly prepared nutrient rich meals

To assess the impact of behavioural nudge tactics on students’ food choices

Impact – daily food choice largely automatic; influenced by environmental nudge strategies

Small changes to the choice architecture to ‘nudge’ students towards certain food choices

Exclusions: informing individuals; eliminating choice
The Schools
2 inner city secondary schools
Yorkshire
11-18 year old students

Intervention school:
~ 1100 students
Free School Meal* 33% [National average 14.6%]
English Not as First Language 26% [National average 14.3%]

Control school: size, FSM, ENFL, same catering co.

* "The Free School Meal programme is a national programme providing a free school meal for students of low income families"

3 week menu cycle

Dish of the day
Nutritionally valuable

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March 24, 2017
Design, implementation & test of nudges

**Designated food items to be promoted – our plant-based foods**

- Menu cycles for the schools
- Recipes from the catering company
- Specificity of the codes used in the point of sale data

**Foods selected:**
- *Freshly prepared daily specials – vegetarian*
- *Sandwiches containing salad*
- *Whole fruit*
- *Fruit pots*

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Design, implementation & test of nudges

**Nudge strategies:**

- Observation visits: mapping out the canteen, photographing food on offer (layout, presentation), canteen in action
- Focus groups with students
- Review of previous studies
- Initial list of potential strategies
- Close consultation / discussion with catering staff, catering company & school leadership
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Nudge strategies

<table>
<thead>
<tr>
<th>Freshly prepared daily specials – vegetarian</th>
<th>Sandwiches containing salad</th>
<th>Fruit pots</th>
<th>Whole fruit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disposable pots/trays</td>
<td>Stickers on packaging</td>
<td>Pyramid display stand</td>
<td></td>
</tr>
<tr>
<td>Prefilled pots/trays</td>
<td>End of shelf label</td>
<td>Prominent position</td>
<td></td>
</tr>
<tr>
<td>Poster displayed in holder</td>
<td>Window sticker in display unit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased numbers on display</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

*Intervention did not involve any changes to the food on offer to students, and the changes were not publicised overtly to students

Intervention for 6 weeks in Summer term

- Baseline: 29 weeks
- Intervention: 6 weeks - students made choices within the adjusted choice architecture
- Post-intervention: 3 weeks – choice architecture reinstated to its baseline state for the remainder of the summer term

Data analysis

- Data for complete academic year and previous year
- All food & drink choices throughout the day
- >200 000 transactions
- Data analysis:
  - Food choice patterns [between year and within year]
  - Selection of food items  % of all items within relevant categories
  - Independent effect of the intervention on the uptake of promoted food items
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**Overall Results**  
[no. of items selected as a percentage of the relevant category]

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Intervention</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit</td>
<td>2.9%</td>
<td>1.8%</td>
<td>1.2%</td>
</tr>
<tr>
<td></td>
<td>2.0%</td>
<td>4.2%</td>
<td>3.7%</td>
</tr>
<tr>
<td>Salads ***</td>
<td>1.6%</td>
<td>4.2%</td>
<td>1.8%</td>
</tr>
<tr>
<td></td>
<td>0.5%</td>
<td>0.2%</td>
<td>0.4%</td>
</tr>
</tbody>
</table>

**Overall Results**

- **All promoted food items**
  - baseline 1.4%; intervention 3.0%; post-intervention 2.2%
- **All FVS [fruit/veg/salad] food items**
  - baseline 1.5%; intervention 3.8%; post-intervention 2.6%

**Logistic Regression Analysis**

Logistic regression models to see if various food items could be predicted [covariates of FSM entitlement, year group, price, day of week, time (baseline, intervention, post intervention)]

**Independent effect of the intervention**: controlling for everything else (FSM, price, day of the week, year group) students are 2.5 times more likely to choose a *nudged* food during the intervention (relative to baseline)

**Independent effect of the intervention**: controlling for everything else (FSM, price, day of the week, year group) students are 3 times more likely to choose a **FVS [Fruit/Veg/Salad]** item during intervention (relative to baseline)
Further work

- Low starting point for plant-based foods
  [daily average of 3 fruit pots & 6 pieces of fruit – compared to 236 cookies & traybakes]
- Pilot study – larger trial recommended
- Nudge strategies promoted designated foods; further nudges to demote other items
- The different nudge strategies’ relative contributions to the effects observed
- Spillover effect seen in salads

Acknowledgements

The Students & Staff at the control and intervention schools

The Catering Company – Catering Manager & team, Regional Manager

Services Facility Company & Biometrics companies

Leeds Beckett University – D Braybrook, S Coan, P Sahota, H Akter

University of Leeds – M Homer

Leeds City Council – H McLeod, H Smithies

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