Health Eating in Schools: School Breakfast Clubs and Holiday Hunger

Professor Greta Defeyter
Child Nutrition, Healthy Eating Practices & School Breakfast
Introduction

What are ‘nutrients’ and what food-types should children eat?

What role can breakfast and lunch play?

Food Guidelines and nutrient standards for School Lunches Breakfast Clubs
A Whole School Approach is Needed

Healthy Vending Machines

Provision of Water

Lunch

Healthy Snacks
How do we get this information to children?

Information about foods is largely conveyed by the media, which can often cause confusion.

Luckily the British Nutrition Foundation has clear and simple guidelines which are easily accessible for those working with children in schools.
The Eatwell Plate

The Eatwell Plate shows how much of what you eat should come from each food group.

The Government’s Eight Guidelines for a Healthy Diet

- Base your meals on starchy foods
- Eat lots of fruit & veg
- Eat more fish
- Cut down on sat fat and sugar
- Try to eat less salt – no more than 6g a day
- Get active & try to be a healthy weight
- Drink plenty of water
- Don’t skip breakfast

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Rising Obesity in School Age Children

1/3 of children in the UK are overweight or obese

Energy balance (EB) = the difference between energy intake (EI) & energy exertion (EE)
Vitamins, Behaviour & Academic Attainment

- School children who were lacking in essential vitamins and minerals were given low dose vitamin and mineral supplements over a four month period (Schhoenthaler, 2000).
- Researchers found that the number of incidents of anti-social behaviour were reduced by 50%.

How can breakfast help?

A bowl of cereal provides:
- 25% of the recommended daily amount of 6 B vitamins.
- 40% of the milk consumed in the UK is consumed with cereal.

We are not suggesting that you provide children with vitamin supplements, the nutrients should be incorporated into healthy breakfast food.
Iron Deficiency

Iron deficiency anaemia leads to shortened attention span, irritability and fatigue and difficulty with concentration (Parker, 1989)

Several research publications have report that anaemic children tend to do poorly on vocabulary, reading and other tests.

What can you do about this?

A bowl of cereal provides 17% of the recommended daily amount of iron.

Breakfast cereal is the primary source of iron for children in the UK.
Refined Sugar

• There is plenty of scientific evidence that refined sugar, such as that found in drinks and sweets, has an adverse effect on the body.
• Long term health effects:
  • Increased frequency of diabetes in teenagers
  • Increasing obesity rates in children

It would appear from the literature however, that the effects on behaviour and cognitive ability are anecdotal and most have found that sugar appears to have no significant effect.
Salt

Salt, also known as sodium chloride, is made up of 40% sodium and 60% chloride.

It is found predominantly in pre-prepared foods.

Excessive salt consumption has been linked with high blood pressure and stomach cancer, and can exacerbate osteoporosis and asthma.
Salt is found in many foods...

Salt is in so much of what we eat, so when choosing foods for child consumption try and take notice of the salt content on packaging.
There is a large and expanding body of research that indicates that there is a strong link between overall good nutrition and cognitive achievement and behaviour.

Children not in good health miss school more

Low academic attainment

It was determined that undernourished children tend to concentrate less, be more irritable and demonstrate low energy (Toccoli, 1993)
Children (and adults) who skip breakfast don’t make up for the ‘missed’ nutrients later in the day.

Although the perceived assumption that many children come to school without having eaten breakfast must be considered with caution.

Children might not eat what is commonly labelled as breakfast **BUT** they spend, on average, £1.70 each day on snacks on their way to and from school (Kyle, 2005).
Breakfast Clubs

Tea & Toast Model

Servery Model

Canteen Model
Some recent studies have shifted the focus from the effect of breakfast as a meal to analysing the effect of breakfast composition on behaviour.

Researchers examined the relationship between breakfast composition and cognitive performance in elementary school children in the United States.

They revealed that slow-releasing breakfasts such as bran flakes & oatmeal provided students with significant cognitive enhancements throughout the day (Mahoney et al., 2005).
Breakfast Cereals

Cereal is a universally popular breakfast food choice, and it’s for good reasons! It’s easy to serve, economical and importantly tasty.

- Offer **lower sugar** varieties & add fruit if it needs sweetening.
- Go for cereals which are:
  - high in fibre
  - wholegrain
  - low in salt & sugar
Educational & Cognitive Performance
“What we find particularly exciting is that this (School Breakfast Club) is a relatively simple intervention that can significantly improve children’s academic performance and psychological well-being.”

J. Michael Murphy, EdD, School Breakfast Program researcher, Massachusetts General Hospital and Harvard Medical School.
It has been shown that skipping breakfast has a negative effect on academic performance, even among healthy and sufficiently nourished children (Pollitt et al., 1998).

Research additionally illustrated that infrequent breakfast consumption interferes with learning, highlighting the importance of eating it regularly.
What is the Effect of Breakfast on Cognitive Performance?

Breakfast Clubs research has many different parts.

For the purpose of this lecture we will focus on:

- Effects of School Breakfast Programs (USA) and Clubs
- Short-term effects in well-nourished children
Effects of School Breakfast Programs (SBP)

Researchers compared two groups of children:

1. Children who regularly attended a SBP
2. Children who didn’t attend a SBP (Meyer et al., 1989)

They compared their language, reading & maths skills.

After 3 months, those children who regularly attended a SBP illustrated better academic performance on all levels, specifically in relation to their language skills.
Researchers divided the attending children into 3 groups:
1. Rarely attending
2. Sometimes attending
3. Often attending

They compared academic performance prior to SBP & 4 months into SBP

Results:
• Those children attending often improved their maths performance
• Those children attending often & sometimes had lower rates of absenteeism, lateness and hyperactivity than those rarely attending
Children who eat a breakfast at school perform better on standardised tests compared to those who skip breakfast/ eat breakfast at home.

Providing breakfast to mildly undernourished students at school improves their speed and memory in cognitive tests.

Associated with improved math scores, attendance & punctuality.

Schools that provide breakfast in the classroom to all students show decreases in lateness, suspensions, and improvements in attention.
Summary of School Breakfast Programs/Clubs

- Overall positive effects in terms of academic attainment and improved cognitive function.
- Interesting improvement mainly seen in maths scores.
- General effects are not just found in undernourished children.
- Although significant gains have been reported for children from families with food insecurity.
Are the effects a result of increased time spent at school?
How Might Breakfast Clubs Improve Performance?

- There is an association between hunger, mood and motivation.

- Short & long term nutritional impacts
- Increased school attendance
  - Time spent at school
  - Time spent with peers & teachers
  - Feeling part of the school community
Children who skip breakfast have...

- Slower recall memory (Pollitt et al., 1998)
- More academic difficulties (Pollitt et al., 1981)
- Lower scores on cognitive tests (Alaimo et al., 2001)

(All of these results are more pronounced in undernourished children)
Children who eat breakfast at school have...

- Marked improvements in relation to their speed and memory in cognitive tests (Grantham-McGregor et al., 1998)
- Better performance on tests of vocabulary and matching figures after eating breakfast (Chandler et al., 1995)
- Improved cognitive function, attention, and memory (Wesnes et al., 2003)

Children report that they believe eating breakfast increases their energy and ability to pay attention in school (Jacoby et al., 1996)
Short term effects of breakfast consumption
A developing child’s brain uses 200-300% more energy than that of an adult.

As you can see from the graph, during growth (especially years 4-12) the brain uses the most glucose.
The Effects of Particular Foods on Cognitive Performance

High GI foods provide a quick burst of energy but with an equally rapid decrease.

Low GI foods provide a slow release of energy throughout the school morning.

Example GI Foods

**High GI** = White bread, bagels, sugary cereal, soft drinks, chocolate bars & sweets

**Low GI** = Breakfast cereals (wheat bran, barley & oats based), fruit, baked beans, porridge, eggs & milk
Procedure

- Two consecutive days (Ingwersen et al., 2007)
- High GI: Coco Pops
  (35g with 125ml semi-skimmed milk)
- Low GI: All Bran
  (35g with 125ml semi-skimmed milk)

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Breakfast</th>
<th>Test 1</th>
<th>Test 2</th>
<th>Test 3</th>
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<tbody>
<tr>
<td>Time</td>
<td>9:00</td>
<td>9:30</td>
<td>9:40</td>
<td>10:40</td>
<td>11:40</td>
</tr>
</tbody>
</table>
Cognitive Drug Research (CDR)
Computerised Assessment Battery (Wesnes et al, 2003)

Word Presentation
Immediate Word Recall
Picture Presentation
Simple Reaction Time
Digit Vigilance
Choice Reaction Time
Spatial Working Memory
Numeric Working Memory
Delayed Word Recall
Delayed Word Recognition
Delayed Picture Recognition

CDR Test Battery
Results

Episodic Memory

Main effect of Breakfast
\[ F(1,61) = 5.313, \ p < 0.05 \]

Significantly smaller decline in performance after consumption of low GI All Bran compared to high GI Coco Pops

Performance on Episodic Memory
Sustained Attention

Performance on Sustained Attention

Breakfast * Assessment Time
$F(2,122) = 3.820, \ p < 0.05$

Significantly decline in performance on Test 3 after consumption of high GI Coco Pops compared to low GI All Bran
Decline in Memory Across the School Morning (Wesnes et al., 2003)

As you can see from the graph, memory declines at a slower rate for children who consume breakfast.
There is an increasing amount of literature on the rate at which food is digested and its effects on hunger, with this research being brought into the public domain in the form of the Glycaemic Index Diet (Ingwersen et al., 2008).

It has also been asserted that a breakfast cereal rich in complex carbohydrates significantly reduces declines in schoolchildren’s attention and memory over the morning.
Research findings suggest that the consumption of a low GI food is more beneficial to cognitive performance than the consumption of a high GI food, particularly after a longer period of time (Benton et al., 2003; Mahoney et al., 2005)
More than 93% adults skipped meals (Poverty & Social Exclusion, UK, 2013)

54% increase in Food Bank 2012-2014

Ashton & Lang (2014) Food prices risen by 12% and wages fallen by 7.6% since 2007

Coe (2014) Increase in fat, salt and sugar consumption
TRUSSEL TRUST FOOD PARCEL DISTRIBUTION BY REGION

TOTAL: 913,138
Adults: 582,933
Children: 330,205

Scotland
Adults: 49,041
Children: 22,387
Total: 71,428

North East
Adults: 36,273
Children: 22,873
Total: 59,146

Yorks & Humber
Adults: 25,167
Children: 12,236
Total: 37,403

East Midlands
Adults: 24,039
Children: 13,717
Total: 37,756

East
Adults: 59,827
Children: 31,593
Total: 91,420

South East
Adults: 58,095
Children: 33,879
Total: 91,974

Northern Ireland
Adults: 6,473
Children: 5,224
Total: 11,697

North West
Adults: 87,561
Children: 51,083
Total: 138,644

Wales
Adults: 51,148
Children: 27,901
Total: 79,049

West Midlands
Adults: 58,036
Children: 35,425
Total: 93,461

South West
Adults: 68,958
Children: 36,563
Total: 105,521

London
Adults: 58,315
Children: 37,324
Total: 95,639
SCANDAL OF ¼ MILLION SURVIVING ON FOOD HANDOUTS

Even people in work are on breadline
• Individuals, families and groups in the population can be said to be in poverty when they lack resources to obtain the type of diet, participate in the activities and have the living conditions and amenities which are customary, or at least widely encouraged and approved, in the societies in which they belong (Townsend, 1979)
Measuring Poverty

- Household Income: Income Deprivation Domain (Brewer et al., 2009)
- Consumption (IFS, 2015)
- Material Deprivation (Willitts, 2006)
- Well-being (UNICEF, 2007)
Causes of Poverty

• Worklessness...personal and structural
• Low Pay/No Pay (zero hour contracts)
  – In 2009/10 58% families below the Poverty line contained at least one working member
• Inadequate Benefits (JSA...only 65% money required to live above the poverty line)
• Benefit Sanctions
• i daniel blake - Bing video
Child Poverty Myths

• Drugs and alcohol dependency (6.6%)
• Family Breakdown (63% children in poverty lived in two parent households)
• Benefit Dependency (67% Jobseekers Allowance find work within 6 months)

2. See ONS website for up to date claimant count figures
3. DWP, Beliefs About Work: An Attitudinal Segmentation of Out-of-work People in Great Britain, Research Report 1, DWP Customer Insight Team 2011
Child Poverty in UK

- Lack Capital (Townsend, 2014)
- Lack Human Capital

- 3.7M children living in poverty in UK (costing £29bl PA)
- IFS projects CP will be in region of 30.5% by 2020 (4.3M)
- Cost of child care 2008 -14 - Child care up 42%
- CB cut, tax credits slashed
- Rise in child poverty within working families
Child Poverty: Human Capital

• Education: FSM 3 terms lag behind affluent peers in terms of educational attainment but age 14 this gap grows to over five terms (DfE)
• Health: low birthweight; premature death, Type II Diabetes, dental carries (Hirsch, 2013)
• Housing (x2): Poor Housing, multiple occupancy
• Fuel Poverty (Hills, 2011)
Challenges for Families in Holidays

- **FSM unavailable (1.7 million in UK)**
- **Pressure on household budget**
- **Benefit delays, sanctions**
- **Safeguarding risk elevated**
- **Access/availability to food**
- **Social contact diminished**
- **Family Stress**

*(Extra £30 - £40 per week)*

*Children’s Society Fair and Square*
Holidays in Poverty (Graham & Defeyter, 2015)

Clip via @ChildhoodTrust London

https://vimeo.com/128382783
USA

Rural provision to outlying sites

8 million meals delivered in New York City
Examples of Provision

www.makelunch.org.uk
51 clubs 12,000

http://accordgroup.org.uk/articles/444-Holiday-learning-food-and-play-for-families-who-need-it-most-

http://www.nechildpoverty.org.uk/
5 Ongoing projects

ASPE Snapshot Survey Feb 2014, 120 responses in first 24 hours 72% stated holiday hunger is an issue in their area (Defeyter & Graham, 2014)

North Ayrshire 88% =124 FSM
<table>
<thead>
<tr>
<th>Study 1</th>
<th>Nationwide mapping of holiday provision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study 2: Interviews and focus groups (breakfast but extending to lunch provision)</td>
<td></td>
</tr>
<tr>
<td>Study 3</td>
<td>Education &amp; Cognition</td>
</tr>
<tr>
<td>Study 4</td>
<td></td>
</tr>
<tr>
<td>Study 5</td>
<td>Health</td>
</tr>
<tr>
<td>Study 6</td>
<td>Economic &amp; Behavioural</td>
</tr>
<tr>
<td>Study 7</td>
<td></td>
</tr>
</tbody>
</table>

- **Education**
  - Study 3
    - Summer learning loss
  - Study 4
    - Cognition

- **Health**
  - Study 5
    - Summer effect
    - Nutritional intake – Modified Day in the Life Questionnaire

- **Economic & Behavioural**
  - Study 6
    - Household Food Insecurity
    - Coping Strategies Index
Mapping of holiday provision programmes by childhood deprivation across local authorities

428 Organisations

Study 1: Mann, Defeyter & Stretesky (under review)
Figure 2: Priority needs for families and children in the communities

- Food Provision
- Safe Place to Play
- Childcare Provision
- Social Activities
- Enrichment Activities
- Physical Activities
- Wellbeing
- Educational Activities
- Health
- Crime Prevention
- School Readiness
- Other

Number of responses

0 20 40 60 80 100 120 140 160 180 200
Study 2: Holiday Breakfast Clubs (Graham & Defeyter, 2016)

- **Aims:**
  - Evaluate the impact of summer breakfast clubs
  - Health, Social and Educational outcomes

- **Design:**
  Mixed methods approach (self-report questionnaires and semi-structured interviews)

- **Data collected from parents, children and staff**

*Ethical Approval for this project was granted from Northumbria University’s Faculty of Health and Life Sciences Ethics Board.*
(Szajewska & Ruszczynski, 2010; Hoyland et al., 2009; Haire-Joshu et al., 2011; Graham et al., 2014; 2015)
(FRAC, 2012; Early Childhood Longitudinal Study (von Hippel et al., 2007)
Participating Clubs

Oldham Community Building (40-50 attendees/day)

Trafford Community Building (50-70 attendees/day)

Coventry Community Church Building (30 attendees/day)

Strabane Trussell Trust Food Bank (30 attendees/day)

Liverpool Trussel Trust Food Bank (only 1 attendee)

Coventry Trussell Trust Food Bank (4-6 attendees/day)
Q1. “It’s harder to make ends meet during the summer than during the school year”

71% of parents agreed that it’s harder to make ends meet during the summer holidays
Q2. “We spend more on food during the summer than during the school year”

94% of parents agreed that their family spend more money on food during the summer than during the school year.
Questionnaire Part A: *Summer Circumstances*

Q3. “We sometimes find ourselves without enough money for food during the summer”

62% of parents agreed that they sometimes find themselves without enough money for food during the summer.
Q4. “What changes, if any, does your family make to deal with increased food costs and/or tighter budgets during the summer?”

- Choose items more carefully when shopping
- Plan meals more carefully
- Cut down spending on other things
- Buy less healthy, cheaper food
- Support from family, friends or neighbours
- Use food banks
- No changes

Strategies adopted during the summer

Number of parents using each strategy
## Questionnaire Part B: Views on Breakfast Clubs

<table>
<thead>
<tr>
<th>Breaksfast Provision</th>
<th>Average Rating</th>
<th>% Parents Agreeing with Statement</th>
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</thead>
<tbody>
<tr>
<td>Serves a healthy breakfast</td>
<td>4.53</td>
<td>88.2%</td>
</tr>
<tr>
<td>Serves a wide variety of breakfast foods</td>
<td>4.53</td>
<td>94.1%</td>
</tr>
<tr>
<td>Serves foods that my child enjoys</td>
<td>4.75</td>
<td>88.2%</td>
</tr>
<tr>
<td>Serves food that my child doesn’t have at home</td>
<td>3.13</td>
<td>82.4%</td>
</tr>
</tbody>
</table>

## Recreation

| Has made my child feel less bored than they usually are during the summer holidays   | 4.69           | 94.1%                            |
| Has allowed my child to make new friends                                            | 4.47           | 94.1%                            |
| Has allowed my child to learn a new skill                                           | 4.25           | 64.7%                            |
| Has given my child more activities to do than they usually have during the summer holidays | 4.36 | 58.8% |

## Family Impact

<p>| Has taken pressure off our family by giving my child activities to do                | 4.65           | 94.1%                            |
| Has taken pressure off our family by reducing the amount of                          | 4.06           | 64.7%                            |</p>
<table>
<thead>
<tr>
<th>Category</th>
<th>Statement</th>
<th>Average Rating</th>
<th>% Parents Agreeing with Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>School Preparedness</strong></td>
<td>Has given my child more of a structured routine than they usually have during the summer holidays</td>
<td>4.56</td>
<td>64.7%</td>
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<tr>
<td></td>
<td>Will make it easier for my child to get back into a structured school routine after the summer holidays</td>
<td>4.63</td>
<td>94.1%</td>
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<tr>
<td></td>
<td>Will make it easier for my child to get on with their work when they return to school after the summer holidays</td>
<td>4.06</td>
<td>94.1%</td>
</tr>
<tr>
<td></td>
<td>Has allowed my child to spend time with school friends that they wouldn’t usually see during the summer holidays</td>
<td>4.13</td>
<td>64.7%</td>
</tr>
<tr>
<td><strong>Practical Aspects</strong></td>
<td>Has been well advertised</td>
<td>4.35</td>
<td>76.5%</td>
</tr>
<tr>
<td></td>
<td>Should be available for more hours during the day</td>
<td>3.88</td>
<td>94.1%</td>
</tr>
<tr>
<td></td>
<td>Is viewed positively by people in the local area</td>
<td>4.75</td>
<td>35.3%</td>
</tr>
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</table>
1) What are holiday breakfast clubs utilised for?

2) What are the perceived impacts of holiday breakfast clubs?

3) What factors need to be considered in the development of holiday breakfast clubs in the future?
Three separate interview schedules were designed to guide discussions with parents, children and staff.

**Thematic Analysis (Braun & Clarke, 2006)**

Orthographically transcribed
Each transcript was repeatedly read and pertinent points relevant to the research questions were highlighted.
Main themes and subthemes were developed to summarise the data.
What are holiday breakfast clubs utilised for?

“There is a lot of poverty in [town] I think they’ve only touched the surface of it here erm it has came on pretty quick you know to get it set up we’d have probably maybe a hundred wee’uns in here if you know if we had the facility to let them in cos in the food bank alone we have over a thousand people come through the food bank and that’s families as well and it shows you that there is need for it and I think there is a big big need for what we’re doing” (Strabane)

“The first couple of days was hard cos all of a sudden we had a hundred people turn up at half past nine in the morning I was like aaaaah! What! But erm you know since we’ve got used to that that’s been ok” (Trafford)
What are the perceived impacts of holiday breakfast clubs?

“What brings you there is the food but that’s the smallest part of it, it’s whatever else you offer then and whatever comes with it” (Strabane)
“Some people are quite lonely I mean as a young mum I found you know if you don’t sort of get out there and mix you can be isolated I think that would have been an advantage to a lot of mums” (Liverpool)

“It's given them the social event every day when they're mixed with children they might not normally mix with er there's friendships forming that wouldn't have formed otherwise they'd all stay in their little cliques er but they're not they're integrating with each other a lot better” (Oldham)
Familial Impacts

“It’s seeing families enjoy it together you know sitting down just enjoying time together” (Coventry)

We were able to sign post that parent on for help because that parent wasn’t getting any help so we were able to find what we call here Social Services Gateway the gateway team so that’s that just started instantly within a week they were able to go and get support” (Strabane)
Children’s Views on Holiday Breakfast Clubs

What are holiday breakfast clubs utilised for?

“It’s somewhere that you can just come, be with your friends and have a healthy breakfast”
What are the Perceived Impacts of Holiday Breakfast Clubs?

Breakfast Habits

I don’t have that much cereal at home but I’ll have some so I’ve been having much more cereal here

At home we like we just rush around a bit and we don’t really eat it

Social Time

Well I didn’t have friends the first time it started and then when people started coming I joined friends with them

I’ve got one friend who usually just sits at home playing on his XBox but he’s been coming
Adult’s Views on Holiday Breakfast Clubs

What are holiday breakfast clubs utilised for?

“To have something to eat firstly and to join in”
(Parent. Oldham)

“To be honest for me it mainly is the social side 'cause obviously they're not seeing their school friends during the holidays so it's sort of helping them to sort of create other friendships with children they probably wouldn't necessarily normally urm socialise with urm with various ages too”
(Parent. Church-Based Club, Coventry)
What are the perceived impacts of holiday breakfast clubs?

“The day before pay day can be tough as you know and it's- they don't run out, they don't run out of cereal or they don't run out of milk or they don't run out of bread and so they've got the choice there all the time whereas they wouldn't necessarily at home” (Parent. Church-Based Club. Coventry)

I’ve been able to get to know some of the other mum’s a bit more especially some that are going- whose children are going into school with [child] so it’s been nice and numbers have been exchanged and things” (Trafford)
Study 3: Summer Learning Loss (Shinwell & Defeyter, under review)

• Prior research in USA ...1 month’s instruction (Cooper, 1987)

• Aim
  – Investigation of the phenomenon of “Summer Learning Loss”

• Study design
  – 1x3 mixed factorial design
  – Time - Three levels: Time 1- end of summer term; T2 – start of autumn term & T3 - 7 weeks later

• Dependent measures
  – Scores in WRAT 4 literacy test (Reading and Spelling)
Study 3: Summer Learning Loss

• Participants
  – N = 121 (6-8 year olds)

• Data Analysis
  – Repeated Measures ANOVA
  – Post-hoc Analyses
### Study 3: Summer Learning Loss

#### Mean Spelling Scores at Time 1, 2 and 3

![Graph showing mean spelling scores over time](image)

<table>
<thead>
<tr>
<th>Pair</th>
<th>Paired Differences</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>Lower</th>
<th>Upper</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
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<tbody>
<tr>
<td>Pair 1</td>
<td>T1 Spelling total 1 - T2 Spelling total 2</td>
<td>1.237</td>
<td>2.686</td>
<td>.436</td>
<td>.354</td>
<td>2.120</td>
<td>2.839</td>
<td>37</td>
<td>.007</td>
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<tr>
<td>Pair 2</td>
<td>T2 Spelling total 2 - T3 Total Spelling 3</td>
<td>-2.684</td>
<td>2.886</td>
<td>.468</td>
<td>-3.633</td>
<td>-1.736</td>
<td>-5.733</td>
<td>37</td>
<td>.000</td>
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<tr>
<td>Pair 3</td>
<td>T1 Spelling total 1 - T3 Total Spelling 3</td>
<td>-1.447</td>
<td>2.446</td>
<td>.397</td>
<td>-2.251</td>
<td>-.643</td>
<td>-3.647</td>
<td>37</td>
<td>.001</td>
</tr>
</tbody>
</table>
Conclusion

• Need for holiday food provision
• Widespread provision but piecemeal, unregulated
• More than just feeding
• Evidence of Summer Learning Loss (spelling, not reading)...currently analysing math scores
• Working with hard to reach population
• Working with a range of stakeholders
• Balance between intervention and evaluation