



## Research report

## When chefs adopt a school? An evaluation of a cooking intervention in English primary schools<sup>☆</sup>

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## ABSTRACT

This article sets out the findings from research on the impact of a, UK based, chefs in schools teaching programme on food, health, nutrition and cookery. Professional chefs link with local schools, where they deliver up to three sessions to one class over a year. The research measured the impact of a standardised intervention package and changes in food preparation and consumption as well as measuring cooking confidence. The target group was 9–11 year olds in four schools. The main data collection method was a questionnaire delivered 2 weeks before the intervention and 2 weeks afterwards. There was a group of four matched control schools. Those taking part in the intervention were enthused and engaged by the sessions and the impact measures indicated an intention to change. There were gains in skills and confidence to prepare and ask for the ingredients to be purchased for use in the home. Following the session with the chef, the average reported cooking confidence score increased from 3.09 to 3.35 (by 0.26 points) in the intervention group – a statistically significant improvement. In the control group this change was not statistically significant. Children's average reported vegetable consumption increased after the session with the chef, with the consumption score increasing from 2.24 to 2.46 points (0.22 points) again, a statistically significant increase with no significant changes in the control group. The research highlights the need to incorporate evaluation into school cooking initiatives as the findings can provide valuable information necessary to fine-tune interventions and to ensure consistency of the healthy eating messages.

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## Introduction

This article outlines research on the impact of chefs going into schools to teach children to prepare and taste healthy food. The programme is run by the UK based Academy of Culinary Arts' Chefs Adopt a School Scheme (see [www.academyofculinaryarts.org.uk](http://www.academyofculinaryarts.org.uk) for more details). In the Chefs Adopt a School Scheme (CAAS), professional chefs link with local schools, usually primary, where they deliver three sessions to a class each year, the first class covers healthy eating and favours and taste, the second deals with practical food preparation and the third where possible, consists of a visit to a restaurant. Core elements included in all sessions are hygiene and health, an appreciation of food through the senses, particularly, taste and practical cooking/food preparation. The programme's aim is to teach children about food, food provenance, healthy eating and food preparation. At present, sessions are provided all over England subject to demand and resources (with a

few sessions being delivered in Scotland). Annually, 21,000 children take part in the initiative. The programme is similar to the Cooking Matters programme in the US (<http://cookingmatters.org/>), which has been running for over 30 years and was formerly known as 'Share our Strength'. The main difference is the dose of the interventions, with the US programme offering 10 sessions as compared to the three in the UK based programme. Another key difference is that the US programme is jointly delivered by a dietician and a chef (see [Condrasky, Griffen, Catalano, & Clark, 2010](#); [Condrasky & Helger, 2010](#)). There are many examples of local schools linking with local restaurants or chefs; what are distinctive are the extent and scale of the Chefs Adopt a School Scheme and the focus on taste and gastronomy. The CAAS programme was originally developed to raise awareness of catering as a career to school children. Since its inception the intervention has grown organically and with variations in delivery from area to area and chef to chef, this research describes the evaluation of an existing intervention with a focus on the healthy eating messages being delivered.

In many UK public health programmes cooking plays an important part of programme interventions ([Caraher & Cowburn, 2004](#); [Caraher & Dowler, 2007](#); [Wrieden et al., 2007](#)). The various cooking initiatives in the UK have had over £30 million pounds spent on

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them in the period 2008–2011 (Caraher & Seeley, 2010), without any rigorous evaluation (Caraher, 2012). de Sa and Lock (2007) in their review of school based programmes identified that cooking and tasting sessions were among the ways to help increase the intake of fruit and vegetables. There have been numerous calls for the re-introduction of home economics into schools as a means of addressing chronic diseases through encouraging the choice of healthy options, more fruit and vegetable consumption and the use of healthy cooking options (Lichtenstein & Ludwig, 2010; Vileisis, 2008).

While there is limited evidence that cooking initiatives can help people cope and make healthier choices the literature is sparse and mostly descriptive and not evaluative (Chen, Lee, Chang, & Wahlqvist, 2012; Rees, Hinds, Dickson, O'Mara-Eves, & Thomas, 2012). Here we seek to address some of these issues by applying the lessons learned from the literature review of teaching cooking to children (Seeley, Wu, & Caraher, 2010).

## Methodology

### Systematic review

A systematic review of the existing literature on cooking in schools was undertaken, this informed the evaluation design (Seeley et al., 2010). There were four levels of quality based on the methodological quality of evidence provided, these were:

*Level 1:* A well-designed study, survey or systematic review, using randomised, controlled, quasi-experimental, intervention versus a control and comparison group or a pre- and post-test design including historical studies with academic rigour.

*Level 2:* A study, survey, case study or review of cooking in schools.

*Level 3:* Descriptive/anecdotal, well presented and relevant qualitative information.

*Level 4:* Very general information with little data but with subject relevance.

A major finding from this review was that there were few well-designed or evaluated studies in existence. There were a few community and adult based interventions but these were excluded as the focus was not young people or schools (e.g. Wrieden et al., 2007; see Rees, Hinds, Dickson, O'Mara-Eves, & Thomas, 2012 for a systematic review of cooking for adults). In essence four of high quality were identified (Cullen, Watson, Zakeri, Baranowski, & Baranowski, 2007; Liquori, Koch, Contento, & Castle, 1998; Perez-Rodrigo & Aranceta, 1997; Townsend, Johns, Shilts, & Farfan-Ramirez, 2006).

The only intervention to be ranked as a level one study was one that delivered a mix of food and environment lessons (theory based), practical cooking sessions, parental involvement and provision of plant-based foods at school lunch (Liquori et al., 1998). The remaining three met the level 2 standard of the review. One of these, based in the United States of America, was a randomised control trial of an intervention over 6–8 weeks for low-income youth consisting of food tasting, fruit and vegetable preparation as well as other activities (Townsend et al., 2006). The other was a one group cohort, 'before and after' intervention that targeted 'gypsy' children in Bilbao, Spain involving school-teachers, nutritionists and catering staff (Perez-Rodrigo & Aranceta, 1997). The final study was an interactive computer based intervention, based on social cognitive theory, where pupils 'virtually' prepared a fruit juice or vegetable recipe on a computer program and then prepared recipes for 'homework' in their home kitchen (Cullen et al., 2007). The results demonstrated an increase in post-test

consumption although this was associated with baseline consumption, suggesting an impact on the already committed.

The findings from the review informed the structure and design of this study. There is much activity on cooking and young people in the community or school setting but much of the literature is at best descriptive (Seeley et al., 2010) and few measured cooking confidence, although many of the articles talked about this as a concept. This research was carried out at a time when cooking in schools was being put forward as a solution to improving diets and reducing obesity (Caraher & Seeley, 2010; Lichtenstein & Ludwig, 2010). Many primary schools do not teach hands on cooking so the CAAS program fills a gap and helps compensate for the shortage of nutritionists and home economists in the UK (Caraher & Seeley, 2010).

### Research design

The research design was quasi-experimental, for each school in the intervention group a similar school was matched for geographical region and Free School Meal Entitlement (FSME)<sup>1</sup> at the school level was included in the control group. Schools in the control group were scheduled to receive a Chefs Adopt a School session in the following academic year, and were therefore delayed intervention schools. The sample comprised two groups of children in years 4 and 5 (with an age range of 9–11 years) at primary school in England.

### Questionnaire design and piloting

Initially some sessions were observed by the researchers to help inform the methodology. Session delivery style varied between chefs and was individual, often adapted to suit schools different needs, curriculum focus and/or facilities available. Core aspects of the CAAS programme that all chefs deliver include: hygiene, healthy eating, taste testing and exploring where on the tongue students taste different flavours, as well as practical food preparation session. Some standardisation of session content was necessary for the evaluation. Chefs involved in the programme were consulted regarding a suitable recipe that included at least three vegetables and which could be made irrespective of cooking facilities. The chefs decided upon a vegetable pasta salad, where they agreed on five vegetables to be included (tomatoes, cucumber, celery, peas and red pepper). The focus was on use of these vegetables in the salad. We did not seek to increase consumption of any of them as vegetable or legumes on their own. Vegetables such as cucumber in the UK setting are more likely to be included as components of dish such as salad as opposed to being eaten on their own or as part of a pickle.

The questionnaire was designed in consultation with chefs, teachers, children, research staff and an international expert reference group. This latter group was comprised of eight academic members with expertise in practical cooking interventions. Feedback from consultation and piloting informed the final questionnaire design. Questions were included to collect data on attitude to the session and cooking generally, vegetable consumption, confidence asking for foods and ingredients at home and hand washing habits during food preparation. The final draft of the questionnaire was piloted twice over 2 weeks with 22 eleven year olds from a school in London. The pilot provided an opportunity to consult with prospective participants and an opportunity to test the reliability of the questionnaire. The correlation coefficients were relatively high: for hand washing behaviour it was 0.88; cooking confidence was 0.71 and asking confidence was 0.85 respectively. This means that the second time pupils filled in the

<sup>1</sup> In the UK free school meal entitlement refers to the percentage of pupils in a school who are eligible for free school meals funded by their Local Authority, because they are from low income homes usually on state benefits.

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