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Chefs Adopt a School

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## **AN EXPLORATORY CASE STUDY OF A FOOD EDUCATION PROGRAM IN THE UNITED KINGDOM: CHEFS ADOPT A SCHOOL**

**Corresponding author: Michelle Jayman, MBPsS, PhD**

### **ABSTRACT**

#### **Purpose/Objectives**

Chef's Adopt a School (CAAS) is an evidence-based food education program delivered in schools (Kindergarten - 12<sup>th</sup> grade) in the United Kingdom (UK) which helps children understand the importance of nutritional literacy and encourages healthy eating. This qualitative study investigated the underlying components of the CAAS program that contributed to improving children's healthy eating attitudes and behaviors. This study addresses the gap in the literature of process evaluations of food education programs.

#### **Methods**

An exploratory case study design was implemented using the first unit of the CAAS program; the Taste and Sensory lesson (session one). This lesson involved two separate classes of children (mean age of 8.5 years) from two London elementary schools (N = 54; 30 boys and 24 girls). Data were collected using a variety of qualitative methods: Observations of the session in each school, one focus group per school with a subgroup of students, and semi-structured interviews with chefs (delivery agents) and class teachers. Data sets were collated and thematically analysed manually, generating three thematic categories and eight subthemes.

#### **Results**

Main themes comprised: 'Social Validity' which encompassed stakeholders' perceptions of the program as both worthwhile (effective and valuable) and acceptable (engaging); 'Pedagogies and Practices' which included specific teaching and learning techniques underpinning the program; and 'Championing Healthy Eating' which captured emergent factors related to program development and diffusion.

#### **Applications to Child Nutrition Professionals**

Pertinent issues for developers and implementers of other food education programs to consider were identified with this research. Specific components of CAAS (e.g. making learning 'fun' and the emphasis on experiential learning) were linked to program effectiveness and align with findings from similar studies in the literature. The importance of implementing good practice in program evaluation and development (e.g. assessing intervention fidelity and incorporating children's 'voice') was highlighted in this research and is universally applicable.

**Key words:** Food Education, School-Based Programs, Process Evaluation, Social Validity

## INTRODUCTION

Eating behaviors of children and associated health risks have been the subject of research focused on interventions to improve dietary habits, methods to demonstrate effectiveness of these interventions, and sustainable impact of any changes. Research studies in school settings suggest that practical, hands-on, food education is a promising strategy for promoting children's interest in healthier eating (DeCosta, Møller, Frøst, & Olsen, 2017; Gibbs et al., 2013). The Chefs Adopt a School (CAAS) program ([www.adoptaschooltrust.org.uk](http://www.adoptaschooltrust.org.uk)) was founded in 1990 by the Royal Academy Of Culinary Arts, a UK charity whose patron is His Royal Highness, The Prince of Wales. It is a brief, classroom-based intervention to promote healthy eating habits, and is available to all schools (K-12) in the United Kingdom.

The CAAS program comprises three one-hour classroom-based sessions divided across the academic year (one per term) that are delivered to the same class of children (approximately 30) by a trained volunteer who is a professional chef. The sessions aim to teach children (K-12) the basics of food and cookery without the need for cooking facilities: "All that is required is the classroom, the children and the chef" (Chefs Adopt a School, 2017, p.5). Core elements of the program are universal. The first lesson is always a Taste and Sensory session. Chefs follow a comprehensive lesson plan (Figure 1) to ensure the program is delivered as intended. The objectives are to introduce children to real fresh food through a fun approach to tasting, inspire children to consider food more closely and learn about food provenance, teach basic food preparation skills, and foster an understanding of the importance of healthy eating. The second and third sessions are designed to be flexible with these practical cookery sessions varying according to interests/preferences of the group and/or the chef. Hygiene practices and food safety are incorporated across the sessions. Some learning outside the classroom, such as a visit to a farm or a Front-of-House service-focused session may be offered.

The CAAS program was informed by policy, research and practice. Previously published empirical research (Caraher, Seeley, Wu, & Lloyd, 2013) supports the effectiveness of the CAAS program on primary-aged (K-5) children's cooking confidence and increased vegetable consumption. That study contributed to the body of evidence (Garcia et al., 2016; Hersch, Perdue, Ambroz, & Boucher, 2014) that has demonstrated food education programs delivered in school settings are effective in influencing children's food preferences, improving their cooking skills and confidence, and shifting food related attitudes and behaviors. However, less is known about process issues and how such changes occurred; such studies are sparse in the literature. The research presented in this article is an exploratory case study of one of three sessions of the CAAS program (Taste and Sensory session). The aim of this study was to discover elements of the program that had an impact on children's healthy eating attitudes and behaviors, and gain an understanding of how and why the program works.

**Figure 1.** *The Taste and Sensory Session Lesson Plan*

Time	Topic	Activity	Chef/Class	Resources
1 Hour	Set up - see further notes below	Display the tongue poster at front of class but cover up where it labels the tastes with something that can subsequently be removed to reveal where each taste is discovered on the tongue. A place should be set for each child on their tables, with a hat and apron, paper plate and spoon.	Chef (ask for help if under time pressure)	
2 Minutes	Introduction	Explain who you are and what the Royal Academy is and about Adopt a School.	Chef	
2 Minutes	Hygiene	Explain the importance of personal hygiene, especially when working with food. The reason for protective clothing and clean hands.	Chef and Class	Chefs hats, aprons. Hand sanitiser
5 Minutes	Food - why we need it and where it comes from	Explanation of why we need food: To help body growth and repair Provide nutrients Discuss food origins, farms, seas Discuss food miles and the meaning of organic and locally sourced	Chef and Class. Chef should ask the class all the relevant questions. Ask Class about their favorite foods and where it comes from	Map of the world/Map of UK
5 Minutes	Balance of Health	Discussion of the five food groups and the importance of a balanced diet, show the picture of the Eat Well Guide. Discuss the recommended daily amount (RDA) of salt and sugar.	Chef and Class discussion. Class should show how much they believe are the RDA of salt and sugar	Picture of healthy plate Measured amounts of RDA salt and sugar. Food examples
10 Minutes	The 5 Senses	Discuss the use of all 5 senses. Sight, hearing, smell, taste and touch. Each child should take a slice of baguette and use all of their senses to appreciate it. Listen to the crackle of the crust when it's broken, look at the color, feel the texture of both the dough and the crust, smell it and taste it.	Class and Chef	Baguette, sliced
10 Minutes	The 4 Tastes	Tasting of a different food, representing bitter, sour, sweet and salt. For example, lemon, dark chocolate or chicory, plain salted popcorn, strawberry jam.	Class and Chef. Pupils should taste the foods and try and work out where on the tongue they can taste them. After trying all the tastes, the tongue poster can be revealed.	Sample foods of the four tastes Tongue poster
10 Minutes	Perception of Taste	Tasting different flavored jellies with contrasting colors and flavors, e.g. red jelly tasting of mint. This encourages children to look, smell and taste food, i.e. as many senses as possible, to evaluate their food	Class and Chef	3 or 4 different flavoured jellies
5 Minutes	Vegetable Identification	Volunteers (or those selected by the teacher/chef for good behavior) are blindfolded and given different fruits and vegetables to identify	Class and Chef and Teacher	Blindfold Variety of fruits and vegetables
5 Minutes	Clear Down	All compostable disposable items and food products in compostable bin liner. If compostable disposables are not used - recycle as much as possible (plastic spoons can be washed and reused)	All	Compostable bin liner

While generalizability of findings from studies of school-based food programs should be considered with caution (due to heterogeneity of evaluation methods and their variable reliability among other factors), evidence suggests (Gustafan, Abbey, & Heelan, 2017; Song, Grutzmacher, & Munger, 2015) that actively involving and engaging children in food education positively influences their eating behaviors. DeCosta et al. (2017) concurred, insisting that practical, hands-on approaches encouraged healthier food consumption compared to more passive, traditional strategies. A common characteristic of practical cooking programs (including CAAS) is the opportunity to taste food, which encourages discussion and social bonding, and has been shown to modify neophobic responses to disliked or rejected food items (Park & Cho, 2016).

Despite support for a hands-on approach as a promising model, distinctive components of effective food education programs remain unclear. Research has suggested (Wadhera, Capaldi-Phillips, Wilkie, & Boggess, 2015) that repeated exposure increases children's preference for fruit and vegetables. Other research (Lakkakula et al., 2011; Snelling et al., 2017) has found taste and palatability can positively affect children's attitudes and eating behavior. Another consideration is the delivery agent; Garcia et al. (2016) highlighted the crucial role of the person/s delivering the program in terms of successfully communicating key messages.

It has been acknowledged (Britten, 2011; Lewin et al., 2015; Moore et al., 2015) that investigations concerning how a program works are best pursued through a qualitative methodology. A holistic approach requires engaging multiple stakeholders such as head teachers, classroom teachers, foodservice staff, and parents in addition to students. Moreover, listening to children's 'voice' is essential for understanding programs aimed at them, and in development of such efforts (Guerrero, Olsen, & Wistoft, 2018). Using a number of methods within a qualitative approach is considered appropriate when collecting data from children (Darbyshire, MacDougall, & Schiller, 2005). Following this rationale, the case study that follows utilized qualitative methods of inquiry and multiple informants with focus given to incorporate meaningfully children's voices to ensure their views were not marginalized.

## **METHODOLOGY**

Ethical approval for the study was received from the University of West London Ethics Committee in August 2017. Consent was received from head teachers (considered the 'gatekeepers' as it was through them that access to participants was gained and in whose setting the research took place), and from parents.

### **Design**

The research design was an exploratory case study. The 'case' comprised one lesson which is the first of three of the CAAS program titled Taste and Sensory. Two separate classes of year 4 pupils (aged 8-9 years) (N = 54) from two London elementary schools who attended the sessions in their school participated.

### **Sample and School Recruitment**

Purposeful sampling was utilized with selection criteria including schools that were implementing the Taste and Sensory session during the 2017 fall term and which had not previously run a CAAS program. Two mixed, elementary schools in London, UK with enrollments of 218 pupils (School 1 [Sc1]) and 332 pupils (School 2 [Sc2]) respectively, volunteered to participate.

In Sc1, 29 children (14 boys and 15 girls with a mean age of 8 years and 3 months) attended the Taste and Sensory session. In Sc2, session attendees consisted of 16 boys and 9 girls, with a

mean age of 8 years and 11 months. Adult participants comprised the chef (Chef 1[Ch1]) and class teacher (Class teacher [CT1]) from Sc1, and the chef (Chef 2[Ch2]) and class teacher (Class teacher [CT2]) from Sc2).

### **Data Collection**

Observations of the Taste and Sensory session in Sc1 (n = 29) and Sc2 (n = 25) were conducted by the researcher. Semi-structured telephone interviews with Ch1 and Ch2 were conducted by the researcher on the day following the session in each respective school and were approximately 30 minutes in duration. Data were collected from CT1 and CT2 using the same procedure three days after the session. Focus groups with children in Sc1 (n = 7) and Sc2 (n = 6) were facilitated by the researcher within two weeks of the session and were approximately 40 minutes in duration.

Class teachers randomly selected focus group participants from the children who had attended the session. Participation was voluntary yet no child declined. Focus groups were conducted in a quiet room and facilitated by the researcher with an assistant. Steps were taken to create an ‘informal research encounter’ to minimize perceived power differences between the adults and children. For example, the room was set-up to resemble ‘circle time’ (a familiar activity in elementary school) and an ‘ice-breaker’ was introduced to put participants at ease. A question schedule was utilized to guide the discussion and began with an engagement question to introduce the topic, and then, exploratory questions on the key areas of interest, were posed. For example, “If you were describing the lesson with the chef to another year 4 pupil, how would you describe it?” To stimulate thinking and engagement, an art task was incorporated into the focus group (Darbyshire et al., 2005). Participants were invited to draw (on a paper plate) a meal they would like to help prepare for their family, thus data collection was not limited to verbal responses. Focus groups were audio recorded.

Semi-structured telephone interviews with chefs and class teachers followed a logical question route, from more general items to the specific, such as, “What, if any, are the barriers to successfully delivering the CAAS programme in schools?”

### **Data Analysis**

Focus group recordings were transcribed verbatim and data were thematically analyzed manually by the researcher who used a six-phase model (Braun & Clarke, 2013) to guide the process and provide methodological rigor. Where possible, children’s own words were used, with minimal editing. Data from focus groups and the individual interviews with the chefs and class teachers were thematically analysed jointly to provide a composite view. Observational data were integrated and subsumed within organized themes to contextualize the exploratory framework. Pseudonyms were used to maintain anonymity. Data collected from the drawing activity (family meal suggestions) were categorised according to food groups.

## **RESULTS AND DISCUSSION**

The aim of the study was to explore components of the CAAS program through intensive analysis of a ‘case’ comprising one of three lessons, Taste and Sensory. Results from thematic analysis of data collected using multiple methods and multi-informants are organized by thematic categories. Three theme categories emerged: Social Validity, Pedagogies and Practices, and Championing Healthy Eating (Table 1).

**Table 1.** *Thematic categories and subthemes for stakeholder perceptions and experiences of the Chefs Adopt a School: Taste and Sensory lesson (n = 17)*

THEMATIC CATEGORY	SUBTHEME	ILLUSTRATIVE QUOTATION
Social validity	Achieving outcomes	<i>'The chef taught us about zinc...how it helps our immune system (Danger Mouse, Sc2)'</i>
		<i>'The session was pitched just right...It worked, getting the [healthy eating] message over' (CT2)</i>
		<i>'It inspired me' [to eat healthily] (Spider Monkey, Sc1)</i>
	Gaining acceptance	<i>'They were very excited [after attending the session] and wanted to do it every week' (CT1)</i>
		<i>'It was a very delicious experience' (Boy 123, Sc2)</i>
		<i>'It was interactive, fun, visual and kinaesthetic' (CT2)</i>
Pedagogies and practices	Challenges	<i>'I didn't like putting [writing] the tastes on the tongue [paper handout] because it was really confusing' (Luke, Sc1)</i>
		<i>'For the less able learners, having to record the findings, they looked a bit worried' (CT2)</i>
	Learning is fun	<i>'It's something different...seeing the chef's hat and chef's whites... someone new coming in to the school to teach' (Ch2)</i>
		<i>'My favorite thing was everything – it was all fun' (Nicole, Sc2)</i>
	Group-based social learning	<i>'My favorite thing was the tasting exercise' (Boy 123, Sc2)</i>
		<i>'It was awesome because you could taste everything' (Dan, Sc1)</i>

THEMATIC CATEGORY	SUBTHEME	ILLUSTRATIVE QUOTATION
Championing healthy eating		<i>'The really 'hands-on' component [the children enjoyed the most]. They really liked touching, smelling and tasting all the food' (CT1)</i>
	Maintaining program fidelity	<i>'You get no more than ten minutes for each segment and that keeps their attention' (Ch1)</i>
		<i>'The way everything was individually set up and controlled' [worked the best]' (CT1)</i>
	Harnessing 'whole school' support	<i>'We need to underpin the teacher's role more' (Ch2)</i>
	Disseminating impact	<i>'We will make up a class book [about the lesson], with photos and writing for display...and feed into the blog too' (CT2)</i>
		<i>'I was interested to do my five senses when I was eating' [at home, after the session] (Umpaville, Sc1)</i>

*Note.*Ch: Chef; CT: Class Teacher; Sc: School

## **Theme One: Social Validity**

This theme relates to perceptions of recipients and other stakeholders such as class teachers and delivery agents regarding program effectiveness and acceptability. From this theme, three subthemes emerged: achieving outcomes, gaining acceptance, and challenges.

**Achieving outcomes.** Evidence of achieving targeted outcomes (identified by the chef) for this lesson was shown. Focus group children described their experiences during the session and thus demonstrated their learning, “We were talking about the tastes, like sweet and sour” (Dan, Sc1) and, “We talked about the senses, like touch, feel, taste and see” (Princess Bubblegum, Sc2); this participant also recalled an important ‘take home’ message, “Stay in school and be healthy!”

Accounts by class teachers indicated that, in their opinion, learning outcomes for children were achieved, “It was definitely beneficial - I think they learned a lot” (CT1) and, “It worked, getting the [healthy eating] message over” (CT2).

One focus group participant described tasting the brightly colored, candy radish having initially been deterred by its appearance, “My favorite thing [to taste] was radish...it was really tasty, even though it was pink!” (Boy 123, Sc2). Findings support prior research (Wadhera et al., 2015) that exposure increased children’s preference for healthy food items and, moreover, tasting inhibited children’s neophobic responses (Park & Cho, 2016).

Fruits and vegetables were listed as favorite foods by participants in focus groups, including radish and samphire (a green plant of the parsley taxonomy which is native to Europe); both were tasting items in the session. Data from plate drawings (Sc1) (collectively 37 food items) comprised 30% fruits and vegetables, and 13% foods high in fat and/or sugar. Similarly, for Sc2 (collectively 29 food items) 34% were fruits and vegetables, and no foods were high in either fat or sugar. Conversely, dessert suggestions only included 1 fruit item in 16 items (Sc1), and 1 fruit item in 11 items (Sc2); all non-fruit items were high in sugar. The recommended total daily intake of items high in fat/and or sugar (British Nutrition Foundation, 2017) should not exceed 7% in total calories. The contrast in healthy items suggested for main meals compared to dessert tentatively suggested that dessert was a ‘special treat’. Previous research (Toossi, 2017; Rosário et al., 2016) supported tailoring specific attention on healthy dessert choices.

**Gaining acceptance.** Focus group children agreed that they would like another ‘lesson’ with the chef, “It was fantastic and amazing” (Stamp, Sc1). Researcher’s observations found children were attentive, engaged, and enthusiastic. They delighted in learning food facts and asked questions. These factors indicated the program was acceptable.

Class teachers reported children’s reactions after the session, “They [the children] fed back to me about how much they enjoyed it” (CT2).

**Challenges.** Certain activities of the CAAS Program’s Taste and Sensory lesson emerged from data as potential obstacles to achieving intended outcomes. Some children required adult assistance due to lack of time or understanding of the activity, “Some were a little behind and it was a bit quick with the tongue [diagram labelling] activity” (CT1). “I didn’t like [the tongue activity]. We thought it was our decision where we could taste it the most, but it actually wasn’t” (Princess Bubblegum, Sc2); several children were disappointed they hadn’t labelled their diagram ‘correctly’, “I think I got all of them wrong” (Boy 123, Sc2).

## **Theme Two: Pedagogies and Practices**

This theme comprised the teaching and learning elements that contributed to the program's effectiveness.

**Learning is fun.** Each table (for five pupils) was set with an individual tasting box, chef's hat, and apron. The arrival of 'teacher' in chef's uniform created general excitement among the children.

Children were intrigued by the unusual appearance of food items: the purple heritage carrot and the pink and white striped candy radish. CAAS integrates experiential learning as children are invited to use touch and smell to inspect items. Some children were thrilled that the color of the food did not match their expectation of the flavor and reported this in their focus group, "My favourite bit was tasting the green jelly...it tasted like vanilla!" In line with previous research (Lakkakula et al., 2011; Snelling et al., 2017) findings highlighted the importance of taste and palatability, and support using a tasting component as an effective technique to engage learners.

**Group-based social learning.** The first task observed in the CAAS Taste and Sensory lesson was chef's demonstration. One child had their apron and hat secured by the chef while others watched and then imitated. Some children needed help and more able pupils were quick to assist, thus promoting social bonding. Similarly, for removing and re-folding the apron, some children received assistance from their more competent peers.

Children were eager to touch and smell the five food items. A gentle, encouraging approach from the chef convinced a few initially unsure children to do the tasting, "That's why I only get them to try a small amount... kids are willing to try a small amount" (Ch1). Children also encouraged each other. Overall, this suggested the social experience of food had created a forum where desirable behaviors were modelled, imitated and adopted (Birch, Savage, & Ventura, 2007).

The underpinning pedagogy is group-based social learning and, consistent with the literature (Gustafan et al., 2017; Song et al., 2015), CAAS supported a practical, hands-on approach as a successful delivery model.

**Maintaining program fidelity.** The chef explained what the 'lesson' was about and followed a comprehensive plan consisting of timed activities (Figure 1). Core aspects of the manualized program mapped to recognized characteristics of other successful school-based interventions, i.e. the session was sequenced, active, focused, and explicit, or SAFE (Topping, 2012).

Chefs received mandatory CAAS training and were expected to follow the prescribed plan; commitment to this was demonstrated, "Keeping the structure, the format works well and gets the healthy eating message across" (Ch1). Conversely, while adhering to this helped ensure the complete session was delivered as intended, it prevented modifying activities to suit groups, e.g. extending time to complete tasks.

Nevertheless, chefs delivered the session with fidelity, augmenting overall effectiveness, "Chef \_\_\_\_ explained it well and guided them [children] through" (CT2). This underlined the crucial role of the delivery agent in reinforcing key messages (Garcia et al., 2016).

## **Theme Three: Championing Healthy Eating**

This theme included aspects of program development with an objective of establishing a healthy eating culture in the school.

**Harnessing ‘whole school’ support.** Whole school support was highlighted as crucial for smooth implementation, “The [practical] help does vary” (Ch2). The class teacher is expected to attend the session and manage pupil behavior; however, observations showed minimal staff input.

Other school staff had important roles, “The caretaker is an integral part [for access to the site]” (Ch1). Administrative issues compromised efficient preparation, “I had to ask for the photocopying a number of times” (Ch1).

Although class teachers recognized the benefits for pupils, they also noted scheduling issues with the program, “Takes time away from a lesson which has to be fitted somewhere” (CT1). This presents an issue for head teachers faced with implementation decision-making and may deter program uptake.

**Disseminating impact.** Extended learning from the Taste and Sensory session was shown in school and at home. For example, class teachers at this grade level recognized how the CAAS program complements the curriculum and how aspects can be incorporated in other lessons, “[It] supports literacy, math, geography, and history” (CT2), and moreover, develops social skills, “It helps with sharing and communication skills” (CT1).

Focus group participants revealed, “At home I tried mixing foods together” (The General, Sc2) and, “When I had dinner, I thought about my five senses” (Spider Monkey, Sc1).

While brief, food education programs like CAAS have demonstrated short-term impact on children’s attitudes and eating behaviors, longer programs may be more successful in augmenting a healthy eating culture in schools (Hersch et al., 2014).

## CONCLUSIONS AND APPLICATION

This exploratory case study analyzed the first of three sessions in the CAAS program, an experiential learning curriculum focused on improving children’s nutritional literacy and healthy eating behaviors. While conclusions are tentative, steps to ensure methodological rigor were taken including triangulation of data collection methods and use of multi-informants. Data collected focused on the ‘voice of the child’ as there is growing recognition that children’s views are crucial to research concerning programs and services which affect them (McLaughlin, 2015). A limitation of the current study was that focus groups with children took place two weeks after the Taste and Sensory session, and time elapsed could have influenced 8-year-old participants’ recall. Nonetheless, through thematic analysis of all data collected, specific components of the lesson were identified that contributed to achieving targeted program outcomes, thus encouraging children’s healthy eating attitudes and behaviors. While case study designs do not claim to generate generalizable findings, examples of good practice and pertinent issues for developers and implementers of other school-based food education programs have emerged which they may wish to consider in relation to their own operations.

### Program Components Contributing to Outcomes

For the children attending the Taste and Sensory session there was a real ‘wow’ factor; having a professional chef as ‘teacher’ and wearing their own chef’s hat and apron was novel and fun. Current findings contribute to the literature on the effectiveness of practical, hands-on approaches and, specifically, demonstrated that active engagement in tastings was a social experience that encouraged peer support and group bonding. Food education programs can, therefore, be delivered successfully to whole classes of children by well-trained volunteers who

provide a complementary resource for teaching staff. Collaboration with the school nutrition program to ensure safe handling practices of food could also be considered.

Aspects of the session which worked less well, for example, the tongue labelling activity, have highlighted areas for future program development. Moreover, while manualized programs can increase the likelihood of program fidelity and consequently, of achieving targeted outcomes; current findings suggest that some flexibility in the lesson plan would allow delivery agents to cater to the needs of specific groups (e.g. allow more time for some activities). At present, no objective assessment tool is systematically used to gauge program fidelity; however, such a measure could be developed as part of future evaluations of CAAS, and is good practice for other food education program developers.

### **Implementation Issues**

Food education programs can improve nutritional literacy and encourage children to make healthier choices; nevertheless, interventions are unlikely to sustain their impact if they are not deemed worthwhile and acceptable by recipients (Marchant, Allen Heath, & Miramontes, 2012). Findings indicated that the CAAS program was considered socially valid (effective and valuable, and engaging), by the children and other stakeholders. The perceived importance and acceptability of school-based programs is essential for securing ‘buy-in’ from class teachers, parents, and head teachers (implementation decision-makers) and is linked to factors which have either a facilitating or inhibiting influence.

Generating ‘whole school’ commitment to a program facilitates smooth adoption and delivery, as even effective programs can fail if unsupported and/or poorly implemented. Class teachers did not assume an active role in the Taste and Sensory session and behavior management was left primarily to the chef. Head teachers, not class teachers, are responsible for implementation decision-making, thus expectations for all staff involved in programs delivered by external agents should be communicated effectively to avoid confusion over responsibilities. Current findings in this U.K based case study highlighted how this practice was particularly necessary for school staff attending sessions in the classroom. Districts in the United States will likely have defined procedures and policies for inclusion of programs in the schools by outside presenters and for those which involve food.

Perceived program value increases the likelihood that follow-on activities in school are initiated which can be linked to the current curriculum for the year grade. Key messages from the Taste and Sensory session were reinforced by class teachers, for example, by developing a class book on the lesson (supporting literacy), and in the context of a history lesson (comparing different diets). Moreover, if parents are fully informed about, and support school-based food education programmes, important messages, and desired behaviors are more likely to be reinforced at home (DeCosta et al., 2017). The social validity of specific programs is, therefore, a crucial consideration for developers, impacting on quality of implementation, integration within mainstream curricula and links between school-based efforts and home and community efforts.

### **Evaluating School-Based Programs**

Current findings have contributed to an emerging theory of change for one school-based nutrition program, the CAAS program; the impact of attending the first lesson (Taste and Sensory) from a beneficiary’s point of view has been described and discussed through an analytical framework. While this study has revealed some of the effective components, future research is needed to develop these exploratory findings into an explanatory framework and develop a comprehensive theory of behavior change with respect to the impact the whole

program has on children's healthy eating habits: this should effectively communicate what the program does, the outcomes to be measured, and the impact on beneficiaries (Nesta, n.d.). Fully developed, a theory of change provides a framework for robust program implementation and evaluation, and again, is recommended good practice for food education program developers to consider for their own operations.

The current study, using qualitative methods, has shown how the voice of stakeholders, most importantly child recipients, is an essential consideration in program evaluation and improvement (McLaughlin, 2015). Qualitative methods such as focus groups leave children's perspectives intact and thus, generate rich, detailed and valid data which provide a unique insight into their understanding and perceptions. Embedding the voice of children in evaluation avoids marginalising their views and should be a consideration for all program researchers and developers. Nonetheless, future, larger-scale evaluations of the CAAS program, or other school-based nutrition programs, could utilise other research designs and include quantitative data collection techniques. This would allow the influence of additional variables including geographical factors, children's socio-economic status, grade level, and participation in the school nutrition program and other nutritional outreach initiatives to be examined, thus contributing to a comprehensive explanatory framework for the CAAS program. Moreover, embedding both qualitative and quantitative techniques in future research designs can augment the credibility of the findings through mixed method triangulation.

### **Concluding remarks**

This study explored process issues underpinning the first unit of a school-based food education program delivered in the UK, and thus addressed a gap in the literature for this type of evaluation. Despite national and international variations in embedding food education in schools, findings from this small-scale study have wide application in terms of understanding specific components of effective programs, and establishing the suitability of the research procedure which included collecting valid and meaningful data from children.. Food education programs like CAAS, delivered in school settings, can contribute to reducing an obesogenic environment. Nevertheless, such programs need to be delivered within a multi-system approach including the active involvement of individuals, families, and communities, as well as schools, to promote and embed nutritional literacy, encourage healthy food choices, and to avert the multiple health risks associated with poor dietary behaviours both current and long-term.

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## BIOGRAPHY

Corresponding author Michelle Jayman, MBPsS, PhD, is Lecturer in Education Studies and Child Development at University of West London, Brentford, Middlesex UK.