



# The social, physical and temporal characteristics of primary school dining halls and their implications for children's eating behaviours

The characteristics of dining halls

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## Abstract

**Purpose** – Social, physical and temporal characteristics are known to influence the eating experience and the effectiveness of nutritional policies. As the school meal service features prominently in UK nutritional and health promotion policy, the paper's aim is to investigate the characteristics of the primary school dining context and their implications for eating behaviours.

**Design/methodology/approach** – A case study of one local authority in Wales was conducted involving 11 primary schools stratified into socio-economic quartiles. Focussed observations were carried out over two to three lunchtimes per school to explore their social, physical and temporal characteristics. These were supplemented by semi-structured interviews with catering staff and midday supervisors.

**Findings** – The dining halls had numerous generic attributes (e.g. accommodation, equipment, length of lunchtime, social actors). These interacted to have a direct, but not necessarily positive, bearing on food choice and consumption. Overcrowded, multi-purpose dining halls coupled with time pressures and dynamic social situations detracted from the eating experience and the ability of staff to encourage children to eat.

**Practical implications** – Without addressing these underlying issues, school nutritional policy may only play a limited role in influencing what children eat. It is recommended that policy places a greater emphasis on factors such as the eating environment; the time available for eating; and the role of the midday supervisor.

**Originality/value** – Previous studies of dining halls have generally been part of process evaluations of nutritional interventions. This study adds value by conducting a focussed investigation into the relationship between the dining hall environment and eating behaviours.

**Keywords** Food, Primary schools, Children (age groups), Nutrition, United Kingdom, Customer satisfaction

**Paper type** Case study



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## 1. Introduction

The school meal service is an integral part of health promoting schools which adopt a holistic approach to health by recognising the importance of the social environment of the school where learning is put into practice (Denman, 1999). A social environment can be described in terms of its physical (places, objects), temporal (time periods, events) and social (actors, activities, goals, feelings) dimensions (Spradley, 1980). These dimensions are inter-related and influence each other. For example, objects may be located in places, activities may be carried out by actors, events may elicit feelings and vice versa. Understanding the social, physical and temporal characteristics of school dining halls and their inter-relationships may, therefore, have implications for the eating behaviours of children eating school meals.

Physical environments are known to influence eating behaviours (Stroebele and De Castro, 2004). Indeed, the UK's school meal transformation programmes recognise the importance of appropriate dining spaces and equipment (School Meals Review Panel, 2005; Scottish Executive, 2002; Welsh Assembly Government, 2008). However, these are often secondary objectives within strategic rebuilding programmes, particularly in primary schools (Department for Education and Skills, 2006; Scottish Executive, 2002; Welsh Assembly Government, 2002), so that in England for example, dining hall features include regimented tables and minimal open spaces (Pike, 2008).

Temporal characteristics also play a part. Many of the environmental characteristics of dining halls address organisational issues, such as maximising throughput (School Food Trust, 2007) within a defined period of time. In the late 1990s, although the length of lunchtime varied between schools, most infants (ages four to six years) had more than 65 minutes for lunch (including playtime) and most juniors (ages seven to 11 years) had more than 60 minutes (Blatchford and Sumpner, 1998). By 2005, lunchtimes in primary schools in England ranged from 30-105 minutes, including playtime (median = 60 minutes) (Nelson *et al.*, 2006). By way of comparison, children in France are allocated two hours for lunch (Madison, 2007) and US children, take between 13-35 minutes, excluding playtime (Conklin and Lambert, 2001).

Social factors are also a powerful force in the development of food choices and food likes (Rozin, 1989). Of the actors likely to be present within a dining hall, eating behaviours can be influenced through role modelling by peers (Hendy, 2002) and teachers (Hendy and Raudenbush, 2000) and through the feeding strategies (e.g. verbal encouragements and praise) adopted by catering staff and midday supervisors (Schwartz, 2007). In the UK, children place great importance on the school eating experience (Maxwell, 2000) and feel differently about it compared with eating at home as it affords them more freedom of choice (Warren *et al.*, 2008). However, school meals in the UK have become synonymous with nutrition and its health consequences rather than being valued as a social experience (Pike, 2008).

The school meal service has been the subject of numerous nutritional interventions (de Sa and Lock, 2008) and, in the UK, is being transformed by government programmes which aim to improve the nutritional content of the meals (Evans and Harper, 2009). However, the physical, temporal and social factors of the eating environment are as important as the food on offer in determining the effectiveness of nutritional policies and interventions (Glasgow *et al.*, 2003) and the quality of the eating experience (Gustafsson *et al.*, 2006). Although previous studies have assessed school dining hall context with respect to, for example, organisational effectiveness or staff

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attitudes as part of intervention evaluations (Colquhoun *et al.*, 2008; Newman *et al.*, 2006), little research has explored the relationship of dining hall environments to eating behaviours. Consequently, the objective of the current study was to investigate the social, physical and temporal characteristics of primary school dining halls and their implications for the eating behaviours of children receiving school meals.

## 2. Method

A case study of one Local Education Authority (LEA) in Wales was undertaken to ensure uniformity of the policy context, in particular, the Appetite for Life (A4L) school meal transformation programme (Welsh Assembly Government, 2008). Primary schools were selected as food preferences tend to stabilise by around seven years of age (Kelder *et al.*, 1994) and since early intervention is recommended for obesity prevention (Deshmukh-Taskar *et al.*, 2006). As observational techniques are recommended when the topic of interest is associated with a physical location (Lofland and Lofland, 1995), observations were carried out in dining halls, supplemented by interviews with headteachers, catering staff and school meal supervisors. Ethical approval was obtained from Cardiff University School of Social Sciences ethical committee and informed consent was obtained from all adult participants. For child participants, consent was sought from headteachers acting *in loco parentis*, supplemented by parental “opt-out” consent whereby the child is included in the study unless their parents withdraw them (Severson and Biglan, 1989). Interview transcripts and observation fieldnotes were loaded into NVivo Version 2.0.163 and a thematic analysis was undertaken.

### 2.1 Study sample

Schools were recruited by stratifying the 83 primary schools in the LEA into socio-economic quartiles based on free school meal (FSM) entitlement (Hart *et al.*, 2002). Within the target LEA, all schools were in urban locations and the mean FSM per school was 16.89 per cent (range 0-77.9 per cent). Within Wales, mean FSM per school was 13.8 per cent. Schools in each quartile were arranged in ascending order of school size and the recruitment order within each quartile was determined using a random number generator. Theoretical sampling ensures that emerging theory is controlled by the data collection which ends when saturation of concepts occurs (Bryman, 2001) To facilitate this, schools were approached serially such that, at any time, a pipeline existed of approximately three schools variously undergoing recruitment, data collection and preliminary analysis. Saturation of concepts occurred after data were obtained from nine schools. However, at this time, only one school in quartiles 1 and 4, where recruitment was more difficult, were included. Therefore, to reduce the risk of socio-economic imbalance, data were collected from one more school in quartiles 1 and 4, which did not result in the addition of further analytical concepts. The third school recruited in quartile 3 shared a dining hall with another school which was allocated to quartile 2. Both were included in the study, even though data had already been collected from 3 schools in quartile 2 at the time. The final sample included 11 schools whose characteristics, together with the numbers of children whose parents had not consented to participate are shown in Table I.

Each school was observed during two to three (usually consecutive) lunchtimes, depending on the complexity of the context. Over the course of the study, observations

were made on each week day and spanned three terms of the academic year between June 2006 and April 2008. The A4L Action Plan was launched midway through data collection (see Welsh Assembly Government, 2008). Observations focussed on the dining hall context and its influence on children taking school meals. While the arrangements made for children who brought packed lunches were considered to be part of this context, the effect of contextual influences on the eating behaviours of children eating packed lunches were outside the scope of this study. Midday supervisors were difficult to recruit to the study for the purposes of interviewing until the interview protocol was changed from face-to-face interviews to telephone interviews. This allowed participants to be interviewed at a time convenient to them away from school premises

*2.2 Procedure*

Focussed observations were carried out guided by a semi-structured schedule informed by Spradley’s (1980) Descriptive Question Matrix. The matrix is a two-dimensional representation of nine aspects of a social scene (space, object, act, activity, event, time, actor, goal, feeling). This prompts the observer to consider each aspect in isolation (e.g. describe all objects, all places) and in interaction with each other (e.g. how is the space organised by the objects?). During the observation, notes were written on the observation schedule. After each session, these were expanded into detailed fieldnotes which adhered to the same structure as the observation schedule. Notes were time stamped to capture temporal aspects of the scene. On the first observation day in each school, a plan of the empty dining hall was drawn before lunch began. Opted out children were discretely identified by staff so that the observations/fieldnotes excluded them. Semi-structured interviews with catering staff and school meal supervisors were used to complement the observations by gathering data that was not observable (e.g. goals and feelings) and to probe fieldnote entries that required expansion or clarification. Semi-structured interviews with headteachers were used to establish the organisational context surrounding school meals. Figures relating to meals served (free and paid for) were obtained from school administrative staff.

**3. Results**

The school dining halls comprised of two distinct physical, temporal and social contexts that influenced different eating behaviours: the service area where children made their food choices; and, the dining area where children consumed their food.

Quartile 1 FSM range 0-6.3				Quartile 2 FSM range 7.0-18.2				Quartile 3 FSM range 20.8-33.9				Quartile 4 FSM range 35.0-77.9			
ID	FSM	Size <sup>a</sup>		ID	FSM	Size <sup>a</sup>		ID	FSM	Size <sup>a</sup>		ID	FSM	Size <sup>a</sup>	
Q1/1	1.5	325	(5)	Q2/1	8.1	370	(2)	Q3/1	27.0	267	(9)	Q4/1	38.4	284	(3)
Q1/2	1.1	208	(1)	Q2/2	15.7	230	(0)	Q3/2	22.0	104	(0)	Q4/2	43.6	183	(1)
				Q2/3	3.6	168	(1)	Q3/3	33.6	170	(1)				
				Q2/4	10.3	107	(0)								

**Table I.**  
Characteristics of schools  
in sample shown by  
socio-economic quartile

**Notes:** <sup>a</sup>Figures in parentheses indicate the number of children excluded from the study by their parents; FSM = percentage free school meal entitlement used as a proxy for socio-economic status

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There was minimal overlap between these in terms of Spradley's (1980) dimensions of the social scene and their inter-relations. Consequently, each will be reported separately. A third context, the kitchen where catering staff prepared food and cleared up, falls outside the scope of this study as it had a less direct influence on the children's eating behaviours, and the activities largely took place outside the lunchtime period.

### 3.1 *The service area and food choices*

Some of the physical, temporal and social characteristics of the service area had minimal impact on each other. These will be reported first, followed by those characteristics that interacted to have a direct influence on the children's food choice behaviours. Throughout the results section, where physical/temporal/social characteristics are reported as "interacting", these are interpretations emerging from the data analysis.

*Physical (space and objects).* The service area was either a service hatch which opened out onto the dining hall from an onsite kitchen ( $n = 10$ ) or a series of static service trolleys within the hall ( $n = 1$ ). Occasionally, some food (e.g. desserts or salads) was served from trolleys in the main hall in addition to food served from the hatch. Two schools had self-service salad bars. The main course and dessert were served together on plastic "flight trays" which were green for infants (age four to seven years) and yellow for juniors (age seven to 11 years). Brightly coloured plastic cutlery was the LEA standard but one school had retained its old stocks of metal cutlery, which staff reported was highly valued by the children. Thus, the school eating experience was potentially different from other contexts, for example, where conventional plates and cutlery may be used.

*Temporal (time periods and events).* Food service commenced at approximately midday and lasted for 45-50 minutes. However, one school shared a dining hall with a nearby school, and was allocated 30 minutes for lunch, 15 of which were used to serve 75 children. A critical temporal feature was that a mass of children, as defined by the level of school meal uptake, required serving as close to the commencement of lunchtime as possible. Therefore, throughput strategies were needed to control the flow of children to the service hatch. In schools where only one dining hall was available ( $n = 10$ ), service was in two sittings, one for infants and one for juniors. The gap between sittings varied and was often imperceptible, marked only by a switch between green and yellow plates. All schools currently served infants first, although one headteacher reported that their school had served juniors first in the past. Beyond that, throughput strategies varied by school, for example, sending children up table by table or calling them in from the playground class by class.

*Social (actors and activities).* The principal actors in the service area were the children receiving school lunch and catering staff. Catering staff were mostly female, although one school had a male kitchen assistant who was a temporary agency worker. Their ages varied and most described themselves as mothers or grandmothers. They were employed by the LEA rather than individual schools and had formalised job descriptions and access to training. Many had several years' service and it was common to have over 20 years service.

The activities undertaken at the service point were specific to each category of actor. The catering staff served the food. The children queued for lunch and then selected their food. Queuing was an experience characterised by waiting, expected codes of

conduct and breakdowns of discipline, Some schools also used older children to hand out drinks or cutlery; teaching staff to assist infants with their choices; or, midday supervisors to assist with serving.

*Food choices.* Food service and food selection was influenced by the physical, social and temporal characteristics of the situation. Each server took between 13-60 seconds to serve and interact with each child. In three schools, this was the maximum time allowable given the length of the lunchtime and numbers taking school meals. In the others, more time was available if required and so the service time reflected how long the servers allocated to the task. Serving staff were expected to engage in “marketing” which was a formal term for strategies accompanying the act of serving intended to promote the food by verbally offering it to the children. The quality of this interaction was constrained since the service hatches or mobile food trolleys were too high for the smallest children to see the food on offer and formed a physical barrier between the server and the child.

### *3.2 The dining area and food consumption*

The dining context differed from the serving context in that most of its physical, temporal and social characteristics tended to interact to influence eating behaviour.

*Social actors.* In the dining area, “actors” was the only aspect of Spradley’s Descriptive Question Matrix (1980) whose characteristics were not influenced by the others. As well as the children, the actors included midday supervisors, teaching assistants, teachers on lunchtime duty, and, in one school, the caretaker and handyman. Some headteachers actively engaged with lunchtime activities, others did not. Four schools catered for special needs children who had dedicated supervision, sometimes on a one-to-one basis.

Midday supervisors were mostly female, although one school had a male midday supervisor who was also the caretaker. As with the catering staff, their ages varied, most described themselves as mothers or grandmothers, and many had several years’ service. Headteachers reported that the role of midday supervisors was difficult to recruit, particularly in the higher socio-economic areas. There were no formal guidelines for midday supervision levels and most schools were short staffed. For example, in one school, midday supervision was done by teaching assistants and the head teacher. Another school had declined to participate because it had no supervisors and was relying on parent volunteers. Midday supervisors were employed by individual schools and it was rare for them to have a written job description or role-based training. Any training that had been made available related to behaviour or playground management rather than dining hall activity and was arranged and paid for by schools. Furthermore, even when training was made available, some headteachers were reluctant to mandate attendance.

Midday supervisors appeared marginalised from the main school in that they arrived and left promptly and almost unnoticed at the start and end of the lunchtime, often via rear entrances. They seldom interacted with anyone but the children, except on playground duty where they often chatted to each other. Some schools allocated supervisors to either infants or juniors, which meant they worked different hours. The pleasure most took from engaging with the children was noticeable and many spoke of the desire to work with children as being their motivation for doing the job. Another

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common reason was the convenience of working patterns that suited family life, i.e. short hours and long holidays.

*Physical and temporal inter-relations.* Many aspects of the space, objects and time periods in the dining hall influenced each other. The dining accommodation (i.e. the space) took many forms, the most common being a dual purpose hall which was used for teaching as well as dining and shared by packed lunch and school meal children. One school had separate halls for infants and juniors. Another had a small, dedicated dining hall for school meals that was shared with a nearby school. Ten of the schools displayed healthy eating/school meal promotional materials in the dining area, but only five displayed the daily menus.

The type of physical accommodation influenced the time available for eating. For schools with dual purpose dining halls, the times when it became available after morning teaching sessions and when it was required for afternoon teaching sessions were strictly defined and placed stringent constraints on the time available for eating. For one of the two schools sharing dining accommodation, only 30 minutes were available for eating to allow the dining hall to be available for the second school. Lunchtimes (inclusive of playtime) were set by the school and varied from 70-90 minutes for infants (mean = 74.5) and 40-60 minutes for juniors (mean = 54.0). During interview, some headteachers stated that they had reduced the length of lunchtime, usually to restrict the length of playtime for behavioural reasons. Such reductions indirectly affected the time available for eating as there was pressure to render the dining hall available for the next teaching session. During most observations, the perception was that the children's eating experience was rushed.

By virtue of the fact that most halls were dual purpose, the objects within them temporarily organised the physical space to facilitate the events associated with the time period. During lunchtime, all objects associated with teaching (e.g. physical education or music equipment) were removed to the perimeter and replaced by the objects associated with eating. Most schools used foldable tables on wheels with either 12 or 16 integral seats which allowed them to be quickly set up and removed after use. Only four schools had dedicated storage space for the folded tables, in others, they occupied the perimeter of the hall during the teaching period. Only two schools used conventional tables and separate chairs. All tables and chairs were child sized and could be wiped over. Some schools pre-laid the tables for the younger children with knives and forks and occasionally with drinks as well. One school used a tablecloth, once a week on a special table used to reward good eating behaviour. Receptacles for disposing of waste/dirty plates were variously on trolleys, tables or on the stage.

*Physical and social inter-relations.* Space and the availability of tables and chairs defined each school's seating capacity. When considered in the context of the total number of pupils in the school, seating capacities were such that no schools could accommodate all pupils in the dining hall at the same time. Only four schools had sufficient seating capacity for all children eating school meals based on current levels of uptake, and one school had insufficient seating capacity for those children taking free school meals. Seating priority was given to children taking school meals and some schools had to make alternate arrangements for packed lunch children. This included children sitting cross-legged on the stage, on benches around the perimeter of the room and use of classrooms.

*The eating experience.* The children's eating experience was influenced by interactions between the physical, temporal and social characteristics. Conflicts between the available space, seats and school meal uptake meant that overcrowding was a common feature of this experience. Overcrowding meant that strategies for seating the children were required which further impacted the eating experience since the children were segregated and grouped according to various criteria. The most noticeable segregations were between packed and cooked lunch children, thence by age, either using an infants/junior or a class-by-class split. Unruly children were often split up and one school had a boy/girl/boy/girl seating requirement which they believed helped maintain discipline. Within these constraints, the children sat in self-selected groups. Requests for reduced talking due to increasing noise levels often limited the amount of socialising among the children. Packed lunch children usually had more opportunity to socialise while eating as they received less supervision and were not hurried out of the hall as much.

A dining hall culture that was unique to each school was clearly perceptible as illustrated by reflections from the fieldnotes shown in Table II. There were notable cultural differences between the two schools that shared the same physical accommodation – one felt intimidating with discipline being a major issue, in the other, the children were supportive of each other and the staff. In three schools, the culture was influenced by the behaviour of a key individual, in one case the headteacher, in two others, the cook-in-charge. There was generally a strong perception of camaraderie and team work between midday supervisors and catering staff.

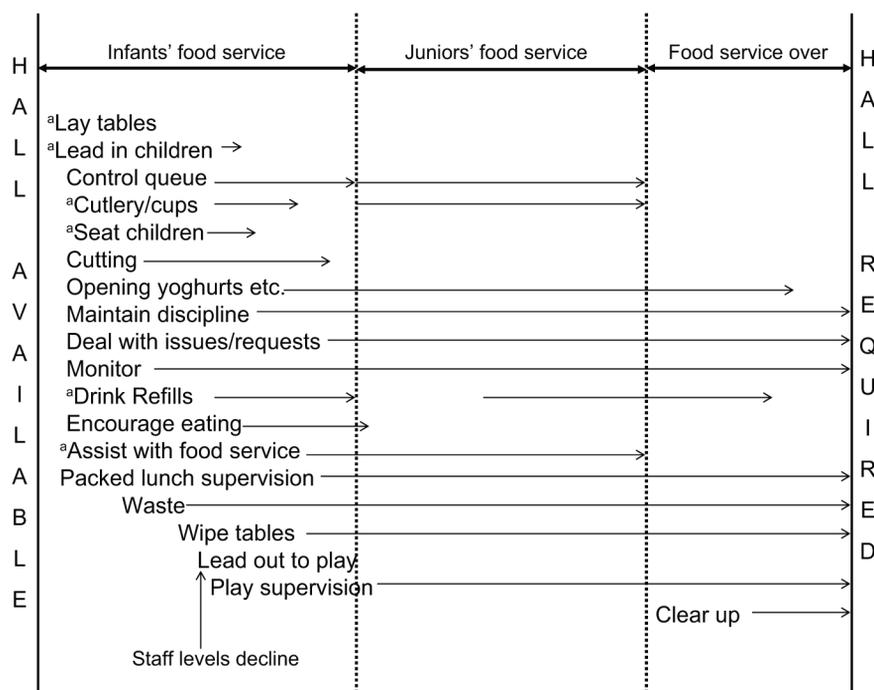
*Food consumption.* In the dining area, the main activity undertaken by the children was the consumption of food and, during interviews, midday supervisors reported that encouraging the children to eat was an important goal. However, the timeline in Figure 1 illustrates how “encouraging eating” was only one of an extensive set of activities that necessitated multi-tasking within intense spatial and temporal constraints (i.e. dual purpose halls, length of lunchtime). The dining area was volatile and dynamic such that activities were prioritised and re-prioritised on a minute-by-minute basis. Younger children required (and received) more attention than older children, for example, assistance with cutting food or getting seated. Many events

School	Perceptible features of dining hall culture
Q1/1	Friendly, nurturing, family-like atmosphere
Q1/2	Rule bound, structure found, mechanical not interactional
Q2/1	Smooth running, children enjoyed eating, hands-on headteacher
Q2/2	Friendly, mutually respectful, well-balanced meals eaten, highly motivated cook
Q2/3	Well-balanced meals eaten, highly motivated cook, exceptional social environment
Q2/4 <sup>a</sup>	Well organised, friendly, respectful
Q3/1	Poor discipline, small meals served, high food waste, children shouted at
Q3/2	Small and friendly allowing the personal touch from staff
Q3/3 <sup>a</sup>	Intimidating
Q4/1	Mutual respect and rewards used to offset potential discipline problems
Q4/2	Lack of structure and organisation, friendly, high ethnic mix

**Table II.**

Researcher reflections on dining hall culture

**Notes:** <sup>a</sup>Schools occupied the same dining hall during different time slots; school identifiers allow cross referencing with characteristics presented in Table I



**Notes:** For each activity listed, the first letter indicates the relative start time and the length of the arrow represents the duration. e.g. 'Wipe tables' commences midway through infants' service and continues until the end of lunch. <sup>a</sup>These activities are not undertaken by supervisors in some schools

**Figure 1.** Timeline of midday supervisors' activities

required immediate attention, for example, if food was spilled or discipline deteriorated. The need to ensure the children's welfare, maintain discipline and adhere to time constraints meant that encouraging eating was afforded a low priority. As children left for the playground, so too did some supervisors such that, for the juniors, only one or two supervisors remained who primarily focussed on clearing up. This intensity and unpredictability meant that a fine line existed between a lunchtime that ran smoothly and one that did not. In most schools, the activities undertaken were executed effectively and seamlessly in difficult circumstances, but, in general, the promotion of positive eating behaviours was compromised by conflicts between the physical, social and temporal characteristics of the dining hall.

#### 4. Discussion

The premise behind health promoting schools that utilise a whole school approach to educating children is that the child learns from their experiences throughout the school, including the dining hall (Parsons *et al.*, 1996). A holistic approach to learning to eat involves food being made available, together with the acquisition of appropriate choice and consumption behaviours (Rozin, 1989). When examining eating behaviours, the school dining halls revealed three distinct contexts with associated physical, social and temporal characteristics – the service area, the dining area, and the kitchen. The

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kitchen was excluded from the study as it was primarily associated with food preparation and availability which has less of a direct impact on eating behaviours (Rozin, 1989). In contrast, national school meal policies predominantly focus on activities associated with kitchens and food availability, such as ensuring the nutritional content of food and its procurement, with little emphasis on the serving and dining areas (Evans and Harper, 2009). This suggests that such policies are at risk of only partially fulfilling their nutritional objectives and may only partially exploit the opportunities presented by the dining hall environment.

Not all aspects of the children's dining hall experience were positive. The numbers of children taking school meals (i.e. school meal uptake) conflicted with space shortages in most dining halls giving rise to an eating experience characterised by overcrowding. Similarly, the need to free up dining halls for teaching purposes conflicted with the length of time allowed for lunch resulting in an eating experience characterised by time pressures. These space/time issues meant that most dining halls were mechanistic in that the end-goal was to get each child fed and moved into the playground so that their place could be re-used or cleared away. The environment was more akin to a re-fuelling station than one where a child could learn to enjoy nutritious meals, together with table and social skills. Indeed, it was uptake and the length of lunchtime that impacted on feeding outcomes more so than numbers on the school roll as is the case with mainstream educational outcomes (Leithwood and Jantzi, 2009). This is a concern since increasing school meal uptake features heavily in government policies (School Meals Review Panel, 2005; Scottish Executive, 2002; Welsh Assembly Government, 2008) and reducing the length of the school lunchtime is a longstanding trend which has received little attention in terms of its affects on eating behaviour (Blatchford and Sumpner, 1998; Nelson *et al.*, 2006).

Physical characteristics, such as décor or crockery, together with adequate staffing are crucial for successful communal eating environments (Gustafsson *et al.*, 2006). However, in the dining halls, equipment such as tables, seats, plates and cutlery were selected for convenience rather than their positive contribution to the eating experience. A multi-component intervention conducted in primary schools in England which improved the physical dining environment as well as revising the menu found that the children's learning behaviours in the classroom improved (School Food Trust, 2009). With the current emphasis on the revision of nutritional standards for school meals (Evans and Harper, 2009), further research is recommended into the association between food availability, physical environment and eating outcomes.

The potential importance of the social dimension of the school dining hall was illustrated by differences in dining hall culture between schools. The cultural difference between two schools using the same dining hall suggested that the attitudes, beliefs and behaviours of individuals are independent from the physical eating space in their contribution to the eating experience. Within existing national school meal policies, the emphasis has been on training in cooking skills and food nutrition, primarily for catering staff (School Meals Review Panel, 2005; Scottish Executive, 2002; Welsh Assembly Government, 2008). Although training courses for midday supervisors which incorporate the encouragement of healthy eating are being developed (e.g. School FEAST, 2009), this study has identified a number of potential confounds to their success. Such training fell within the remit of school (rather than local/ national) policy and budgets, and attendance was often at the discretion of the individual.

Furthermore, midday supervisors were hard to recruit and marginalised from the main body of the school. They worked under intense pressure with little time to encourage eating, particularly for junior children as playground duties took priority over the dining hall. This suggests that the role and responsibilities of the midday supervisor need to be addressed as well as the skill set.

The dining hall context was specific to an individual school and often, a particular day. Furthermore, the eating area was volatile, dynamic and unpredictable. Contextual heterogeneity has previously been reported as an issue within school based interventions leading to recommendations for a thorough understanding of each environment, coupled with inbuilt flexibility that can be adapted for specific settings (Patton *et al.*, 2000) as a “one size fits all” approach is unlikely to be effective. Developing and implementing such interventions will be challenging. Active engagement with stakeholders (Summerbell *et al.*, 2005) and school staff (Cho and Nadow, 2004) has previously been recommended. However, this study further highlights the importance of strategic partnership working since two critical groups of individuals, catering staff and supervisory staff, fall under the jurisdiction of multiple employers – the LEAs and individual schools respectively.

The study took place in a single LEA within Wales, which was a methodological decision to ensure that the policy context was uniform, and so the findings may not generalise to primary schools elsewhere. Even though the physical attributes of the dining halls studied were similar to those from a previous study undertaken in England (Pike, 2008), further research would be needed to establish whether the environmental features observed apply in other LEAs both in Wales and beyond.

## 5. Conclusion

Government policy (Evans and Harper, 2009) has targeted the school meal service as a means of improving nutritional intake and children’s eating behaviour. However, this study has highlighted a number of specific confounds to the success of such initiatives. Consequently, in order to fully exploit the potential of school dining halls to promote healthy eating, it is recommended that policy places a greater emphasis on factors such as the eating environment; the time available for eating; the role of the midday supervisor; and, training of all school meal staff in the promotion of choice and consumption behaviours.

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