
Original Article

Improving the food environment in UK schools: Policy opportunities and challenges

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Abstract Childhood obesity and nutrition are high on the UK policy agenda because of their association with chronic illnesses and related costs. In 2007, to improve children's nutrition, the Government introduced new standards for all school food sources, including products sold from vending machines. Our research explores the factors influencing schools' decisions and children's food choices in relation to vending machines. We conducted in-depth interviews with staff and pupils in one English Local Education Authority. We found that pupils made food decisions based on cost considerations, and convenience, and they strongly valued individual choice. Schools' decisions to provide vending were influenced predominantly by fiscal and structural constraints. Although unhappy with the current quality of school food, staff and pupils criticised initiatives to restrict unhealthy foods. It appears that achieving a healthier school environment is a long-term project involving multiple strategies of education and incentives, as well as regulation. These must involve parents as well as pupils and schools.

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Introduction

Childhood obesity and overweight is rapidly emerging as a global epidemic, with profound public health consequences. Overweight children and adolescents are more likely to suffer from chronic illnesses such as cardiovascular disease and type 2 diabetes. They have an increased risk of becoming overweight adults. Though prevalent throughout Europe and North America, the largest increase in childhood obesity is observed in the United Kingdom.¹



Between 1995 and 2007, childhood obesity in England rose from 11 to 17 per cent among boys and from 12 to 16 per cent among girls aged 2–15 years.² The UK Government has now identified schools as a key setting for health promotion, and to improve the health status of children. Not only do schools present an unparalleled opportunity to target children with health education, they are also an obvious locus of policy intervention because children acquire 25–33 per cent of their total daily energy from school food.³

Given the contribution school food makes to overall diet, it is discouraging to note the growing body of research which shows that children continue to fail to make healthy choices about school canteen food,^{4,5} and moreover, the relative scarcity of information about the contribution of food from sources such as *tuck shops* and in-school vending machines. The latter is especially troublesome, given indications that school vending has rapidly grown in scale and importance throughout Europe and North America. Recent research by Nelson *et al*⁶ found that vending machines were the second most common source of school food after the canteen in English secondary schools. This was confirmed by an earlier component of our study, which found that 54 per cent of Oxfordshire state secondary schools had vending machines in 2006 and that 70 per cent of surveyed pupils in these schools purchased three or more vended items per week. Unsurprisingly, most of the vended products were savoury snacks, chocolates, and soft drinks, high in fat, sugar or salt, and scored as ‘less healthy’ using nutrition profile models.⁷

Although evidence on the effect of school vending on children’s health in the United Kingdom is limited, studies from other countries have shown that school vending is associated with poor food choices,⁸ decreased participation in school lunch programmes,⁹ and increased intake of sugar-sweetened drinks.¹⁰ The International Obesity Task Force recently identified a number of social trends that play a role in increasing the risk of childhood obesity – several of which can be linked to vending machines.¹¹

In May 2006, the UK Government announced food-based and nutrient-based standards both for school lunches *and* – for the first time in the history of UK school food regulation – *food other than lunch*.^{12,13} The ‘standards for school food other than lunch’ came into force in September 2007. They require schools to remove all foods categorised as *less healthy* and considered to contribute ‘empty

calories' to the diet. The new standards were set to be enforced completely by September 2009.^{12,13} The rules do not require schools to outlaw vending machines, but they will significantly affect what is sold from machines. Our research shows that 81 per cent of vended foods and drinks we tested here are no longer permitted under the new standards.⁷

Currently, little is known about the actual or potential success of these reforms, whether the standards will be implemented successfully, whether schools will comply with them, and whether they will ultimately improve children's food choices. If the reforms are to influence the behaviour of both schools and school children, we need a solid understanding of the determinants and influences on decision making by both constituencies. In particular, little is understood about schools' motivations for selling 'less healthy' food and the factors preventing them from maintaining a healthier food environment. Understanding these issues is key for ensuring that future development of policy is evidence-based and achieves the intended effects.

Our study was part of a larger research project undertaken by the British Heart Foundation Health Promotion Research Group at Oxford University.^{7,14,15} This component assessed the potential factors that might enable or impede recent reforms by exploring staff and pupils' views and experiences of school vending, as well as perceptions of the new standards. We conducted it in late 2006, after the reforms were announced, but before they were implemented. We sought to understand the dynamics surrounding school decisions on vending plus the feasibility and impact of the new policy. Understanding the challenges that may constrain schools' ability to implement the new standards may signal the potential outcomes and likely sustainability of the initiative. Because similar policy strategies are present in European and North American contexts, the findings from our research have wider application and relevance.

Methods

Study design and participants

We studied one English Local Education Authority (Oxfordshire LEA) in-depth. On several key dimensions such as school exam performance, LEA spending per pupil, and the number of students



Table 1: Number of participants, by schools with and without vending machines, Oxfordshire LEA secondary schools

School	Semi-structured interview	Focus-group interviews		Vending
	No. of staff	No. of students (aged 7–9 years)	No. of students (aged 10–12 years)	
A	3	6	6	No (RR)
B	1	—	—	Yes
C	4	8	6	Yes
D	4	9	8	No (RR)
E	2	—	—	No
F	2	6	0	Yes
G	4	6	6	Yes (LC)
H	4	9	8	Yes
I	3	—	—	No
J	4	—	—	Yes (LC)
Total	31	44	34	—

RR represents schools that recently removed their vending machines (during the past or current academic year). LC represents schools where the vending machines were located and controlled by an independent leisure centre on the school property.

entitled to free school meals, Oxfordshire is similar to other LEA regions in England. The county also has a mix of both rural and urban areas, affluence as well as deprivation and poverty.^{16,17} Ten of 34 LEA secondary schools we approached volunteered to participate in the study. We obtained ethical approval from the Oxford University Central Research Ethics Committee and conducted fieldwork between September and December 2006.

We used two primary methods to collect data for this qualitative study:

- A series of semi-structured interviews with 31 school staff across the 10 schools, selected through purposive sampling (Table 1). Governors ($n = 1$), head teachers ($n = 6$), teachers ($n = 8$), canteen managers and staff ($n = 10$), finance managers ($n = 4$), and site managers ($n = 2$) were targeted to capture a wide spectrum of views. Staff were from schools both with ($n = 6$) and without ($n = 4$) vending machines. All have been in post for at least 2 years. Interviews explored their experiences and perceptions about the reasons for or against vending machines in their school, the advantages and disadvantages of vending and other food services, healthier eating, and the proposed Government policy on school food.

- Thirteen focus group interviews with 78 pupils aged between 11 and 18 years in the same set of schools. We asked schools to recruit pupils according to criteria we devised and to obtain parental consent. While not intended to be a representative sample, groups were balanced for gender and ability. Strict confidentiality measures were maintained and we sought permission to tape-record interviews. Groups were divided according to age: younger pupils (aged 7–9 years) and older (aged 10–12 years) (Table 1). We explored pupils' perception about the advantages and disadvantages of vending machines, reasons for and against buying vended and other food, healthier eating habits, and the proposed Government school food policy.

We designed both interview instruments, piloted them in one school, and then revised them accordingly.

Data collection and analysis

Interviews were held in school classrooms or offices, and averaged 45 min. Focus-groups typically contained up to nine pupils and were moderated by a trained graduate student. Interviews were recorded and transcribed verbatim. We managed and analysed transcript data using QSR NVivo 7.0 software, according to standard protocols for qualitative analysis.^{18–20} We analysed staff and pupil data separately as two NVivo projects. They were compared to assess any similarities and differences between them.

Results

Views about vending and the challenges associated with healthier food provision: Overall there were no consistent explanations for why some schools had originally decided to offer vending provision while others had not. A combination of idiosyncratic factors were, at the margins, influential: the role of key decision makers within the school (usually Head Teachers or finance/canteen managers), or the arrangements of various catering agreements as some contracts automatically entailed the provision of vending. The vast majority of staff, irrespective of school type, were critical of vending machines in schools and the problems, actual or perceived, associated them. They argued that machines were the source of litter, vandalism, and pupil



management problems in addition to marketing less-healthy foods. Despite these negative views, at the time of this study, more than 54 per cent of Oxfordshire schools had vending machines.⁷ Staff found that financial and structural constraints made it difficult for their schools to provide a healthy food environment – the two main explanations for the continued presence of school vending.

Financial incentives: Several staff argued that current government funding was insufficient to meet the costs of providing a high-quality catering service. Once installed, it quickly became clear that vending machines generated extra ancillary funds. Schools reported making substantial profits (ranging between £6000 and £20000 per academic year) from vending confectionery, carbonated soft drinks, and savoury snacks.

We don't get enough support from the Government. If they gave us more money we wouldn't have to rely on vending machines to reduce the price of the [school meals] contract [with private catering companies]. (School F, Financial Manager)

We've just reintroduced vending machines. We used to do about two grand of confectionary per week per vending machine. I withdrew the machines out of the school for a period of one year ... but we found that we needed the revenues ... It helps our services. (School C, Catering Manager)

Structural factors: The second most cited explanation for vending involved infrastructure constraints of most schools. Insufficient canteen facilities, increasing number of pupils, and shortened lunch breaks created long queues and compromised canteen staff's ability to serve food quickly and comfortably. Vending provision was thus tolerated as an alternative, quick-purchase option for pupils and staff alike. Our survey data illustrate the nature of the problem (Table 2).

We originally got vending machines to support the traffic coming into the canteen area during break and lunch time. There were a lot of students who needed food quickly ... and this immediate fast food was popular with the students. (School D, Deputy Head Teacher)

Table 2: School canteen carrying capacity, Oxfordshire LEA secondary schools

<i>School</i>	<i>Vending status</i>	<i>Estimated total number of pupils</i>	<i>Estimated number of sitting space in the canteen</i>	<i>Percentage of pupil capacity in the canteen</i>
X1	Yes	620	N/A	—
X2	Yes	1160	250	22
X3	Yes	1040	N/A	—
X4	Yes	810	180	22
X5	Yes	1760	300	17
X6	Yes	1240	60	5
X7	No	1110	100	9
X8	No	980	200	20
X9	No	1430	280	20
X10	No	1500	310	21

Note: School codes do not match those in other tables in order to maintain school confidentiality.

The staff don't tend to use the canteen as widely ... [They] would have to stand in the queues with all the kids and they've only got a twenty-minute break as well. (School F, Finance Manager)

Focus-group interviews revealed that students, irrespective of age, had a good understanding of health, nutrition, and differences between 'healthy' and 'unhealthy' diets. Although students frequently characterised 'proper meals' as healthy and 'take away' or vended food as 'unhealthy', most pupils in schools with vending machines used them rather than canteen facilities. Factors influencing pupil's food choices concurred with those reported by staff, namely, frustration with the long queues and short lunch breaks, the amount of seating space, and the unattractiveness of the canteen. Pressure to buy vended foods to save time and to socialise with their peers was paramount.

It [vending] is quite convenient ... and it's a hassle to go the canteen I can't be bothered to line up and I'll just go to the vending machine get a chocolate bar, crisps and like fizzy drinks and that would be lunch (Student, School C, aged 10–12 years)



Beyond convenience and facilities, other factors influenced pupils' food choices:

- relatively expensive prices of canteen meals,
- taste and appeal of vended foods compared to canteen services, and,
- to a lesser extent, peer group perceptions – school lunches ‘weren’t cool’.

Views about the Government’s policy on school food

Unsurprisingly, views about the proposed changes to school food policy were closely related to participants’ views about dynamics surrounding school food provision. Although staff and students used a different vocabulary, they offered distinctly similar views of the reforms. Both groups supported efforts to provide ‘healthier’ school food, in principle. Yet they were either sceptical about the feasibility of the proposed changes or critical of the tactics and strategies being employed.

Pragmatic objections: The capacity of schools to implement new policies (that is expanding the canteen infrastructure and providing proper training to canteen staff) and to constrain pupils wanting to leave the premises to buy food were high among the worries of staff. That the new standards would lower revenue and ‘profit’ from vending was undoubtedly the key concern. This would have a negative impact on school services and departments. Most staff and students predicted that rather than be ‘forced back into the canteen, pupils would simply purchase the “restricted” foods from outside’. Not only would the strategy not work, school finances would be undermined in the process.

I don’t think it matters that much ‘cause no matter what they [the Government] do, students are going to bring chocolate from outside of school. (Student, School A, aged 7–9 years)

We know full well that students are just as likely to go to the corner shop and spend their money there – so it seemed sensible in a way, that we could provide the service for them and at the

same time make some money for the school. (School H, Finance Manager)

As noted above, many students were frustrated with school food. They expressed a general fear that the new policy would further limit their options and choices. Many argued that most canteen meals were ‘rubbish’ and were ‘cooked poorly’ and ‘not even that healthy’. In addition to offering foods that tasted and looked better than canteen meals, vending machines also provided maximum flexibility. Pupils valued having access to a large selection of food and drinks and being able to buy food when canteens were closed or when they chose, rather than during designated time periods.

If you just come out of lessons and you’re quite hungry... or if the cafeteria isn’t open, you can just go there [to vending machines] and get a packet of crisps and a chocolate bar. (Student, School C, aged 10–12 years)

Normative objections: Worries about the new proposals were not only of a practical nature. Strong principled objections were also raised, such as the importance of having personal choice and freedom and the appropriate balance between school and family responsibility. Both staff and pupils referred to government policy as the ‘nanny state approach’ and questioned government’s right to take away personal choice and tell people what to eat. One school Assistant Principal illustrated this opinion:

I fully support the move towards improving the quality of food in schools ... [but] I still think there needs to be some element of choice ... It’s the whole nanny state. I don’t think we have the right to ban things necessarily. (School A)

Often vociferous in defending their supposed ‘rights’, many students were frustrated with the Government for imposing ‘unfair’ and ‘harsh’ policies on their freedom.

I’m annoyed because it’s not their [the Government’s] choice. We decide what we eat. It’s not their choice. It’s our freedom of eating. (Student, School G, aged 10–12 years)



Both staff and pupils speculated whether ‘banning’ certain foods might inadvertently increase their attractiveness, suggesting alternative strategies such as more education and using prices to incentivise behaviour, especially subsidising nutritious meals.

It’s like when the school banned chewing gum, more people chew it now than ever ‘cause if it’s been banned the they’re just proving themselves. (School A, 7–9 vending machines)

I reckon people would use vending machines less if it didn’t cost so much in the canteen. Like £2 for a main meal, pudding and a cup of juice and a sandwich is like £1.10. (Student, School H, aged 7–9 years)

For their part, several staff voiced frustration that schools were having to assume ever-increasing responsibility for social and other (in this case public health) matters that should be the responsibility of parents. By targeting the school environment for its interventions, the Government was absolving parents of their duty. Staff feared, moreover, that parents might oppose the standards and provide children with packed lunches or money to buy snacks outside, rather than encouraging them to buy school meals. Some staff were extremely pessimistic about the likely success of the reforms unless parents were equally involved in supporting schools efforts to enhance children’s nutrition, and promoting healthy eating at home.

Get the parents to get involved then you are going to solve your problem. ... You shouldn’t stop junk food. You should educate parents. (School C, Catering Manager, vending)

At the end of the day we’re here to educate them ... It’s very much the parents’ responsibility as well; parents should be backing us too. (School C, Teacher)

Discussion

Ever since the Boer War, the UK Government has identified schools as a setting for health promotion and improving diets. Our study

results suggest that today's 'new standards on school food' may face difficulty unless obstacles to healthier food provision are addressed. According to interviewees, mounting fiscal difficulties and related structural barriers during the past two decades have impinged on school's ability to offer a healthier food service. Despite strong criticism and dislike for the introduction of vending machines in their schools, staff were candid about the competing priorities and perceived resource limitations which made them necessary.

While the United Kingdom is not unique in this regard (research from America also shows that budgetary pressures influence schools to resort to vending 'less healthy' food),²¹⁻²³ it appears that the deregulation of school food provision since the 1980s has exacerbated the situation. The introduction of the radical 'internal market' reforms under the Thatcher Administration weakened the role of the LEA to directly provide school food, emphasising instead choice, competition, and efficiency savings. By 1988 'Compulsory Competitive Tendering for all school contracts was enforced and by 2003, there were more than 5000 private catering companies supplying meals to schools in England. Strong evidence suggests that competitive tendering is associated with a reduced focus on diet and health, and increased attention to cost control and income generation.²⁴ Combined with the wider fiscal and budgetary pressures faced by schools, this tendering will continue to affect the extent to which schools can comply with the new school food standards and create environments that foster healthier food behaviour.

A School Food Trust national survey of vending suggests that some schools are not complying with the new standards and are continuing to sell restricted vended foods.¹⁵ Several ambiguities or 'grey areas' persist about whether the legislation covers older pupils or which foodstuffs are deemed 'unhealthy'. Some schools, for example, have replaced chocolates with cereal bars, despite the fact these products are also restricted under the new standards.¹⁵

Although perhaps school staff are not yet fully aware of the precise requirements of the new standards (in which case, greater efforts to improve their knowledge is necessary) the findings of our study suggest that schools may have incentives to look for loopholes in the new regulations or to ignore parts of them. Although too early to form conclusive judgements, our findings suggest that if the new



standards on school food are to succeed, and gain support from key stakeholders in schools, they need to be fully funded—paying for increased school canteen infrastructure capacity as well as covering any consequent shortfall revenues arising from diminished vending machine sales.

Our study has also revealed that both school staff and students were particularly unsupportive of policies that restricted or appeared to ‘ban’ certain food and minimised personal choice. They predicted that restricting school food would cause students to purchase these foods elsewhere and students would continue to eat poorly. Many pupils mentioned buying food from outside shops or bringing food from home if school meals no longer met their preferences and/or certain vended foods were removed.

We found that school children have not been buying school meals since the implementation of the new standards. Early signals in our study (that pupils would bring in their own food) may predict future trends. Recent data by the School Food Trust and the Local Authority Catering Association shows that school meals consumption has been decreasing in secondary schools since the introduction of the food-based standards.^{25,26} Interestingly, decreases in school meals uptake is worse in secondary schools, where vending machines have been removed.²⁶

The picture is not entirely bleak, as momentum and popular support for initiatives that put schools food on the public policy agenda are evident. Emerging data about obesity levels, details of the low nutritional quality of most school food, and campaigning by child welfare organisations and media celebrities have converged to keep the issue high on the policy agenda and public discourse.

Perhaps the public mood was most vividly captured in 2005 by the broadcast on British TV of ‘Jamie’s School Dinners’ (a series of TV programmes presented by the celebrity chef Jamie Oliver). Graphically portraying the poor state of school meals at the time, the broadcast attracted a wide audience. More than 250 000 people petitioned the Prime Minister in March 2005 and from this point on, the British Government began to take school meals as a serious political issue.

Nevertheless, despite this wider context, it is important to recognise that our study found that although pupils’ dietary

awareness and nutritional knowledge was good, ‘healthiness’ was not an important influence on their food choices.^{27–29} Rather, convenience, price, and personal preferences about tastes and appearance were more important. High value that pupils placed on individualism and choice not only reflects current social norms and expectations, but the ethos of consumerism and competition that has been endorsed and encouraged by successive UK governments during the past three decades.

If school caterers must continue to operate within the context of competition and markets first established with the 1980 Education Act, then they will continue to be constrained to provide foods that make commercial sense (that is those foods that they know children will eat and they can sell). If, by utilising their powers as ‘consumers’ pupils are in a position to threaten the financial viability of a catering service, they will ultimately undermine schools as a health promoting setting. These tensions can be reconciled by continued efforts to make ‘healthier choices’ the ‘preferred choices’. This is a long-term challenge requiring multiple strategies of education and incentives, as well as regulation. Most crucially, it must involve parents and communities as well as pupils and schools.

About the Authors

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