

School Food Hero and the Battle of the Food Foe: a story of public health policy, power imbalance and potential

HAWKINS, Anna and RUNDLE, Rachel <<http://orcid.org/0000-0002-1983-4027>>

Available from Sheffield Hallam University Research Archive (SHURA) at:

<https://shura.shu.ac.uk/33026/>

This document is the Published Version [VoR]

Citation:

HAWKINS, Anna and RUNDLE, Rachel (2024). School Food Hero and the Battle of the Food Foe: a story of public health policy, power imbalance and potential. *Social Science and Medicine*, 342: 116520. [Article]

Copyright and re-use policy

See <http://shura.shu.ac.uk/information.html>



School food hero and the battle of the food foes: A story of public health policy, power imbalance and potential[☆]

Anna Hawkins^{*}, Rachel Rundle

Sheffield Hallam University, UK

ARTICLE INFO

Handling Editor: Medical Sociology Office

Keywords:

School food
Public health
Food systems
Child health
Nutrition

ABSTRACT

This paper explores the impact of school food policy from the perspective of school food workers to offer an alternative account of why school food may not be having the desired impact on child health or food choices. Drawing upon the findings from an institutional ethnography carried out in three UK primary schools, we argue that school food is being asked to perform an unrealistic task of luring children and families away from more unhealthy food options, without being given adequate resources or powers to do this job effectively. We theorise that the narrative depicting school food as a hero, combatting the harms of poor dietary choices and poor health outcomes, is inappropriate as a countermeasure to mitigate the effects of wider food industry forces. We revisit the narrative to consider the power imbalances within society that structure dietary choices, presenting our findings and the wider policy review in the form of a story about the evolution of school food set against a shifting food environment. We conclude with recommendations for policy makers who want to see school food have a greater impact in improving child health.

1. Introduction

It is half past eight in the morning and children are preparing to cross the threshold of their school gates, into a space that should offer them protection, emotional support, stimulation, education, and care of mind and body. Children will arrive in various states of hunger and nourishment, some will bring food from home, and some will not yet have eaten and will be looking forward to morning snack. Schools are evaluated and monitored for the difference that they make to the lives of their pupils, mitigating the enormous inequality that exists in communities. When the political and economic climates worsen and quality of life is threatened, it is schools that are asked to carry that extra burden (*Impact on Urban Health, 2022*).

School food, and more specifically the lunchtime school meal, is often portrayed as the hero rescuing children from the evils of the modern diet by providing them with the nutrition they desperately need and won't get elsewhere (*Mazarello, et al., 2015; Food Foundation, 2022*). Dining rooms are asked to foster the sense of community that has been eroded by the fragmentation of traditional family mealtimes. School is where children should learn how to identify and enjoy healthy fruits and vegetables and learn how to budget and cook, all the things

that people have forgotten how to do since the rise of microwave ready meals and fast-food deliveries, ultra-processed snacks, super-sized portions eaten alone in front of a screen (*Illøkken et al., 2021; Dimpleby and Vincent, 2013*). Countries around the world have policies and rules about what food is and isn't allowed in schools, but notably many don't and some use school catering outlets as an important supplementary income stream to counter constant budget cuts and escalating costs (*Fernandes, 2013; Devi et al., 2010*).

The case against the modern diet is damning and there is broad consensus in the evidence in favour of nutritionally balanced meals served in socially nourishing spaces (*D'Angelo et al., 2020; Farthing, 2012*), and yet there is a dark truth lurking in this story, over in the corner of the dining room by the waste bins overflowing with uneaten broccoli. Despite the legislative and policy framework surrounding school food, the headline grabbing campaigns and powerful evidence base supporting nutritional regulation, children's health is not improving, and their diets are getting worse whilst the uptake of school meals dips and falters (*Kitchen et al., 2010; Black et al., 2017*). There have been international trials that seek to understand why school food appears to be in trouble, but the findings are complex and often offer an opaque or contradictory picture about marginal benefits and potential

[☆] We have no conflicts of interest to declare.

^{*} Corresponding author. Howard Street, Sheffield, S1 1WB, UK.

E-mail address: a.hawkins@shu.ac.uk (A. Hawkins).

policy failure ([Impact on Urban Health, 2022](#)). An evaluation of a free school meal pilot in the UK found that extended entitlement had little long-term impact on meal uptake or children's diet or eating habits ([Kitchen et al., 2010](#)) and a study into food consumption trends in the UK concluded that the evidence that school food environments support healthy food choices in pupils is weak, identifying food system actors and food marketing as having a greater influence on food choices ([D'Angelo et al., 2020](#)). Why is the expectation so high when the evidence of success is so sparse? How well equipped is our hero to tackle the foe, cloaked in the form of a modern diet offering an array of highly processed and palatable food choices, whose power and popularity, fuelled by an influential food industry, only ever seem to grow?

We present the findings from our research within a superhero narrative, telling the story of the emergence and evolution of the school food hero, rescuing vulnerable children from diet related ill-health, pitted against an ever-evolving foe driven by a powerful food industry ([Dimbleby and Vincent, 2013](#); [Kelly and Barker, 2016](#)). We trace school food from its origins as a response to the malnutrition and poverty of the early 20th century, and its fall from grace in the maelstrom of deregulation, market competition and food regime change of the mid to late 20th century ([Lang and Heasman, 2015](#)), during which time health issues related to hunger made way for ones linked to excessive and inappropriate rather than insufficient food intake ([Stuckler et al., 2012](#); [Kelly and Barker, 2016](#)). As with all superhero narratives we follow the story arc through the rehabilitation of the hero in the early 21st century, when school food was asked to fix the damage that had been done through deregulation. We will arrive at the present day and tell the story from the perspective of the people who work in school kitchens and dining rooms, who want the school food they serve to have a positive impact, but finding themselves fighting an ever more powerful and agile foe. It is important to make clear that whilst we have used a 'hero (school food) and villain (food foe)' narrative device to tell this story, the research informants did not describe themselves as heroes, but rather saw the food they served as having the potential to improve the health and wellbeing of children, potential that was too often not being realised.

The authors of this paper bring two different perspectives to the framing of the school food problem, one from Public Health, and the other from Social Science. The paper offers an important and novel contribution by contrasting an analytical chronology of the school food hero narrative as it appears in policy and research with the lived experiences and accounts of people working in school food gathered through ethnographic fieldwork. This work aims to show the reality of trying to implement policy objectives within a challenging food environment in which school food has neither the powers, budgets nor freedoms to adequately compete. We conclude by making policy and practice recommendations for how school food could once again become an impactful public health intervention.

1.1. School food hero - the policy context

The origin story of our school food hero can be found in historical reviews of school food policy and provision in the UK ([Gillard, 2003](#); [Evans and Harper, 2009](#); [Rose et al., 2019](#)). School food provision has been a central tenet for policies aiming to improve children's health outcomes, from the emergence of the school meal in the early 1900s, to the statutory requirement for meal provision and the introduction of nutritional standards by the 1940s. These early developments saw school food fulfil its hero status with improvements in nutrition and reduction in childhood morbidity and mortality. The school food at the time was required to be "substantial enough" to be deemed the "main meal" of the day (Education Act, 1944 reviewed in [Gillard, 2003](#)). Through the 1950s and 1960s school food was provided in a less competitive environment whilst, at a societal level, the outsourcing of food production saw corresponding shifts in food culture and habitual food behaviours within society ([Mingay et al., 2021](#)). The emergence of

our modern food system presented a challenge to our school food hero, both in terms of market competition and shifting food norms. The introduction of an unregulated school meals market in the 1980s ([Rose et al., 2019](#)) saw the removal of nutritional standards and changes in the structure of school food provision. Fast food-style service, the proliferation of snack items, and allowing single item purchases, such as a bowl of chips, rather than whole meals saw our hero's powers begin to wane. This fall from grace was forecast in the 'Black Report: Inequalities in Health' published in 1980, that warned poorer child health outcomes, such as obesity and tooth decay, would result from the removal of school food standards and increasing children's autonomy in food choice ([DHSS, 1980](#); [Evans and Harper, 2009](#)).

The road to redemption for the school food hero began in the early 2000s, with a return to the prioritisation of nutritional standards and a re-focussing on the quality of food provided ([Rose et al., 2019](#)). The [Caroline Walker Trust \(1992\)](#) produced revised nutrient guidelines in the early 1990s but these were not mandatory, nor fully realised, until 2005 when policy commitment for improving school meal standards came in "Choosing a Better Diet: a food and health action plan" ([Department of Health, 2004](#)) and the School Food Trust was established to provide practical support and guidance for their implementation. This was welcomed by public health teams and many local authority providers at the time, who had been working behind the scenes to improve school meal uptake against the backdrop of an all-time low for public trust in school food.

Redeeming school food from its nadir required our superhero to adapt, revitalise and re-charge their superpowers. Food-based school meal standards were introduced in 2009 and with the subsequent publication of the School Food Plan ([Dimbleby and Vincent, 2013](#)) the vision and road map for redemption were set out. The role that the multiple stakeholders within the school food system – the cooks, lunchtime supervisors, school staff, leadership teams and parents – all play and the resource implications were acknowledged. Like all good superheroes, the need for a back-up team and holistic support (practical, financial, and ideological) is imperative if the powers of our school food hero were to regain their strength. Providing more nutritious good quality food and making this more accessible is only part of the story.

The emergence and progression of school food and nutrition policies not only shows us how our school food hero has evolved but offers insights into the future, where policy sets the direction of travel, but the real power comes from improved quality of provision and the collective efforts of stakeholders. Yet, to understand why these improvements in meal quality did not lead to better health outcomes, we need to understand the parallel evolution and characterisation of our school food hero's foe.

1.2. Evolution of the food foe

The [World Health Organisation's 2021](#) review of contextual factors influencing the implementation of school food and nutrition policies recognises the complexity of the food systems and other external factors impacting on their success. The foe against which our school food hero is pitched is our modern diet, that is shaped by a food system influenced by multinational food giants, with proliferation of highly palatable ultra-processed foods that are cheap and readily available and offering choice maximisation at every opportunity ([Lang and Heasman, 2015](#)). The evolution of school food when contrasted with such food regime analysis ([World Health Organisation, 2021](#)) shows us how school food's powers have diminished, against an increasingly powerful foe that is causing damage to children's health whilst also growing in popularity. The food industry has weaponised food choice, with companies offering a myriad of products making sure that we are always more likely to choose from them ([Lang and Heasman, 2015](#); [Russi, 2013](#); [Winston, 2014](#)). Food multinationals provide us with advice and guidance about moderation in the small print, but in every other way they actively encourage excessive and harmful consumption of food that is proven to

provide very little nutritional benefit (Cullerton et al., 2022). We know that food multinationals are powerful players in global markets with huge political lobbying power and evidence demonstrates the harm that the transformation of the food industry towards ever more ultra-processed, calorie dense foods has had on public health, how diseases follow the extension of these dietary patterns and norms around the globe (Neri et al., 2022; Kelly and Barker, 2016; Winston, 2014).

The transformation of food from locally produced whole ingredients to a global market in ultra-processed food is well known, but it is not a popular message for the public to absorb because ultra-processed energy dense food are popular and ubiquitous (Winston, 2014; Parnham et al., 2022). These foods are promoted in communities where other treats and rewards may be beyond reach (Cullerton et al., 2022). We know that packed lunches are often filled with food that is marketed as appropriate food for children, with elevated nutritional claims, but is ultra-processed and full of things to make it palatable (Parnham et al., 2022). It is often affordable, and it will usually be what the child wants because the food industry is very clever about marketing to children (Ertz and Le Bouhart, 2022; Kraak and Story, 2015).

1.3. School food hero v. the food foe

Have we set our hero up to fail against a myriad of systemic oppositional factors that compete for children's tastes and preferences, shaping their choices from an early age (Ertz and Le Bouhart, 2022). Whilst there is plenty of guidance for what constitutes a good school food programme - namely coherent nutrition and food standards, a trained workforce, buy-in from school senior leadership and engagement with pupils and parents (Department of Education, 2023; Dimpleby and Vincent, 2013; World Health Organisation, 2021) - a lack of investment, resources, facilities and support for full implementation weakens the potential power of school food. School food in the UK is currently provided by a mixture of in-house and externally contracted food services, by necessity driven by cost but required to operate within the school food standards parameters (Department of Education, 2023). Consequently, where up-take of school meals is low, economies of scale cannot be achieved, food quality may suffer, and poor perceptions of school food are reinforced. Dated and inadequate school infrastructure (small kitchens and dining rooms) and the structure of the school day means the space and time for school food to realise its potential is compromised. These challenges set against the backdrop of a highly commercialised and heavily marketed food system means our expectation of what our school food hero can achieve is unrealistic (Lang and Heasman, 2015). Working with the people experiencing these challenges daily may help us understand how we can address the power imbalance and identify the potential policy levers for impactful change.

This paper draws upon findings from an Institutional Ethnography (IE) carried out in 3 UK primary schools over a two-year period with the aim of gaining insights from school food workers about the relatively low uptake of school meals, and how they believed this could be improved. A key research question emerged around why food that met the school food standards was seemingly unfamiliar and unappealing to so many children and parents.

2. Methodology

IE is an approach to qualitative research that was developed by Canadian Sociologist Dorothy Smith which seeks to uncover the hidden working practices that shape the way that everyday life is structured (Smith, 2005). It focuses upon how people interpret and apply messages about how work 'should' be done and explores that variation between the official account of the work and what happens in practice. This makes it a valuable research approach when seeking to understand poor policy outcomes, such as the failure of improved school food policy and practices to make a significant impact on meal uptake or child health.

IE uses a range of common data gathering methods such as

interviews, observation and content analysis. Research participants are classed as 'expert informants' who not only provide insights, but shape the direction of the research by suggesting ongoing points of enquiry. Because of this approach IE does not so much seek to confirm truths by triangulation of several accounts, but instead uses each informant's account to build a picture of the working practice. The approach has been used in a number of contexts including mapping the experiences of doing care work, the work that mothers do to support schools, the experience of female academics attempting to achieve 'ideal academic' status, and the hidden work of managing health conditions (Smith, 2005; De Vault, 2013; Lund, 2012; Smith and Turner, 2014).

The data gathered from the ethnographic fieldwork was coded, analysed and interpreted using systems thinking approaches which allowed for the creation of systems maps of the uncovered practices to complement the more traditional narrative account approach found in IE. *

3. Sampling

Access was given to three primary schools (pupil aged between 4 and 11) via a local government school food officer. The schools had several common characteristics including being of a similar size (around 500 pupils) and serving a similar demographic population (around 50%–60% of children in the schools were entitled to free school meals). The schools were located within a five-mile radius of each other in an area of the city characterised by large social housing estates built between the 1930s and 1960s. Despite serving similar populations the schools had different approaches to school food service and different kitchen and dining spaces. This sampling approach allowed analysis to focus upon the differences in meal service rather than the ways in which different populations behaved in a similar school food environment. All three schools are state funded and as such were bound by the statutory school food standards. All have school meals cooked on site by a catering company that is contracted by the local authority to provide meals for schools throughout the city.

4. Data gathering

Following the leads set by research informants, interviews were conducted between 2017 and 2019 with.

1. Three School business managers or deputy heads with lead responsibility for school food. Their role included liaising with the catering company about menu planning, developing school food strategies and communicating school food policy to parents.
2. Three School Head cooks with responsibility for managing kitchen staff, working with the school leadership on menu planning, overseeing the reporting of meal selections and uptake to the local authority, and ordering stock.
3. Three Kitchen support staff who cooked and served the food to children and staff.
4. One Catering company manager who oversaw the provision for schools within the city, planned menus and worked with nutritionists to ensure food standards compliance.
5. One local authority school food officer with responsibility for monitoring the quality of the school food provision across the city.
6. One former LA school architect who had designed and overseen the build of three primary school building within the city.
7. Three parents

In addition to this content analysis was completed on the following 'texts' that were referenced by research informants.

1. School meal menus and recipe guides.
2. School food nutritional standard guidance documents.
3. School food policy documents.

4. Schools web pages discussing school meal service.
5. Design and build guidance for UK primary schools.
6. Headteacher perception survey.

The researcher also participated in observation of working practices including meal production and service, and created sketches and notes based upon their observations.

5. Data analysis and presentation

Notes, sketches, transcriptions, and textual analysis were coded and subject to thematic analysis and then used to build a picture of the work and to explicate how that work was coordinated by institutional processes and shaped by power structures, helping to build a 'big picture' of the working practices (Campbell and Gregor, 2008:85).

From the analysed data a range of narrative accounts were created from the standpoint of different groups of informants, such school kitchen staff and parents. In addition to these accounts, a systems scribe translated the accounts into systems maps. Systems scribing combines elements of live scribing (the process of visually representing ideas while people talk) with systems thinking. Systems scribing borrows representative tools from system engineering – using elements such as actors, frames, relationships, and annotations. (Bird and Riehl, 2019). The systems maps and a deeper explanation of the method can be found in Hawkins (2023).

6. Researcher positionality

The IE fieldwork and primary data analysis were carried out by one of the authors, an environmental social scientist. This author is a parent of children who were or had been in the city's school system (although not in any of the school's studied) and had at some point used the school meal service. The researcher therefore came to the research with a range of personal experiences from the perspective of a parent, and these were openly discussed with research informants. To mitigate the risk of bias, the author used rigorous data analysis techniques and was committed to reporting the views of informants as honestly and accurately as possible by including quotations alongside interpretations of the accounts. It has been invaluable to work with the second author, a public health nutritionist with experience of school food work, on the secondary analysis of findings to identify elements that they believed would be interesting to a public health audience.

7. Limitations to the study

Whilst qualitative research has many strengths, including allowing the time for research informants to talk about and demonstrate their work at length (Campbell and Gregor, 2008), it is important to acknowledge that as research carried out by a lone researcher studying for their PhD, there were limitations in terms of the scale of the study and this work is reporting on a small sample size. The absence of school food workers voices from published research strengthens the case for bringing forward these findings, but in doing so we do not wish to claim that these views are representative of school food workers more generally, but rather to use the reporting of their experiences to call for the greater inclusion of school food workers in research and policy development.

8. Findings

The following three themes emerged from the qualitative fieldwork with school food workers.

- Children navigating the choices available at lunchtime in a way that was perceived as making 'bad' choices that misses the nutritional opportunities of the school meal.

- School food not being chosen even when it is free.
- The range of choices schools have to offer putting pressure on the resources of school food staff and facilities.

9. Children navigating the choices available at lunchtime in a way that was perceived as making 'bad' choices that misses the nutritional opportunities of the school meal

Cooks in school kitchens told us that even though they had always cooked healthy and tasty meals for their own children, when they were old enough to go out into the world, they often made bad choices, and they felt powerless to do anything about it. They told us that they find it hard to get children in the lunch queue to choose vegetables, and that they often reject the fruit. They often found the choices that the children made when navigating the school meal offer frustrating. They had worked so hard to comply with the school food standards, following recipes, meal plans and presentation guides to the letter, but the children don't choose well, and this leads to waste, both in a literal sense but also a waste of opportunity to make the difference that they know a decent hot meal can make.

"Do you know when kids do have everything on their plates and their dinner does look lovely. But when they're not, and they're not having vegetables, they're just having meat and potatoes, there's no colour. You're not getting vitamins out of sausage and mash are you?" (School Cook 2)

Some children would take everything on offer, but from the range of options available cooks, teachers and parents knew that it was possible for children to be selective. Often children would choose a limited selection or take everything and then only eat the sausages before dumping the rest in the bin. A school cook told us that they knew which children were hungry because they took everything on offer, and ate it all.

The school cooks knew that Friday would be a busy day because it is the one day that they serve chips. On a Friday there is up to a 60% increase in meal uptake in these schools. Some families who are struggling to pay for school meals will make sure that their child can have school lunch on a Friday. Only choosing a school meal on the one day that the school serves chips is seen as both a bad choice and completely understandable, because everyone likes chips.

Some parents feared that their child would never choose well, and so they removed choice by giving them a packed lunch. Some people want to make their children happy at lunchtime so fill a box with all the colourful and tasty things that they know their child will like, it is an act of love for some, it is an act of desperation for others. They are terrified of their child going hungry, better that they eat anything rather than nothing.

"[parents] are terrified of them not eating, they don't like it so they're not going to eat it. They want to give them something they're going to like and know they're going to eat, but the problem is that the things they are enjoying and are eating are completely and utterly inappropriate" (School 3 Deputy Head)

9.1. Not choosing a school dinner, even when it is free

What everyone working in school food want is for all children to choose a school meal. Currently not enough families do, and this is a problem because it means that budgets are too low to benefit from economies of scale, and it also means that lots of food is coming into the school and competing with the school meal offer.

"I've got a nephew who comes to this school and he loves having his dinner here, but then, because some of his friends have packed lunches and he was seeing them with chocolate bar and packet of crisps – now he's wanting packed lunch and they're letting him have

packed lunch and he qualifies for free school meals as well so why go to expense of packed lunch, filling him up full of rubbish, when he could have a perfectly good meal with a nice dessert ?“(School Cook 3)

Schools have spent a lot of time and effort trying to win parents back since food standards were introduced, showing them how much things had changed and improved. But schools told us that some parents just won't listen, they don't want to try, they continue to reject the school food offer no matter how many taster events they hold or colourful and creative menus they publish.

“we’ve done taster days with parents of ones who have dinners, yeah. I mean I’ve even stayed and done taster sessions at parents’ evenings and, they’re not bothered, it’s like I said – they’re fussy!” (School cook 4)

A significant proportion of parents were rejecting school meals even when they were free. This is seen as a baffling choice on the one hand, but school food workers were not completely surprised, even though they were frustrated. They thought they knew why a lot of parents and children continued to reject school food, because the food on offer wasn't familiar to a lot of people, it wasn't the kind of food that children were used to eating and was seen as a risky and undesirable choice for parents to make.

“We try to get the parents involved which is very difficult. They are not open at all to tasting anything or they are really negative about some of the menu items even though the children are really open to them, they’ll tell them something is disgusting you don’t like it.” (Deputy head school 3)

Sometimes this was because the food that was being cooked at home was not like the food on offer in schools, and parents thought their food was better and that children were more likely to eat it. They wanted to send familiar and known food for their children to eat and as much as it pained them to admit it, sometimes the school staff knew that the lunch boxes some children brought were excellent, but they would still prefer that the parents chose a school meal because by withdrawing their custom these parents just made it harder for schools to keep their meal service viable.

Often the contents of packed lunches were seen as a very bad choice, with lots of frustration expressed at parents for making such poor food choices on behalf of their children. This belief is supported by plenty of research comparing the contents of packed lunches with school meals and confirming what many people working in school food told us, packed lunches contain foods that would not be allowed to be served from school kitchens. Salty, sweet, fatty, calorie-dense and ultra-processed foods (Parnham et al., 2022; Stevens et al., 2013) Foods that children choose because they are engineered to appeal to them and are easy to eat, but which are driving lots of health problems. Some kitchen staff despaired at packed lunches and resented having to accommodate them, they spoke about children bringing in chocolate and sweets as bad influencers that then make other children less likely to eat the healthy foods on offer, as though these packed lunches are reminding children of what they are missing.

“you don’t want to be eating your school meal and your friend has got three chocolate bars and a packet of crisps, because you’re almost seeing what you could have had!” (School 3 deputy head)

Some schools tried to implement packed lunch policies but struggled when faced with a child bringing in a non-compliant packed lunch. Should they remove it and leave the child with no lunch or should they send a note home? School staff spoke about some schools that had been brave and banned packed lunches completely where meals were free, but they couldn't force someone to pay for a meal, and neither could they let a child go hungry nor eject them from the school premises at lunch time because of the contents of their packed lunch. There was a

sense of powerless and frustration directed at parents who seem entrenched in bad dietary habits. Schools blamed parents for making bad choices, but when they spoke as parents themselves, those same people acknowledged that they felt powerless to control the choices that their own children were making.

“Since my oldest two have gone up to secondary school now, I’ll give them the money for their dinner and their bus fares, they’ll go in the shop and spend it. And they’ll spend it on junk. My daughter has put on a lot of weight and I’ve told her it’s down to eating junk, going to the shop and getting a packet of doughnuts, not just getting one, they’re getting a packet because it works out cheaper. I hate it.” (School cook 4)

9.2. The problem with ‘choice’ from a resource perspective

When school food workers talked about choice, they saw choice as both a good thing and a bad thing. On the one hand they felt that lots of people couldn't be trusted to choose well, but they also believed that offering a choice of meals was an important way to win customers and make sure that children ate something.

“I just think it’s making the kids more fussy, I think kids these days are a lot more fussy then when I was younger – if you’ve got it on your plate you either ate it or you didn’t – and if you didn’t eat it you were hungry. Whereas now because they’ve got that choice so they shouldn’t be going hungry – and I understand that, I do understand that they’re getting that choice so they don’t go hungry.” (School cook 2)

Whilst they believed that choice was important it also caused many practical problems in the day-to-day work of school food. With up to 4 main savoury options available each day, there was a lot of modelling work done to anticipate what children would choose so they could be prepared. But in most schools the choices were not confirmed until the day of service, so whilst they could predict based upon past trends, there was still an element of risk and uncertainty about how many main meals, sandwiches or baked potatoes would be chosen. This uncertainty was absorbed and managed by a highly knowledgeable and agile kitchen staff who knew their children and could anticipate which dishes would be chosen and which wouldn't and accepted this as a necessary part of the job. They demonstrated how they divided up the staff resource, kitchen space and storage space so that they could handle the range of dishes that they had to make each day. This was seen as normal for them, and some cooks talked about preparing multiple meals at home every day too, just to cater for the wide range of needs and appetites of their families, worried that if they didn't their children would go out and get fast food instead.

“I like my kids to have healthy meals so say if one will like one thing that’s healthy but the other one doesn’t, it’s just to make sure they do get healthy food, that’s one of the reasons that I do separate meals.” (School cook 3)

Whilst there was pride in the range of choices on offer there was also concern about the impact it had. In the newer school buildings the kitchens were so small that they struggled to find space to store all the food needed to accommodate such a range of choices. In the older school building the kitchen was designed for cooking in a different era, when most children had a school lunch and everything was cooked from scratch and it took twice as many staff to do the work, now they had a smaller workforce and relied upon pre-mix powdered yoghurt that had a longer shelf life, time-saving pre-chopped and frozen vegetables. These staff were working at capacity to produce the variety of choices within the time allocated and the head cook was coming in earlier than their contracted hours to manage the stock take and ordering required for such a complex menu. Most of the kitchen staff remembered a very different kind of school meal, when they were at school there had been

just one option for everyone, that was normal back then and was how things were at home too. But that approach wasn't seen as realistic or desirable anymore.

All three schools had their meal service coordinated by a private catering company, contracted for provision across a local authority. This company was trying to accommodate the school food standards whilst offering a choice that would appeal to families right across the city, families with different expectations, food cultures, and preferences. They tried to design menus that would appeal to everyone but were still struggling to make an impact on uptake. It was difficult to design dishes that would entice and be familiar to a diverse range of children and families. Catering company workers were equally conflicted about choice, they thought choice was good and necessary to their business but trying to offer the right kind of choice felt like an impossible task. People were too picky; they only wanted unhealthy options, or they wanted things that will not be acceptable and appealing to enough parents to make commercial sense. The descriptions of dishes that worked well in one school were alien and off-putting in another.

"We have like three clients, don't we? We have the parents and carers; we have the schools and we have the children. ... and we serve a huge diversity of schools with very different tastes"
(Catering company)

Most school food workers thought that not offering a choice would lead to more parents withdrawing their custom, but they also recognised that they were seemingly unable to offer the right choices to appeal to the parents who were choosing packed lunches, even when the school meal was free. They recognised the problem underlying the whole debate around healthy and unhealthy eating which is that most people make unhealthy food choices when those foods are available, and it is not easy to promote food to children on the basis that it was healthy. This didn't tend to be what children prioritised.

10. Discussion

In our tale of the school food hero, how can the power imbalance be addressed? How might school food policy be realigned to restore the power of the school meal striving to have a positive impact on child health? Our research found that many school food workers believed they were struggling to increase the uptake of school meals because the healthy food they served were unfamiliar to many children and their families. No one wants to see school food fail, especially now when there is a global cost of living crises and rising child poverty rates. In this story we have seen how school food once rescued children from the illnesses of malnutrition and poverty by providing a hot meal. But it is much easier to be a hero when you are stepping into a void by feeding a hungry child. These days the problem is more complex, children may be hungry (many around the world are and food insecurity is rising in the UK), but many are full of the wrong kinds of food; food not only impacts on their health but transforms their expectation of how food should look, smell and taste (Stuckler et al., 2012). The evolution of our food system into a global industry dominated by highly engineered, aggressively marketed processed foods, that offer a dizzying array of options (Lang and Heasman, 2015) presents the humble school food hero with the seemingly impossible challenge of winning people back from the clutches of the food foe with virtually no comparative power to influence diets. That school food achieves as much as it does is testament to the ingenuity and dedication of school food workers, but the evidence is damning, children's diets are not improving despite all their efforts to feed them well (Ertz and Le Bouhart, 2022; Impact on Urban Health, 2022). The food foes are in control and winning.

When we spoke to the people working in school food roles they talked a lot about choice, with choice being both an area of concern but also a priority. It was seen as important to provide children and families with choice at school, even though the choices that children and families made were seen as problematic and wrong (Ravikumar et al., 2022). Our

understanding that children will make unhealthy choices if they are available, comes through evidence from clinical trials as well as from the accounts of frustrated kitchen staff and parents (Nelson et al., 2006; Day et al., 2015; Ravikumar et al., 2022). Some people think that children should be able to choose whatever food they want, and that any kind of restriction will set them up for a life of disordered eating (Cullerton et al., 2022); but how free are those choices when children are subject to powerful marketing tactics that normalise ultra-processed food (Neri et al., 2022)? Children are now more likely than their grandparents to have been raised on a diet dominated by processed foods (D'Angelo, 2020). In policy and literature discussing school food, what is often missing is an acknowledgement that the proliferation of these problematised foods makes them normal and are marketed as completely appropriate and desirable food with companies making a lot of money from harmful food and becoming incredibly powerful (Lang and Heasman, 2015; Hawkes, 2005; Stuckler et al., 2012).

Even in an environment where unhealthy choices are limited what we have heard from our school food workers is that the food they provide is not what children are used to eating, and this leads to a lot of people rejecting the meal in favour of the more familiar and safe option of a packed lunch. They also know what food is familiar and popular, because when they serve chips and fish fingers or pizza, many more children choose the meal. These are foods which might be seen as bad choices, but they are popular choices. The truth is that not only children make unhealthy choices if they are available, but most adults do too (D'Angelo et al., 2020; Ravikumar et al., 2022).

When schools try to offer a healthy range of options, they are operating within a choice environment that has been engineered by a commercial food system and marketeers. Our school food hero can't use the same approaches, loading the food with salt, sugar, fats and flavourings, to create an array of highly palatable choices. We know that the ultra-processed foods plaguing dietary health make their ways into schools, either in vending machines, or packed lunches from home, or even in the school kitchen and many of the foods that school cooks turn to for convenience, and many of the ones that are popular are classified as highly processed (Parnham et al., 2022; Devi et al., 2010; Fletcher et al., 2014). In some schools around the world commercial influences freely operate within schools (Best, 2017; Fletcher et al., 2014; Devi et al., 2010). In schools that are not bound by school food policies the food that is offered and chosen is often considered unhealthy but if the food doesn't resemble the familiar and popular food that children and families are used to, then it will be rejected.

If we want to understand what is happening in schools, what is happening to our health and the health of our children, then we cannot ignore the scale of the problem (Ertz and Le Bouhart, 2022). It can be daunting to take on a powerful foe but if we keep heaping expectations onto the school food hero whilst ignoring the reality of the fight that it has on its hands then it will continue to fail, because it is being set up to fail.

We propose stepping out of the competitive choice environment and taking another approach, by limiting choice*. There is no evidence that offering a wide range of food choices is good for children's dietary health (Mazarello et al., 2015; D'Angelo et al., 2020; Kelly and Barker, 2016). There is strong evidence that school food had a significant impact on child health when it emerged in the early 20th Century (DHSS, 1980; Evans and Harper, 2009), but then there was no choice involved, one meal was offered to everyone. Back then the power of school food was in the additional quality and variety it provided to children's diets, improving the overall nutrient intake and filling a void. Now we must reinforce those powers with commitment to the resources needed to deliver a high-quality school meal for all children and recognition of the opportunity for learning, community and enjoyment of food (Cohen et al., 2021a,b).

10.1. Recommendations

So, what hope can we offer our hero, what can school food do to make a difference against such a powerful foe? Despite the challenges there is no appetite to abandon school food and put the hero out to pasture, the school meal has an even more important job to do now that so many families are struggling to heat their homes, to afford food or the basic costs of living a decent life. Now more than ever people are looking to the school meal to save the day, policy makers, school cooks, head teachers, government ministers, nutritionists, doctors, and dentists ([Impact on Urban Health, 2022](#); [Farthing, 2012](#)). We end our story with a suggested roadmap to a better future, making some bold but evidence-based suggestions for how school food can stop trying to compete with unhealthy food options, and instead be armed with the tools it needs to fight for the health of the children, families and communities that it serves. These suggestions are formed from the experiences of the research informants who cared deeply about their work and expressed a sense of responsibility for the children in their care.

10.2. Quality vs. choice - one good meal

Could schools return to the original model of offering one good quality meal option per day? Limiting choice but guaranteeing quality could be a positive way forward for school food. The School Food Plan recognises the importance of meal quality for improving nutrition standards but given the resource constraints that many service providers are working under focussing on “one good meal” and supporting the lunchtime experience may be a better use of budget and time. Rather than preparing up to four meal options every day, schools prepare one main meal for everyone (with adaptations for specific dietary needs). This is a radical departure from the dominant narrative about choice being necessary, but choice is not operating well at the moment. Even with up to four options, many children don’t choose a balanced meal, and many reject the meal completely. Where is the evidence that choice is good and necessary for meal quality and nutrition outcomes? Take away the need to compete on choice and give schools the budget to prepare a good quality meal from simple fresh ingredients every day. When this has been allowed to happen the evidence of benefit is much stronger ([Illøkken et al., 2021](#); [Afshin et al., 2015](#)).

There is understandable anxiety about children rejecting food and going hungry, but there is also evidence that giving children lots of choice leads to them making bad food choices ([Mazarello et al., 2015](#)). The only ones clearly benefiting from the status quo are the food giants who of course reinforce the narrative that choice is important, and that restricting choice will have a negative impact. Children have individual needs, but this is not the same as children needing lots of choice.

10.3. Universal free school meals and a ban on food from home**

Our research informants told us that some schools had successfully banned packed lunches, but they could only do this if the alternative is a free school meal. Providing a universal free school meal is one way to take power back from the food giants, it makes it possible to say to all parents that the school provides food and hold that line. [WHO \(2021\)](#) recognises the importance of equitable access to FSM as a means of enacting a rights-based approach to food and health and addressing the inequalities that exist within our food system, namely that good quality, nutritious food costs more. What would happen if schools were to provide a free hot meal to all their children, and ban all food from home? Supported by a strong policy framework it could make it easier for schools to control the quality of food consumed in school by ensuring that the school food provided was compliant with food standards, and not having to worry about monitoring food brought in from home.

Even with universal provision the food foe and its commercial influences will still stalk the perimeter of the school and until there is the political bravery to tackle these influences, they will still be the ones

setting the expectations and tastes of the wider population. So maybe it is time to take a more nuanced approach to school food standards so that the focus on food groups can make way for an approach that prioritises minimally processed ingredients and food that tastes and looks good, after all whilst there is clear evidence that the nutritional quality of meals has improved since the introduction of school food nutritional standards, there is little evidence that this is having positive long term impact on child health. Our research suggests that this might be because of the way that children are navigating the choices available or rejecting the meals altogether.

Removing choice is tough, but it might be an experiment worth conducting in the context of school food. The removal of choice would have to extend to a ban on packed lunches, because our research participants confirm that the policing of packed lunches is divisive and creates more work for staff.

10.4. Re-invest in the school food standards and resource the work of getting children to eat new foods

We know that just presenting children with a healthy and tasty meal won’t be enough if that food is unfamiliar and not part. School food workers will tell you that it takes time and resource to get children to try new foods, and that this is a real challenge. Research on food neophobia shows that certain techniques and approaches can be effective in encouraging children to try new foods and the Food for Life programme advocates investment in activities that promote sensory acceptance and widening food preferences and countering the normative power of the food industry ([Blomkvist et al., 2018](#); Food for life, Nd; WHO, 2021). To have the desired impact, school food needs to be resourced not only to produce good quality tasty food, but to support children to eat it. We acknowledge that this work would require additional resourcing, which we have not had the scope to calculate for this paper.

It is not easy for parents to resist the powers of the food giants either, any parent knows that it is not as simple as setting rules and expecting them to be followed, children say no, they push back, they melt down, they refuse food and drive parents desperate with worry. The evolving tastes, norms and expectations set by the food industry have affected parents too, and they have no special powers or weapons with which to fight this fight. Many try, but many don’t want to. It isn’t parents’ fault that the food environment has become so toxic that there are thousands of bad choices placed conveniently in their path every single day.

11. Conclusion

The authors of this paper chose the super-hero narrative because we felt that many of the research informants were describing a process of losing out to a powerful foe, in the form of the myriad of unhealthy food choices that seem more appealing and familiar to many of their children and families. We wanted to provide a counter-narrative to the one in which individuals are often blamed for making poor food choices, even though it is well known that there are powerful structural forces that have shaped the choice environment ([Kelly and Barker, 2016](#); [Mingay et al., 2021](#); [Stuckler et al., 2012](#)).

Maybe over time school food can gain the trust and respect of more children and parents, not because it mimics the wider food environment but because it stands up to it, challenging the idea that the best thing for children is to offer them a range of options and ask them to choose well. We know this doesn’t work, increasing choice hasn’t resulted in improved diets or health ([Kelly and Barker, 2016](#); [Lang and Heasman, 2015](#)).

Right now, the school food hero stands on an important threshold, there is greater appetite for schools to feed children well and to do this in a way that helps poorer communities level up and avoid the widening inequalities inflicted by the cost-of-living crises ([Impact on Urban Health, 2022](#)). But heroes need help too, and school food is being held back from its potential to improve child health because it is not able to

compete with the allure of a food foe that has breached the barricades set up by the school food standards to protect children. Unhealthy foods enter the school environment in packed lunches, they sneak in through pre-mixes and processed foods in the school kitchen, they make the food that schools are allowed to provide look unfamiliar, unexciting, and unappealing. The power imbalances that exist between the wider food industry and school meals services make it hard for school food to compete, so we argue that it is time to restrict access of these commercial influences within the school environment. We are led to believe that choice is good and that we are free to choose but this is not improving children's health. We need to use school food policy levers to limit choice, focus on quality and enjoyment to create a safe space where their children can be nourished in mind and body.

* For a detailed account of the research design please see Author (Forthcoming) Mapping Working Practices as Systems: An analytical model for visualising findings from an Institutional Ethnography, *Qualitative Research*.

** we are not suggesting taking away food options for children with food allergies or intolerances or banning schools from providing meals that are halal or kosher.

***we acknowledge that there will always be examples of children with very specific dietary needs that may not be safely met by schools and in these cases, there may need to be alternative arrangements made.

Data availability

Data will be made available on request.

References

- Afshin, A., Penalvo, J., Del Gobbo, L., Kashaf, M., Micha, R., Morrish, K., Pearson-Stuttard, J., Rehm, C., Shanguan, S., D Smith, J., Mozaffarian, D., 2015. CVD Prevention through policy: a review of Mass media, food/menu labeling, taxation/subsidies, built environment, school procurement, worksite wellness, anMarketing standards to improve diet. *Curr. Cardiol. Rep.* 17 (11).
- Best, A.L., 2017. *Fast Food Kids: French Fries, Lunch Lines and Social Ties*. NYU Press, New York.
- Bird, K., Riehl, J., 2019. Systems Scribing: an Emerging Visual Practice. Available at: www.kelveybird.com. (Accessed 13 December 2022).
- Black, A.P., D'Onise, K., McDermott, R., Vally, H., O'Dea, K., 2017. How effective are family-based and institutional nutrition interventions in improving children's diet and health? A systematic review. *BMC Publ. Health* 17 (1). <https://doi.org/10.1186/s12889-017-4795-5>, 818–818.
- Blomkvist, E.A.M., Helland, S.H., Hillesund, E.R., Øverby, N.C., 2018. A cluster randomized web-based intervention trial to reduce food neophobia and promote healthy diets among one-year-old children in kindergarten: study protocol. *BMC Pediatr.* 18 (1) <https://doi.org/10.1186/s12887-018-1206-8>, 232–232.
- Campbell, M.L., Gregor, F.M., 2008. *Mapping Social Relations: A Primer in Doing Institutional Ethnography*. UTP, Toronto.
- Caroline Walker Trust, 1992. *Nutritional Guidelines for School Meals. Report of an Expert Working Group*. The Caroline Walker Trust, London.
- Cohen, J.F.W., Hecht, A.A., Hager, E.R., Turner, L., Burkholder, K., Schwartz, M.B., 2021a. Strategies to improve school meal consumption: a systematic review. *Nutrients* 13 (10), 3520. <https://doi.org/10.3390/nu13103520>. PMID: 34684521; PMCID: PMC8538164.
- Cohen, J.F.W., Hecht, A.A., McLoughlin, G.M., Turner, L., Schwartz, M.B., 2021b. Universal school meals and associations with student participation, attendance, academic performance, diet quality, food security, and body mass index: a systematic review. *Nutrients* 13 (3), 911. <https://doi.org/10.3390/nu13030911>.
- Cullerton, K., Patay, D., Waller, M., Adsett, E., Lee, A., 2022. Competing public narratives in nutrition policy: insights into the ideational barriers of public support for regulatory nutrition measures. *Health Res. Pol. Syst.* 20 (1), 1–86. <https://doi.org/10.1186/s12961-022-00891-6>.
- D'Angelo, C., Gloinson, E.R., Draper, A., Guthrie, S., 2020. *Food Consumption in the UK: Trends Attitudes and Drivers*. The Rand Corporation, Cambridge.
- Day, R., Sahota, P., Christian, M., Cocks, K., 2015. A qualitative study exploring pupil and school staff perceptions of school meal provision in England. *Br. J. Nutr.* 114 (9), 1504–1514. <https://doi.org/10.1017/S0007114515002834>.
- De Vault, M., 2013. *Institutional ethnography: a feminist Sociology of institutional power*. *Contemp. Sociol.* 42 (3), 332–340.
- Department of Education, 2023. *School Food: Guidance for Governors* Accessed via. <https://www.gov.uk/government/publications/school-food-standards-resources-for-schools/school-food-guidance-for-governors>. accessed 12/07/23.
- Department of Health, 2004. *Choosing Health? Choosing a Better Diet a Consultation on Priorities for Food and Health Action Plan*.
- Devi, A., Surender, R., Rayner, M., 2010. Improving the food environment in UK schools: policy opportunities and challenges. *J. Publ. Health Pol.* 31 (2), 212. <https://doi.org/10.1057/jph.2010.9>.
- DHSS (Department of Health and Social Security), 1980. *Black Report: Inequalities in Health: Report of a Research Working Group*. Department of Health and Social Security, London. Available at: <https://www.scohealth.co.uk/national-health-service/public-health-and-wellbeing/poverty-and-inequality/the-black-report-1980/>. accessed 20/6/23.
- Dimbleby, H., Vincent, J., 2013. *The school food plan*. Available at: https://www.schoolfoodplan.com/wp-content/uploads/2013/07/School_Food_Plan_2013.pdf. accessed 14/5/23.
- Ertz, M., Le Bouhart, G., 2022. The other pandemic: a conceptual framework and future research directions of junk food marketing to children and childhood obesity. *J. Macromarketing* 42 (1), 30–50. <https://doi.org/10.1177/02761467211054354>.
- Evans, C.E.L., Harper, C.E., 2009. A history and review of school meal standards in the UK. *J. Hum. Nutr. Diet.* 22, 89–99. <https://doi.org/10.1111/j.1365-277X.2008.00941.x>.
- Farthing, R., 2012. *Going Hungry? Young People's Experiences of Free School Meals*. Child Poverty Action Group, London. <https://cpag.org.uk/policy-and-campaigns/report/going-hungry-young-peoples-experience-free-school-meals>. accessed 1.2.23.
- Fernandes, M.M., 2013. A national evaluation of the impact of state policies on competitive foods in schools. *J. Sch. Health* 83 (4), 249–255. <https://doi.org/10.1111/josh.12024>.
- Fletcher, A., Jamal, F., Fitzgerald-Yau, N., Bonell, C., 2014. 'We've got some underground business selling junk food': qualitative evidence of the unintended effects of English school food policies. *Sociology* 48 (3), 500–517. <https://doi.org/10.1177/0038038513500102>.
- Food Foundation, 2022. *The Superpowers of Free School Meals: an Evidence Pack*. Available via: <https://foodfoundation.org.uk/publication/superpowers-free-school-meals-evidence-pack>. last accessed 15/5/23.
- Gillard, D., 2003. *Food for Thought: Child Nutrition, the School Dinner and the Food Industry*. Accessed via. www.educationengland.org.uk/articles/22food.html. last accessed 15/3/23.
- Hawkes, C., 2005. The role of foreign direct investment in the nutrition transition. *Public Health Nutrition*; *Public Health Nutr.* 8 (4), 357–365. <https://doi.org/10.1079/PHN2004706>.
- Hawkins, A., 2023. *Mapping Working Practices as Systems: an Analytical Model for Visualising Findings from an Institutional Ethnography*. *Qualitative Research*.
- Iløkken, Johannessen, B., Barker, M.E., Hardy-Johnson, P., Øverby, N.C., Vik, F.N., 2021. Free school meals as an opportunity to target social equality, healthy eating, and school functioning: experiences from students and teachers in Norway. *Food Nutr. Res.* 65, 1–13. <https://doi.org/10.29219/fnr.v65.7702>.
- Impact on Urban Health, 2022. *Cost Benefit Analysis of Free School Meal Provision Expansion*.
- Kelly, M., Barker, M., 2016. Why is changing health-related behaviour so difficult? *Publ. Health* 136, 109–116.
- Kitchen, et al., 2010. *Evaluation of the Free School Meal Program: Impact Report*. Department for Education Research. Report DFE-RR227.
- Kraak, V.I., Story, M., 2015. Influence of food companies' brand mascots and entertainment companies' cartoon media characters on children's diet and health: a systematic review and research needs. *Obes. Rev.* 16 (2), 107–126. <https://doi.org/10.1111/obr.12237>.
- Lang, T., Heasman, M., 2015. In: Oxon (Ed.), *Food Wars: the Global Battle for Mouths, Minds and Markets*, second ed. Routledge.
- Lund, R., 2012. Publishing to become an "ideal academic": an institutional ethnography and a feminist critique. *Scand. J. Manag.* 28 (3), 218–228. <https://doi.org/10.1016/j.scaman.2012.05.003>.
- Mazarello, V., Ong, K., Lakshman, R., 2015. *Factors Influencing Obesogenic Dietary Intake in Young Children (0-6): Systematic Review of Qualitative Evidence*.
- Mingay, E., Hart, M., Yoong, S., Hure, A., 2021. Why we eat the way we do: a call to consider food culture in public health initiatives. *Int. J. Environ. Res. Publ. Health*. <https://doi.org/10.3390/ijerph182211967>. PMID: 34831723; PMCID: PMC8623951.
- Nelson, M., Nicholas, J., Suleiman, S., Davies, O., Prior, G., Hall, L., Poulter, J., 2006. *School meals in primary schools in England. Research Report No. RR753*. DfES Publications, Nottingham.
- Neri, D., Steele, E.M., Khandpur, N., et al., 2022. Ultraprocessed food consumption and dietary nutrient profiles associated with obesity: a multicountry study of children and adolescents. *Obes. Rev.* 23 (S1), e13387 <https://doi.org/10.1111/obr.13387>.
- Parnham, Chang, K., Rauber, F., Levy, R.B., Millett, C., Laverty, A.A., von Hinke, Stephanie, Vamos, E.P., 2022. The ultra-processed food content of school meals and packed lunches in the United Kingdom. *Nutrients* 14 (14), 2961. <https://doi.org/10.3390/nu14142961>.
- Ravikumar, D., Spyrelli, E., Woodside, J., McKinley, M., Kelly, C., 2022. Parental perceptions of the food environment and their influence on food decisions among low-income families: a rapid review of qualitative evidence. *BMC Publ. Health* 22 (1). <https://doi.org/10.1186/s12889-021-12414-z>, 9–9.
- Rose, K., Lake, A.A., Ellis, L.J., Brown, L., 2019. School food provision in England: a historical journey. *Nutr. Bull.* 44, 283–291. <https://doi.org/10.1111/nu.12394>.
- Russi, L., 2013. *Hungry Capital. The financialization of food* Zero Books.
- Smith, D., 2005. *Institutional Ethnography: A Sociology for People*. AltaMira Press, Lanham.
- Smith, D.E., Turner, S.M. (Eds.), 2014. *Incorporating Texts into Institutional Ethnography*. University of Toronto Press, Toronto.
- Stevens, L., Nicholas, J., Wood, L., et al., 2013. School lunches v. packed lunches: a comparison of secondary schools in England following the introduction of

- compulsory school food standards. *Publ. Health Nutr.* 16, 1037–1042. <https://doi.org/10.1017/S1368980013000852.23578700>.
- Stuckler, D., McKee, M., Ebrahim, S., Basu, S., 2012. Manufacturing epidemics: the role of global producers in increased consumption of unhealthy commodities including processed foods, alcohol, and tobacco. *PLoS Med.* 9 (6), e1001235 <https://doi.org/10.1371/journal.pmed.1001235>.
- Winston, A., 2014. *The Industrial Diet: the Degradation of Food and the Struggle for Healthy Eating*. New York University Press, New York.
- World Health Organisation, 2021. Implementing School Food and Nutrition Policies; a Review of Contextual Factors. WHO, Geneva available at: <https://www.who.int/publications/i/item/9789240035072>.