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Quality early education—quality food and nutrition practices? Some initial results from a pilot research project into food and nutrition practices in early years settings in Kent, UK

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Abstract

This paper draws upon work conducted as part of a research project into food and nutrition in the early years, and looks very specifically at the way in which practitioners in the field are both aware of current debates around such issues and how they put good policy into their practice. In drawing out such debates with practitioners, it also offers a useful insight into the way in which research, policy and practice either come together within the sector or actually operate within different ambits. The findings show that there is a lack of knowledge amongst early years practitioners on food and nutrition issues, and that this can lead to less than effective practice in some instances.

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Introduction

There is currently a very active debate around issues of diet—especially for children—and the implications of a poor diet both in terms of health and educational attainment. Indeed, the UK Minister for Public Health recently said that poor nutrition in pregnancy and early years can have a significant impact upon health in later childhood (Cooper, 2004). There is also a substantial body of evidence that links childhood nutrition to cognitive function and learning ability (see, for example, Nelson, 2000; National Heart Forum, 2002; Grantham-McGregor *et al.*, 2005). As Nelson concludes:

The evidence presented in the present paper shows that poor children are nutritionally disadvantaged ... This under-nutrition manifests itself in both the short term (e.g. poor growth, reduced immune status, poorer cognitive function, poorer educational outcomes) and the long term (e.g. increased risk of chronic disease in adulthood, poverty relation to chronic ill health). (Nelson, 2000, p. 314)

Although focusing on deprivation, Nelson still shows the impact of poor health on cognitive ability. Grantham-McGregor *et al.* (2005) do, however, point out that the kind of ‘stunting’ to poor mental development will vary depending on what nutrients are deficient, there being much debate around what constitutes good nutrition in terms of school meals, with the latter also culminating in a specific government bill on the subject (TSO, 2003). However, as yet, there has been little research conducted into the food provided in early years education and childcare settings, and the specific effects that poor diets in such settings may have. Equally little research has been conducted into the experiences and knowledge of practitioners in such settings, and about the sorts of nutritional issues they face on a daily basis.

The government agenda for the expansion of affordable, sustainable and accessible childcare and the extension of free part-time early education to all three- and four-year-old children also includes the desire for improved quality, and part of this drive for quality contains some limited references to diet (see, for example, DfES, 2003). It is still the case, however, that the food and nutrition requirements of children in early years and childcare settings are largely overlooked and, at best, are considered only where the child has a cultural or medical reason for variations in diet.

Kent

Kent is the largest shire authority within England in terms of its population (approximately 1.5 million people), and has a very large private, voluntary and independent early years and childcare sector, with approximately 800 pre-schools being registered with the Office for Standards in Education (OfSTED). These pre-schools provide two and a half hours of early years education, five days a week during term time only, to 30,199 three and four year olds. Many also provide additional hours of care to these children, along with care for other age groups. The government’s agenda for the improvement of early years services and the reduction in childhood obesity both, therefore, strike a very strong chord within the early years sector in Kent. The number of

children attending the services, for the time stated, shows the potential role and influence that early years practitioners can have on Kent's children.

The Kent Early Years Development and Childcare Partnership (EYDCP) has a commitment to improving the quality of settings through its Kitemark Quality Assurance scheme, and one of the elements within the scheme is the provision of a healthy diet for children (KCC, 2004). It is the case, however, that only a minority (approximately 20%) of settings in Kent take part in the Kitemark scheme at the present time, and the EYDCP is keen to ensure that all settings have some knowledge around food and nutrition issues in order that this can then result in improved outcomes for children. At the simplest level this could be that practitioners ensure that there are healthy options available to children at snack times, and that the children are aware of what is a healthy option.

The Kent quality assurance scheme is based upon an underlying assumption that all aspects of pre-school provision can be improved by a process of self-reflection, self-evaluation and self-assessment. There is also, therefore, an implicit underlying awareness that in many cases both knowledge and practice can be, and should be, improved.

In order to test the hypothesis that settings have little knowledge of food and nutrition issues, it was decided to initiate a research project. This paper gives an overview of that project, its methodology and some of the interim findings. The paper draws upon questionnaire data from the staff in a variety of early years settings in a wide variety of geographical locations across the county of Kent.

The project is continuing, and it is hoped that later stages of the project will include listening to the voices of both parents and children, building on the work already being undertaken within Kent as part of a project that has considered the views of providers, parents and children (Campbell-Barr, 2005a). In particular, the work with children has shown that food is important to children (Campbell-Barr, 2005b), supporting the importance and relevance of building on such work. It is also hoped that later stages of the project will examine the effects of diet upon the levels both of childhood obesity and educational outcomes. It should also be noted that wherever the term 'parent' is used in this text it should also be taken to include other types of carer with childcare responsibilities.

Research methodology

A questionnaire survey form was developed that was designed to ascertain the level of knowledge of early years providers about food and nutrition issues. It should be noted that, in the context of this research project, early years providers are taken to mean all those that provide either funded early education and/or childcare for children aged zero to four years old. The questionnaire was also designed to test how the knowledge regarding nutrition is put into practice, and whether parents and children are involved in decisions about food and nutrition in the early years setting.

The decision to include only early years providers in the research project was made because it was felt that such providers were most likely to provide food for the children in

their care. This still provided the project with over 800 providers from which to take the sample. It is hoped that the project can be extended to other types of providers at a later stage.

The questionnaire was piloted amongst a small group of early years providers across Kent, administered during one-to-one interviews within selected settings by early years advisory teachers and quality assurance mentors. These individuals were chosen to conduct the research as they had established contact with the settings and because they would already be visiting early years settings and, therefore, be able to combine the questionnaire with their existing work. The reason this method was chosen rather than a postal method of distribution was that it was felt the questionnaire was fairly complex and lengthy and there was potential for data of better quality to be obtained if the questionnaire was completed in face-to-face interviews.

Those administering the questionnaire were asked to select two providers with whom to complete the questionnaire, considering geographical location and size of provider. Questionnaires were to be completed with the on-duty manager, although details on who completed the questionnaire were not obtained as it was the details of the settings that were of relevance to this study rather than the individuals who completed the questionnaire. It was hoped that 50 such pilot questionnaires would be returned but ultimately 41 usable responses were received. The responses that were unusable were due to those administering the questionnaire allowing the provider to complete it on their own and then collecting the responses, thus not following the instructions of the research brief, a pitfall of completing questionnaires at 'arm's length'. Whilst this is a relatively small sample, it is still large enough both to yield some interesting findings and to highlight potential issues with the original questionnaire design that will be addressed in later stages of the research.

Providers were also asked, as part of the research process, to provide copies of relevant food and nutrition policy documents and specimen menus relevant to their particular settings. These will be used in a later, more qualitative part of the analysis of the responses generated.

Respondents to the questionnaire were asked to include their OfSTED registration number on the form. This is the number obtained by providers when they have been inspected and registered by OfSTED. This reference number was used to link the participants' responses to other details already held in respect of the providers, such as their geographical location, number of registered places and the prices they charge for children to attend their setting, as well as against certain external factors, such as deprivation levels (as determined by the Office of the Deputy Prime Minister's multiple index of deprivations scores for 2004) in the surrounding area and whether the setting is in a rural or urban area. This enabled the study to determine whether geographical locations could be seen to determine access to food and whether the amount charged or number of places offered had an impact. Of those who responded to the questionnaire, the average number of places was 38 and the range was 20–102. Twenty nine per cent of the providers were in rural locations and 71% were in urban locations.

This paper considers, in depth, data obtained from the questionnaire on the following areas: (a) food and snack policy, (b) barriers identified by providers for supplying food, such as lunch, and snacks, (c) feelings about catering for dietary requirements, (d) access to information on nutrition, (e) problems in accessing and preparing food, and (f) involvement of children and parents. The areas selected for analysis were chosen on the basis that they highlight the varying factors that interplay in the provision of nutritional food in early years settings, as well as providing ways forward for improved knowledge on food and nutrition in early years settings. Such factors include catering for dietary requirements, access to food, access to knowledge on food, and involving parents and children in food choices and preparation.

Questionnaire survey analysis

Policy

The first question asked of respondents was whether or not they had a policy on food and snacks for their setting. The interest in this response was based upon the assumption that healthy food and nutrition options are more likely to be available where settings have a coherent policy that is clearly enunciated within a written document. This assumption is offered some credence by the work undertaken jointly by OfSTED, the DfES and the Food Standards Agency in which they state that a food and nutrition policy for an early years setting has various functions, namely that it:

- steers the management of food and nutrition education;
- is based on an audit of current practice;
- articulates clearly what is to be achieved, why, by what means and over what timescale;
- specifies how success in doing so will be measured (OfSTED, 2004, p. 4).

Surprisingly, perhaps, only 68% of the respondents do have such a policy. This appears to be low given the emphasis that OfSTED places on food and nutrition policies and that it is OfSTED that inspects and registers early years settings. It also seems that respondents who report that they have no policy tend to exhibit less positive outcomes on a number of other measures that will be discussed below, such as catering for dietary requirements and involving children in preparing and serving food.

Providers were asked whether they actually offered food to children at the setting and, if so, whether such food was prepared and cooked on site. All of the settings reported that they do offer food to children who attend their setting, although 10% of them indicated that this food was not prepared and cooked on site. Of these providers, all but one stated that the children bring their own food. The remaining provider uses an outside caterer.

Barriers to effective practice

In terms of the barriers that hinder or prevent providers from preparing and cooking food on site, 25% of providers suggested that there was 'insufficient time', 21% said they have no kitchen facilities, 18% said 'lack of staff' was the main problem, 11% said it 'costs too much' and only 4% admitted that the main problem was 'lack of knowledge or experience'. Twenty-one per cent of all respondents also suggested that there were other

reasons not mentioned that were the main problems, with the most frequent ones cited as being worries about health, safety and hygiene rules. This does tend to suggest that there is a need for risk assessment training for providers, in order that they can come to an understanding that there is a risk inherent in virtually all activities, and that this should not lead to practitioners avoiding such activities but rather to ensuring that the risks are minimized or eliminated. It shows that providers do not feel that it was a lack of knowledge about food and nutrition that prevented them from providing food. The suggestion is that these providers, therefore, have a perceived knowledge of food and nutrition, but that it is not always demonstrated.

Specific dietary requirements

Providers were then asked about their awareness of the dietary requirements of the children in their settings. It is often the case that even where providers do not necessarily provide well-balanced or even healthy diets, they appear to demonstrate due regard for the dietary requirements of the children in their care. Being aware of these issues is, of a necessity, the first step in being able to provide adequately for such children, preventing them from having food to which they have an intolerance or a cultural or religious belief against. In total, 165 children were identified as having particular dietary requirements, which represents 11% of all the children in the care of the providers involved in this study. The most common dietary requirement was 'nut intolerance, with 16% of the children having this particular requirement. Twelve per cent of children were classified as 'lactose intolerant', 11% were 'full vegetarian', 10% 'do not eat pork', and a similar percentage (8%) were 'vegetarian but eat fish' and, finally, of the main categories, 7% 'do not eat red meat'. Of the remaining categories that were included on the questionnaire (three of which referred to religious beliefs), very few providers indicated that they had children with dietary requirements linked to particular religious beliefs, but this may say more about the low percentage of children from such groups who access early education than about providers' awareness of their needs when they do. An 'other' category was included to capture any requirements or intolerances not included within the questionnaire itself. Of the 44 'other' dietary requirements that providers mentioned, the main one was an intolerance or avoidance of 'dairy products', with 14% of the 'other' requirements falling within this category. This was mentioned despite the fact that the category 'lactose intolerant' appeared on the questionnaire. This may suggest a basic lack of knowledge of food and nutrition terminology amongst early years providers. An intolerance to eggs was the next most common 'other' requirement mentioned; again, this may confirm a lack of knowledge about food groups.

Of course, it is one thing to be aware of the dietary requirements of the children but quite another to be able to cater for such requirements. The next question asked providers which dietary requirements they were able to cater for, using the same list of requirements initially used to identify the needs that the providers were aware of amongst the children in their care.

In the main, the number of providers who said they could cater for specific requirements, such as intolerances or allergies, exceeded the number who said they had children with these requirements. This may suggest that providers are aware of diets that eliminate

specific foods on the basis of intolerance or allergy, and that they take proactive steps to ensure that they can cater for children's needs even where such needs are not immediately present in the setting. However, under all the different requirements, such as those that could be classified as religious or cultural, the numbers of providers saying that they have children with these requirements is less than the number of providers who can cater for these requirements. This tends to suggest that children in some settings with religious or cultural requirements will experience difficulty in having their needs met. The particular instances where this occurs might be deemed by some providers as 'lifestyle' food choices, such as 'does not eat red meat' or 'does not eat pork', rather than specific dietary requirements of a medical, ethical or religious nature (it is recognized that this is an erroneous assumption, especially since such dietary requirements may well be driven by medical, ethical or religious needs). An examination of the menus provided by the settings demonstrates that meat does play a large part in the diet of many early years settings, and this may be another reason why such requirements are not catered for to the same degree as other requirements. Reasons why meat plays a large part in menus of early years settings is an area for further exploration and one that will be picked up in future research. This is not to say that this shows a lack of knowledge of nutrition, but that an ability to cater for dietary requirements does not mean that this will be implemented unless necessary. Providers were also asked to indicate how easy or difficult they found it to cater for the list of requirements, with providers being asked to score their answers as 'very easy', 'easy' or 'not very easy'. This was designed to explore whether providers found some dietary requirements easier to cater for than others. On reflection it was felt that future research would need a fourth category relating to difficulty or for a rewording of the categories so that there was a greater distinction between them.

Providers indicated that they find it easiest to cater for 'nut intolerance', with only 5% saying they found it 'not very easy'. This tends to suggest that providers are aware of the extreme risks and health problems that can be associated with nut allergies and make efforts to avoid such products in most diets for children. Twentynine per cent of providers said that providing for 'full vegetarians' was 'very easy', whilst 24% said providing for vegetarians who eat fish was also very easy. It also suggests that many providers also provide some vegetarian options, although this may be merely to the extent of removing meat from a meal and giving the child the remaining vegetables.

In terms of the requirements that providers find hardest to cater for, the answers given are a little more problematic to analyse. The requirement that providers found hardest to cater for is 'Halal meat' (blessed meat that is consumed by those of Islamic faith), with only 34% of providers saying they found this very easy or easy. Nine per cent said that they would find providing Kosher meals (suitable for the Jewish faith) very easy or easy, whilst only 24% said they would find providing non-Beef Sikh meals (as consumed by Sikhs) very easy or easy. This tends to bear out an assumption that providers are, perhaps, not very familiar with the diets required by these particular religious groups, and that this may be due to the fact that such groups are under-represented amongst children accessing early education. Although the assumption of a lack of representation is based on the low numbers of black minority and ethnic groups accessing early years settings (see Bell *et*

al., 2005), and can be seen to oversimplify a relationship between ethnicity and religion, there has been no work that has looked specifically at religious background and access to early years settings. However, if the assumption is proved, it is problematic in that if fewer children from such groups access early years settings then there is, arguably, less pressure upon or need for settings to cater for or learn about these specific dietary needs. This in turn might mean that fewer parents from such groups may wish to access the setting because the setting cannot cater for their child's dietary needs. To prove such an assumption would need further research with parents, as other work has shown that there are other reasons for this low level of use (see, for example, Tabors, 2003). It could also be that providers encounter resource issues in catering for such diets—something that is explored below. It is worrying that providers are reactive in meeting religious dietary requirements as opposed to proactive, especially as the government standards for full day care state specifically that food and drink should comply with dietary and religious requirements (DfES, 2003).

There may also be both a financial and cultural aspect, in relation to purchasing additional food and food that they regard to be different, to the difficulty that providers' face in providing for specific dietary requirements, as well as an availability issue. Fifty-nine per cent of providers say that they have to purchase additional or different food in order to cater for specific requirements, and this tends to suggest that the concept of providing food that can be used to cater for a diverse group of children is not fully embedded into policy within settings, and is seen as something of an additional requirement to normal good practice. This is based on the idea that providers see it as *additional* and *different* rather than accepting these foods as part of their normal grocery shopping and thus a part of the setting. It shows that knowledge on food and nutrition may not be the only barrier in providing food that caters for all, as other factors can interplay.

We also asked providers to identify what they felt were the main perceived barriers to providing more healthy food. Thirty-one per cent of providers indicated that their main concern would be 'getting children to eat it'. This demonstrates a lack of awareness of how food that is healthy for children can be made to look and taste appetizing and interesting for children, and highlights a training need for providers to tackle this problem. This is highlighted by the fact that the next most common answer, with 17% of providers citing this, was a 'lack of information' about healthy food. This does show a lack of knowledge in relation to making nutritional food attractive, with a lack of information perpetuating this. That said, only 17% of providers felt that they lacked information, suggesting that it is not a problem for all providers and implied that others felt informed. Along with the lack of information is the concern of getting children to eat healthy food which, in the context of the questionnaire, was a barrier to providing more healthy food, yet in itself could be seen as concern about nutrition in making sure children are eating something. The results, therefore, support an assumption that knowledge is not the only barrier to providing healthy food, as getting children to eat food was also important to providers. Other factors such as an awareness of dietary requirements—religious, cultural and those related to health—also meant that the catering for these diets is not implemented into everyday practice.

Sources of information

We also thought that it would be useful to establish where providers get their information about food and nutritional issues. The most important source of information identified by providers, with 66% rating this as 'very important', was 'training. The media were rated as very important by 56% of providers, while the 'Department of Health' and 'family' were rated as very important by 51% of providers. Forty-nine per cent rated other pre-schools as very important, whilst 'GP and other medical services' were rated as very important by 42% of providers. It is encouraging to see that providers use and regard training as an important source of information. This highlights the need for 'quality' information to be distributed via this medium. The use of GPs, medical services and the Department of Health is also encouraging, as one would assume that the information disseminated by these bodies is accurate and informative. However, the information from family and other pre-schools is more questionable, as it is difficult to determine the quality of advice that is being accessed by these groups. That said, the fact that providers are accessing information from more than one source would suggest that they have the ability to challenge or reconfirm some of the information gathered. However, there is also the potential for providers to become confused, especially as health advice can change, showing that it is important that providers constantly reassess their knowledge from accurate sources.

Logistical issues

The authors are conscious that knowledge about food may not be the only factor that determined the provision of healthy food and that access to food could contribute. Kent is, of course, a very diverse county both in terms of its population and its geography, and it could be that providers in remote rural areas find it more difficult to purchase the range of food they need in order to cater for specific dietary requirements. In order to address some of these issues, the next questions to be examined asked providers where they normally do their shopping for the settings, how far they have to travel to get this shopping, and what method of transport they use to get their shopping.

With respect to where providers get their shopping, 60% indicated that this is from a local supermarket. Twenty per cent get their shopping from a cash and carry, whilst 15% get it from a corner shop. Only 5% get their shopping from a health shop, whilst only 3% shop at specialist shops. With the range of foods that supermarkets now provide, the lack of use of health food shops cannot be seen to imply a lack of access to nutritional food or food required for specialist diets. In terms of how far providers have to travel to get their shopping, 27% travel under one mile, with 32% travelling between one and two miles. Only 5% have to travel more than five miles, but all are in areas classified as rural. There are clear differences in where providers get their shopping, dependent upon whether they are based in a rural or an urban area. In rural areas, 44% of providers get their shopping in local supermarkets, but this rises to 66% in urban areas. Equally, in rural areas, 22% of providers shop at a corner shop, but this falls to 5% in urban areas. Clearly, the proximity of shopping outlets has an influence on where providers will do their shopping, and this also has an effect upon how far providers have to travel to get their shopping. In urban areas, 31% travel under one mile to get their shopping, but this falls to only 17% for

providers in rural areas. Equally, in urban areas, only 7% of providers have to travel more than five miles to get their shopping, but this rises to 17% in rural areas. For all providers, 68% of them drive to get their shopping, with 13% walking and 15% having it delivered. This highlights the fact that it is not only knowledge that can be a barrier to providing nutritional food but that physical accessibility can also pose a problem for some providers.

Providers' own perceptions of the factors that influence their choice of food for children is somewhat different from that shown from an examination of other factors measured in the survey. The main factor that providers say influences their choice of food is 'health issues', with 27% of providers selecting this factor. This suggests that health is not an influence for all providers in their food selection and cannot, therefore, be regarded as a priority. This cannot be seen as an indication of a lack of knowledge in its own right, but does raise concerns. Equally, however, 20% of providers say that both 'availability' and 'cost' are important factors, whilst 15% and 14%, respectively, say that 'ease of preparation' and 'religious and cultural requirements' are important. This tends to suggest that the purchasing and preparation of food in settings involves a measure of the balancing of competing demands. Some of these demands may be more pressing in certain settings than in others, and these demands may change within settings at different times. It is also likely to be the case that providers will stress that health issues are important to them when making choices about food for children, simply because they feel that this is the correct answer to give to such a question.

In order to test the hypothesis that, in reality, cost may be the overriding concern of most providers when providing food in their setting, questions were asked about how much was spent on food per child, and what percentage of the total budget this represented. The first question is somewhat difficult to analyse because the size of settings varies enormously and the expenditure on food is heavily dependent upon the types of food served and the number of meals provided. The answers were precategorized into 'per child per day', 'per child per week' and 'per child per term', in order to allow providers the greatest flexibility when providing an answer. Each category is considered in isolation for the responses given, such as all those under per child per day. Although it could have been possible to take the per child per day category and calculate the weekly cost, this would have resulted in an assumption that all providers offer five days of care and that there are no concessions for using a full week of care. Rather, the categories are treated in isolation, reflecting how providers saw their costs. Considering the different categories under which providers replied, the replies ranged from 0.10 p to £4.00 within the per child per day category, with the mean being £1.17; £1.00 to £3.00 per child per week within this category, with the mean being £2.00; and £6.00 to £20.00 per child per term, with the mean being £13.00. If assumptions were made about the hours and days of care being offered and all of these responses re-calculated upon the basis of the amount spent per child per day, then the mean figure is slightly less than £1. In respect of the second question, the mean proportion of the total budget spent by providers on food for children is 6%. It is very difficult to assess whether or not this is a reasonable figure because it depends, again, upon many other factors. As a means of comparison, the Family Expenditure Survey for the UK shows that the proportion of total family

expenditure on food has dropped from 24% in 1978 to 16% in 2003 (TSO, 2003). These figures do, however, need to be analysed within the context that, for many children, the meal they receive within their childcare setting may well be their sole main meal of the day. This is particularly the case where the child is receiving full-day care which is, increasingly, the form of childcare that parents are both requiring and one that is being presented to them by the government as being of the most financial benefit (see DfEE, 1998; TSO, 2004). Ninety two per cent of children are accessing early years education places alone. The amount spent on food does not indicate that it is not of nutritional value as well as economic value, but rather spells out the competing forces present when providing food. Issues of cost, location and availability of food all interplay. However, the rise in the use of full-day care displays the importance of ensuring that providers are well informed on, and do provide, nutritional food.

Involving parents and children

We were also interested in finding out whether parents and children are involved in the selection and preparation of meals provided at the pre-school setting. Only 20% of providers said that parents were involved in choosing menus, whereas 22% said that children were involved in choosing menus. Of those who involved parents, 38% of them also involved children, showing that to involve parents in the selection of food did not ensure that children were also involved. Fifty-four per cent of providers involve children in making food, and 61% involve children in serving food. This does tend to suggest that providers view the provision of food for children as a standalone activity in that children do not get involved in the whole process of food consumption, from shopping to preparing and serving food, rather than its being an activity that can be made into an integral part of the foundation stage curriculum whereby children are involved in the preparing and serving of food. It shows a failing on the part of those providers not involving children in the preparing and serving of food to recognize the opportunity that such activities have to pass on any nutritional information or, indeed, information about the complexities of choosing meals. Further work with providers would be needed to determine whether those involving children pass on any knowledge or information. Failing to engage with parents could be seen as a failing to access and utilize what knowledge the parents may have of nutrition. At best, the selection, preparation and eating of food can be both a learning experience and a social occasion, but providers report that only 51% of staff eat the same food as the children, and only 61% even eat with the children. Further exploration of why this might be is needed, whilst also promoting the idea that food is not solely about nutrition and can be a social occasion as well.

Providers were also asked what they felt were the main barriers in enabling children to choose menus, and prepare and serve food. Thirty-one per cent of providers stated that the main barrier in enabling children to choose menus was that 'they would choose unhealthy options'. This could suggest a lack of knowledge on the part of children regarding nutrition, a failure of the adults around them to pass on knowledge about nutritional options, that they do not have access to healthy options at home and are therefore unfamiliar with them, or, like many people, they have difficulty declining unhealthy foods. Whilst there may be a difference in what children like to eat, and what is

healthy for them to eat, this answer does tend to suggest that providers need guidance in how both to educate children in identifying and recognizing healthy eating choices, and how to prepare food that is both healthy and liked by children. This assumption is also borne out by the fact that 17% of providers state that they have never considered enabling children to choose menus. It is also rather worrying that 10% of providers think that it is 'not appropriate' for children to be involved in choosing menus. It suggests that providers do not recognize the opportunity that selecting menus with children can have in passing on any nutritional information to children or, perhaps, that they do not see it as their role. However, if practitioners do not pass on information and knowledge, there is no guarantee that parents do either, raising implications as to how children learn about food. This also indicates the importance for practitioners and parents to work together in the provision of knowledge on food and nutrition. In terms of enabling children to prepare food, 23% of providers feel it would take too much time, and 14% feel they have insufficient staff to be able to enable such a process. This again highlights the fact that providers view the preparation of food as a standalone activity, rather than one that can easily be incorporated into part of the everyday life of the setting. Again, in respect of enabling children to serve food, 21% of providers feel that this would take up too much time, whilst 10% feel it would create too much mess.

There are problems inherent in such a survey in that providers will tend to give replies that they feel are the 'correct' answers. For example, as stated previously, although it is clear that providers do not tend to see the preparation, serving and consumption of food as part of a social and learning experience, when asked how important they rated certain factors in the provision of food, 83% rated it as very important in respect of its being 'part of the learning process', with only 2% saying it was unimportant. It shows that providers' beliefs do not always match those of their practices. Equally, 90% said it was very important as a 'social activity', although 44% also said it was either very important or important as a means of 'keeping children occupied' and 22% even said that it was very important as a means of 'improving profits'. Although 'improving profits' was a category in the questionnaire, the questionnaire did not go as far as to explore why such responses were given or how the profits were made or what they were spent on. The improving of profits is a somewhat worrying statement, as, with a focus on nutrition, it would be hoped that providers are not trying to make a profit out of children's health. Yet if the money were being invested into sports equipment would it be so easy to criticize the making of a profit? This shows the need for further work in this area. However, it does highlight the fact that food choices are not all about nutrition, as other factors interplay. Of these factors, the role of passing on knowledge is somewhat confused. Providers appreciate the learning potential of food and yet they do not appear to utilize that potential.

The food and nutrition index analysis

In order to test answers given in the survey against some other factors, both internal and external to the setting, responses given to a large number of the main questions were scored and entered into an overall index, with providers then being rated 'high' (index scores of 301–459), 'mid' (index scores of 252–300) or 'low' (index scores of 111–251)

on the index, with high being those providers who have the best practices in terms of food and nutrition.

The first test was in respect of the size of the providers as measured by their maximum available places as registered with OfSTED. The assumption here was that the larger providers might have higher scores, as they would have greater monetary resources with which to be able to provide a more coherent policy and better practices with regard to food and nutrition. In fact we did, indeed, find significant differences in this respect, with the .05 level of significance being used throughout this paper to denote differences that are statistically significant. The mean size of providers with a low index score is 31 registered places, for those with mid scores it is 33, and for those with high index scores it is 51, with the differences between the high group and both the mid and low group being significant. This does tend to bear out the hypothesis that larger providers are likely to have food and nutrition policies and practices that will have better outcomes for children. One would imagine that, as they are larger, they have more resources to manage food and nutrition, such as larger numbers of staff, larger catering facilities and budgets. All of these factors are identified as being perceived problems by early years practitioners in providing nutritional food.

Secondly, we tested the index scores against the Office of the Deputy Prime Minister (ODPM) multiple index of deprivation scores for 2004, details of which can be found in ODPM (2004). This was based upon the hypothesis that providers in more deprived areas would be less able to get access to high-quality foodstuffs and would also have fewer resources with which to be able to provide adequate food and nutrition. Set against this would be the hypothesis that deprived areas would be more likely to be the recipients of advice and programmes designed to improve the health of the population. The mean ODPM index score in respect of the low food and nutrition group (as discussed above) is 15.48, in respect of the mid food and nutrition group 16.34 and the high group 25.73. Given that the higher the ODPM index score the greater the degree of deprivation, this actually indicates that providers in more deprived areas actually do better on the food and nutrition index rating. This could be borne out of a concern, on the part of providers, that children in deprived areas do not get well-balanced nutritional food at home and, therefore, they see it as their role to provide healthy options. There is nothing to indicate that these providers get any additional funding that could directly support healthier food options. However, there are sources of funding that are larger for those in deprived areas that could be used for supporting the development of healthy eating, but further work would be needed in this area. Although none of the grouped scores are significantly different from any other, a correlation between the two non-categorized index scores is significant.

Thirdly, we tested the assumption that providers with high food and nutrition index scores would be likely to have higher prices for early years services being provided than settings with low index scores. This assumption is based upon the idea that providers with higher prices would be more able to afford the resources that could lead to better practices. In this case there seems to be no relationship between the two measures. The suggestion is that although providers saw cost as an important factor in providing food,

this should not be seen as a barrier to nutritional food. The mean hourly cost of care amongst the providers in the lowest index group is £2.81, in the mid group £2.34 and the high group £3.07.

Fourthly, we tested the hypothesis that providers with a higher staff-to-child ratio might perform better on the food index score. This was based on the idea that many providers had indicated that lack of staff contributed to the inability to undertake some of the activities necessary for efficient food and nutrition practice. In fact there was no relationship between the two measures. Therefore, although providers reported this as an issue, the data suggest that this is a perceived problem as opposed to an actual one in providing nutritional food, and providers should not be deterred by the number of staff that they have.

Fifthly, given that much research has shown that it is not so much the amount of interaction between staff and children that is important but rather the quality of that interaction (see, for example, Sylva *et al.*, 2004), we then tested the hypothesis that providers with more highly qualified staff would score more highly on the food index. Although the providers in the low group reported that their mean percentage of unqualified staff is 11.82%, with the provider in the high group reporting that it is only 4.76%, none of these results were found to be statistically significant. This links into the earlier findings of the importance of training on gaining knowledge about food and nutrition. It is argued that those less qualified will have had less formal training and therefore less opportunity to access age-appropriate knowledge. It displays how different factors interplay in the provision of nutritional food and highlights the importance of training in providing early years practitioners with information.

Lastly, we tested the hypothesis that providers with higher percentages of workers from ethnic minority backgrounds would be more likely to appreciate some of the issues around the provision of culturally specific foods, and so would score more highly on the index. Amongst providers in the low scoring group, the mean percentage of workers from ethnic minority backgrounds is 6.8%, for providers in the mid group it is only 1.14%, but for providers in the high group it is 16.4%. Whilst none of these results is significant, they do tend to suggest that providers with a greater proportion of workers from ethnic minority backgrounds do score more highly on food index score, and that this may be because they are more able to appreciate some of the issues around the provision of culturally specific foods. The food and nutrition index scores indicated that providers in deprived areas do better, whilst there was no relationship between price of early years childcare and the provision of nutritional food. However, the relationship between training and the provision of healthy food, although not statistically significant, does confirm that training can have an important role in the level of knowledge that providers have.

Conclusion

In the main, most of the original hypotheses that informed this research were supported by the questionnaire survey data.

There does tend to be a lack of knowledge about food and nutrition issues amongst early years providers, and this lack of knowledge translates into less than effective practice in the provision of food for children being cared for and educated within early years settings. The implications for this are that children are not accessing nutritional food, nor are they being provided knowledge on such issues. This lack of knowledge could, at least, be partially addressed if providers were to adopt coherent food and nutrition policies for their settings. It is also the case that the lack of knowledge amongst early years providers leads them to treat the selection, preparation and serving of food as a standalone activity outside of the early years curriculum. This suggests that there is a need for further training in order to highlight the role that food and nutrition can play in reaching effective early education outcomes. Providers also need to be made aware that the engagement of children in choosing menus, in preparing and serving food, and the actual eating experience itself can all be opportunities for learning and social interaction in the context of the holistic development of the child.

Providers do, of course, experience barriers to effective food and nutrition policy and practice. However, many of these could be resolved through training and by incorporating such issues into the everyday life of the setting. Training for providers may well have a cost implication and would need expertise on the part of the trainer regarding nutrition, but can be seen as a benefit to early years practitioners and, in turn, children. Usually, providers are able to cater for specific dietary requirements where these are of a medical nature; they are less able to cater for specific religious or cultural requirements. This tends to reflect both the low proportion of people from ethnic minority groups who work within early years settings, and the lower number of children from such groups who attend such settings. Providers, again, need training in order to be more knowledgeable and confident when catering for the needs of minority groups; this in turn will have beneficial effects upon the proportion of people from such groups who both work in and attend such settings. It is heartening to see that many providers already stress that they do receive much good advice by way of training. This does, however, point up the need for trainers themselves to be more aware of all the issues around the effective provision of food and nutrition in order that they can provide fully effective training packages.

Very few external factors have a noticeable effect upon the ability of providers to have effective food and nutrition policy and practice. The one exception is the size of the provider, with larger providers being more effective. This again, however, tends to suggest that good training may be the key to more effective practice amongst the smaller providers. Whilst there are, undoubtedly, economies of scale in larger settings, smaller settings can learn from their larger counterparts, and the sharing of good practice can only be of benefit to all.

Finally, it should be stressed that the data informing this analysis were obtained through a small-scale pilot study. Whilst we believe that the results are interesting, they need to be seen in that context. We do intend to continue with the research and hope, in time, to be able to collect and analyse data from both a much larger sample of providers as well as from parents and children.

We feel that the project is a worthwhile one, and that it will contribute to improved food and nutrition practices in early years settings which, in turn can only enhance the health and educational outcomes of the children in those settings.

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