

OCCASIONAL PAPER 11 - 'Big, strong and healthy'? Children, food and eating in the early years, and the role preschools can play

Mimi Tatlow-Golden, Open University

Introduction

Food and eating may be viewed as a domain of learning that belongs to the realm of family – intimately bound up with children's bodies, family relationships, identities and cultures. Yet preschool educators can be key figures in formal and informal pedagogies of food. In this paper, I draw on interdisciplinary research to illuminate who's responsible for children's early eating preferences: children, parents, educators or others? Are preferences innate or do they originate in the worlds around children? The picture, as it turns out, is quite complex. I then draw on my studies of children's early learning about food and food brands. Throughout, I recommend how early years educators can support children's and families' learning, health and well-being in this important area of learning – and pleasure.

Children have clear food preferences from infancy, which can be quite pronounced. Still, children remain open to learning about flavour and eating throughout the early years, and evidence shows that early years educators can be part of this process. Given current concerns about weight and long-term health, understanding early interactions with food, taste and eating is critical, as these strongly predict diet later in life.

Children's early food preferences

Infants and young children innately prefer sweet and saltier tastes and generally first dislike bitter flavours such as vegetables. They also have genetically influenced, individual sensitivities to taste, smell, colour, tactile properties such as crunch, and awareness of hunger. The very earliest taste experiences, including flavours experienced in the womb, breast or formula milk and foods on which they were weaned, also influence their taste preferences. So children whose mothers ate less varied diets in pregnancy, or who were bottle fed, often prefer fewer flavours and may need more taste exposures to learn to accept new flavours (Blissett & Fogel, 2013; Fiese & Bost, 2016; Larsen et al., 2015; Ventura & Worobey, 2013).

Children's greater autonomy in the toddler years is often expressed in food interactions – yet parents and caregivers are typically concerned about food refusals, seeking adult control (Larsen et al., 2015; Walton et al., 2017). They may even claim to know children's food likes better (Wiggins, 2014) and to determine how much they should eat (Johnson et al., 2015) – possibly reflecting concern for children's thriving. If carers encourage 'eating up' of large portions, children may eat too much, as growth slows during the preschool years, – from about one-year they lose the ability to adjust food intake guided by their hunger alone.

Picky and fussy eating, and 'neophobia'

Another developmental cause for difficult eating interactions is early years taste and smell 'neophobia' and/or picky eating, when most children reject some foods, even previously accepted ones. Peaking at approximately three-years, but often extending to eight-years or beyond, picky eating is very common: parents rate up to 74% of two-to-five-year olds as 'very choosy' (Taylor, et al., 2015) and children aged four-to-five-years disliked over one in 10 common foods (more vegetables and proteins than starches and sweet foods; Wardle & Cooke, 2008). Educators can bear in mind that children are not to blame for fussiness and neophobia, which are due to biological/developmental factors: (i) slower growth causing less eating; (ii) protective caution regarding new tastes at a time of first independent exploration; and (iii) increasing psychological autonomy. However, these behaviours can also be influenced by those around children, including their carers.

Interestingly, professionals often believe that *parents* create children's food preferences, whereas parents believe these are *innate*. In fact, research suggests that carers and children both affect children's eating behaviours. The UK Gemini twin study (Fildes et al., 2014) found that eating vegetables, fruit and protein was indeed linked to genetic effects among three-year-olds - suggesting careful strategies are needed when children do not readily take to such foods, as they have innate taste sensitivities. In contrast, eating dairy, starches, and snacks, foods most linked to less healthy eating, was linked to food environments. So it is vital that parents and carers attend to food environments to support learning about healthier eating patterns.

Furthermore, longitudinal research found that pre-schoolers' food avoidance *led to* parental pressurising – in twin studies, when one was fussier, mothers used more pressure to eat and more rewards with that child (Walton et al., 2017) – but that pressure then *creates further* child fussiness. So controlling styles of food parenting are not helpful; fussy eating needs different strategies (Jansen et al., 2017). It's likely that this applies to carers as well.

What's important to note is that carers can and do introduce children to new foods and change what they eat – though some very common practices have the opposite effect of those intended. I'll return to these shortly.

Children's learning about food

Learning to eat involves recognising and categorising food, one of the earliest domains children learn about. By one-year

old children can group items visually and can point to express desire, as well as indicate refusal. From two-years they can group food into multiple conceptual categories, e.g., 'vegetables', 'breakfast' or 'healthy' and learn about social cultural and health food expectations. So active learning about food concepts can begin early – considerably earlier than is often the case.

When we asked children aged three- to five-years which foods they should eat, with the help of a short picture book about a little mouse who wanted to grow up to be 'big, strong and healthy' like older children, an interesting pattern of findings emerged (Tatlow-Golden et al., 2013). From three-years, most children were able to identify fruit and vegetables (apples, oranges, broccoli, etc.) as items that should be eaten to grow up and be healthy. Yet their ability to identify foods that would *not* help with healthy growth such as sweets, cakes, and fast food items, was significantly lower. This may be due to parents and carers being reluctant to speak negatively about some foods, yet it suggests that teaching children about what is *not* healthy may be useful from an early age. This is likely to be challenging in the years when children also refuse some foods, so careful consideration of approaches is needed.

In addition to instruction, children learn much about food from imitating the eating of others, whether significant adults, friends or the media. From one-year, they imitate adult behaviours, and older and similar-aged peers' eating from two-to-three-years (Hendy, 2002). They also imitate eating from screen viewing (Shutts et al., 2013).

Effects of food marketing and advertising

Marketing effects on children's food preferences and eating are well-established. Not only does it have immediate effects on eating – children snack more after viewing adverts for unhealthy foods, taking in enough extra calories to gain weight over time – but marketing also creates normative beliefs in society about food and its pleasures, and ways that parents and carers can make children happy.

Pre-schoolers enjoy and engage actively with food adverts, and they acquire food knowledge from them (Tatlow-Golden et al., in preparation). In studies with images of food brand logos, we found that young children can correctly identify foods which the logos represent, when selecting from images of a range of foods. They can identify half or more at three-years and by five-years can do this with near complete accuracy (Tatlow-Golden et al., 2014). Notably, at all ages they can identify unhealthy foods at twice the rate of healthier foods. This suggests that the marketing surround in which children live – a combination of their exposure through the media, in shops and at home and other settings – teaches them about unhealthy food brands before they learn about healthier foods – or indeed before they learn their ABCs.

The impact of food marketing is also often seen in children's food requests, or 'pestering'. Children aged two-to-eight-years (Huang et al., 2016), asking for food seen on television was the greatest predictor of weight. Notably, we have found that parents and grandparents in the UK and Ireland routinely

give food treats (mostly sweet items and savoury snacks), primarily as a reward, and also because children ask for them (Shan et al., 2018), and that all carers, including preschool educators, think of food treats as something special, yet agree that they have become routinised in contemporary life compared to their own childhoods (McCafferty et al., in press). Although parents typically hold strong negative attitudes about food advertisers targeting pre-schoolers, most never talk with their child about advertising and almost all never encourage their child to switch off adverts when watching television (Tatlow-Golden et al., 2015). In digital media, parental advert restriction is harder, if not impossible to carry out – and thus more restriction of food marketing is crucial.

Food caring practices

Children's caregivers, including preschool staff, can help them to learn about food and eating, increase likes and reduce dislikes, by *modelling eating* of new and healthier foods; creating healthy *food environments*; and engaging in particular *food caring practices*.

One recent UK study of food, power and control with case studies of children and parents in 47 families (O'Connell & Brannen, 2014) identified four types of parent-child food/control relationships. With children under five-years, parents exercised control, including punishments, rewards and bribes, hiding crisps and 'sneaking' vegetables into sauces. The *extent* to which such food caring practices are responsible for less healthy eating later in life – as suggested by the above experimental studies cited – isn't known, and nor is the extent to which these food caring practices are found in preschools.

It's most important to note that many common strategies such as pressure to eat certain foods or to eat larger portions; offering 'bribes' of food or non-food items, or issuing threats if foods are not tasted or eaten; restricting children's diets; and monitoring eating, are all *counterproductive*. Indeed, many are associated with weight gain. A summary of practices that help to foster enjoyment and positive eating practices, and those that don't, is given in the inset on the next page.

Whose responsibility? The social surround and food's symbolic meanings

No consideration of children's learning about food and eating should fail to address the impact of the environment in which children grow up. Above, I've mentioned that children's immediate food environments affect their liking for sweet and starchy things. Some conclude from this that parents are primarily responsible for creating healthy food environments. Yet it is critical also to consider the marked economic deprivation in some areas of countries such as the UK, where questions of healthy eating take on a different hue.

Less healthy foods are often cheaper than fruits, vegetables and protein-based items, and are more easily available in communities where 'food deserts' are common. Creating healthier meals on low budgets requires cooking facilities and skills. Where poverty is intergenerational, gaps in family

practices can be further embedded. Recommendations that young children be exposed to foods many times in order to sensitise them to it can be very challenging, if not impossible for parents to implement when money and food are scarce. When parents cannot risk a child rejecting a meal, offering foods that are sure to be accepted is safer (Harden & Dickson, 2015), such as starches and sweeter foods.

Moralities of 'healthy choices', and the role of love

Despite innate preferences for sweet, salty, energy-dense foods, health policy typically expects children and families to simply make 'healthy choices'. Without ignoring individuals' agency, the context must be considered: simplistic attribution of blame on individual parents doesn't reflect the reality of complex systems that promote obesity from molecular genetics to marketing effects (Ralston et al., 2018). Extensive, cheaper, powerfully appealing offers of less healthy foods which children innately prefer, are made constantly in retail, media and elsewhere. Notably, these foods also represent affordable ways – sometimes the *only* affordable ways – that parents can show love and care through food (Fielding-Singh, 2017). It is necessary to recognise such child-rearing challenges and to consider what preschool settings can offer in partnership with parents who, for various reasons, face challenges with their children's eating.

What can preschools do?

Preschool educators can engage in sensitive food pedagogies and partnership with children and parents. It is important to recognise the many individual, family, environmental and socio-economic factors influence children's preferences and eating. It is also important to acknowledge that relying on preschools *alone* to address less healthy eating is unlikely to succeed. Few preschool interventions have achieved weight reductions, though some have increased fruit and vegetable eating and nutrition related knowledge. Still, some practices are effective in preschool settings and can play an important role in introducing parents to new practices and approaches.

A summary of findings from recent research is in the insert. Two further just-published examples worth exploring in preschool settings are:

- **Picture books and taste exposure:** Parents and children aged 21-24-months looked at picture books with fruit, vegetables, or no food book, for two-weeks, before all children were offered the fruit *and* vegetable daily for 14 days. In all groups, taste exposure alone increased liking of both foods up to three-months later. Notably, children who viewed vegetable books liked the vegetable and ate more after three-months, also showing lower increases in food fussiness and neophobia than controls (Owen, Kennedy, Hill & Houston-Price, 2018).
- **Sensory-based food education:** In early childhood settings (three-to-five-years) in Finland, this was associated with increased willingness to choose and eat vegetables, berries and other fruit; the association was stronger among children whose mothers had a low level of education (Kähkönen, Rönkä,, Hujo, Lyytikäinen, & Nuutinen, 2018).

Food caring practices: What helps – and what doesn't

Adults tend to focus on restrictions, pressure to eat, rewards and encouragement when they want children to learn to eat well. But children learn by what they see – *food availability and modelling of eating* are more important

- **Pressure to eat a particular food reduces liking of it.** Maternal pressure to eat fruit or vegetables at one-year predicted less eating at two-years.
- **Overt restriction of foods increases focus on them,** preference for them, and later eating (and is associated with child weight gain and overweight).
- **Food-based rewards for eating decrease preference** and enhance preference for rewards.
- **Small non-food rewards (e.g., stickers) may help with initial neophobia but** should be used with caution.

'Social facilitation' – Modelling of eating

- If children **see someone try and overtly enjoy** an unfamiliar food, they are more likely to try it. This also applies to *unhealthy* foods!
- Modelling *dislike* of specific foods can also affect children's preferences and willingness to try
- **Parents and other carers are strong models** particularly in the earlier years;
- Adults may exert a stronger influence on young children; **peers** may influence older children more

Availability, accessibility, preparation and serving

- Freely accessible fruits and vegetables may have long-term positive effects on eating (though indicated by few studies);
- Preparation and serving style influence children's intake and liking.

Carers can encourage healthy eating by

- never using unhealthy foods as rewards or for emotional regulation;
- providing larger portions of healthy foods *and* smaller portions with less variety of unhealthy foods;
- providing clear and healthy rules about when and what can be eaten;
- avoiding consumption of 'junk food', but not doing so overtly;
- actively modelling eating of healthy food, eating healthy food themselves and showing enjoyment when doing so;
- facilitating children's repeated exposure to new flavours – up to 15 may be required.

(Blissett & Fogel, 2013; DeCosta et al., 2017; Fiese & Bost, 2016; Fildes et al., 2014; Larsen et al., 2015)

Recommendations

1. Understand food preferences and development

Eating involves strong personal preferences that are innate, and learning from the food environments and people around us. Most children can and do learn to like most foods in these early years or later, and carers should expect that they will. The following behaviours are to be expected from young children: pronounced food preferences and dislikes; taste and texture sensitivities; reduced appetite once growth slows; periods of rejecting foods; and asserting autonomy about eating. These do not necessarily reflect on children or parents, though all carers can avoid escalations through careful food practices and by agreeing how food is provided in the home and education environments.

2. Offer, share, enjoy healthier foods

Some food caring practices are counterproductive and can themselves cause fussy eating. Working in partnership with parents to care for children differently involves applying the knowledge that children best learn to eat new foods:

- when these are easily and frequently available;
- when adults show children they eat these foods and enjoy them (modelling);
- when adults offer many opportunities to encounter such foods in their environments and in books; and
- when adults offer many opportunities to taste them (up to 15 times) in a non-stressful setting.

3. Contribute to children's healthy environments

To normalise healthier eating, a 'wraparound' approach is required, ensuring widespread availability, opportunities to taste, and affordability of healthier foods. The extensive promotion of unhealthy foods in our environments must be addressed. It's also crucial that any public health education addresses the role of the wider environment in food and eating practices, and that it also understands the role that food plays in love and caring. Much of what needs changing requires local, city and national government intervention.

But preschools can support children and their families to grow not-too-big, very strong, and definitely healthy, by engaging in the evidence-based strategies outlined above, so parents can then try these strategies too:

- modelling eating and enjoyment;
- ensuring availability of healthier foods;
- educating children about foods; and
- offering young children many opportunities to taste.

References

Blissett, J., & Fogel, A. (2013). Intrinsic and extrinsic influences on children's acceptance of new foods. *Physiology and Behavior*, 121, 89–95.

DeCosta, P., Møller, P., Frøst, M. B., & Olsen, A. (2017). Changing children's eating behaviour - A review of experimental research. *Appetite*, 113, 327–357.

Fielding-Singh, P. (2017). A Taste of Inequality: Food's Symbolic Value across the Socioeconomic Spectrum. *Sociological Science* 4, 424–448.

Fiese, B. H., & Bost, K. K. (2016). Family Ecologies and Child Risk for Obesity: Focus on Regulatory Processes. *Family Relations*, 65(1), 94–107.

Fildes, A., van Jaarsveld, C. H. M., Llewellyn, C. H., Fisher, a, Cooke, L., & Wardle, J. (2014). Nature and nurture in children's food preferences.

American Journal of Clinical Nutrition, (1), 1 of 7.

Harden, J. & Dickson, A. (2015) Low-income mothers' food practices with young children: A qualitative longitudinal study. *Health Education Journal*, 74(4): 381–91.

Hendy, H. M., & Raudenbush, B. (2000). Effectiveness of teacher modeling to encourage food acceptance in preschool children. *Appetite*, 34(1), 61–76.

Huang, C. Y., Reisch, L. A., Gwozdz, W., Molnár, D., Konstabel, K., Michels, N., ... Lissner, L. (2016). Pester power and its consequences: Do European children's food purchasing requests relate to diet and weight outcomes? *Public Health Nutrition*, 19(13), 2393–2403.

Jansen, P. W., de Barse, L. M., Jaddoe, V. W. V., Verhulst, F. C., Franco, O. H., & Tiemeier, H. (2017). Bi-directional associations between child fussy eating and parents' pressure to eat: Who influences whom? *Physiology and Behavior*, 176, 101–106.

Johnson, S. L., Goodell, L. S., Williams, K., Power, T. G., & Hughes, S. O. (2015). Getting my child to eat the right amount. Mothers' considerations when deciding how much food to offer their child at a meal. *Appetite*, 88, 24–32.

Kähkönen, K., Rönkä, A., Hujo, M., Lyytikäinen, A., & Nuutinen, O. (2018). Sensory-based food education in early childhood education and care, willingness to choose and eat fruit and vegetables, and the moderating role of maternal education and food neophobia. *Public Health Nutrition*, 21(13), 2443–2453.

Larsen, J. K., Hermans, R. C. J., Sleddens, E. F. C., Engels, R. C. M. E., Fisher, J. O., & Kremers, S. S. P. J. (2015). How parental dietary behavior and food parenting practices affect children's dietary behavior. Interacting sources of influence? *Appetite*, 89, 246–257.

McCafferty, C., Shan, L.C., Mooney, R., O'Rourke, C., Pourshahidi, K., Livingstone, B., Kearney, J., Corish, C., Tatlow-Golden, M., & Murrin, C. How do adults define the treats they give to children? A thematic analysis. (in press, *Appetite*)

O'Connell, R. & Brannen, J. (2014). Children's food, power and control: Negotiations in families with younger children in England, *Childhood*, 21(1), 87–102.

Owen, L.H., Kennedy, O. B., Hill, C. & Houston-Price, C. (2018). Peas, please! Food familiarization through picture books helps parents introduce vegetables into preschoolers' diets. *Appetite*, 128, pp. 32–43

Ralston, H., Brinsden, et al. (2018). Time for a new obesity narrative. *Lancet*, available online [https://doi.org/10.1016/S0140-6736\(18\)32537-6](https://doi.org/10.1016/S0140-6736(18)32537-6)

Shutts, K., Kinzler, K. D., & DeJesus, J. M. (2013). Understanding infants' and children's social learning about foods: previous research and new prospects. *Developmental Psychology*, 49(3), 419–425.

Tatlow-Golden M. (2018). Food in children's lives. In H. Montgomery. and M. Robb, (eds) *Children and Young People's Worlds*, Bristol, Policy Press, pp. 233–248

Tatlow-Golden, M., Hennessy, E., Dean, M., & Hollywood, L. (2013). "Big, strong and healthy". Young children's identification of food and drink that contribute to healthy growth. *Appetite*, 71, 163–170.

Tatlow-Golden, M., Hennessy, E., Dean, M., & Hollywood, L. (2014). Young children's food brand knowledge. Early development and associations with television viewing and parent's diet. *Appetite*, 80, 197–203.

Tatlow-Golden, M., Hennessy, E., Hollywood, L., & Dean, M. (2015). Food Marketing to Young Children on the Island of Ireland: Parents' Views, Attitudes and Practices, and Implications for Early Years Policy. *Children's Research Digest of the Children's Research Network for Ireland and Northern Ireland*, 2(2), 15–22.

Taylor, C. M., Wernimont, S. M., Northstone, K., & Emmett, P. M. (2015). Picky/fussy eating in children: Review of definitions, assessment, prevalence and dietary intakes. *Appetite*, 95, 349–359.

Ventura, A. K., & Worobey, J. (2013). Early influences on the development of food preferences. *Current Biology*, 23(9), R401–R408.

Walton, K., Kuczynski, L., Haycraft, E., Breen, A., & Haines, J. (2017). Time to re-think picky eating?: A relational approach to understanding picky eating. *International Journal of Behavioral Nutrition and Physical Activity*, 14(1), 1–8

Wardle, J., & Cooke, L. (2008). Genetic and environmental determinants of children's food preferences. *British Journal of Nutrition*, 29(SUPP.1), 15–21.

Werthmann, J., Jansen, A., Havermans, R., Nederkoorn, C., Kremers, S., & Roefs, A. (2015). Bits and pieces. Food texture influences food acceptance in young children. *Appetite*, 84, 181–187.

Wiggins, S. (2014). Adult and child use of love, like, don't like and hate during family mealtimes. Subjective category assessments as food preference talk. *Appetite*, 80, 7–15.