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A critical review essay
Leer, Jonatan; Wistoft, Karen

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Taste in Education: A Critical Review Essay

Jonatan Leer, Head of Food and Tourism Research, University College Absalon.

Karen Wistoft, Professor, Danish School of Education (DPU), Aarhus University

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Contact:

Jonatan Leer jlee@pha.dk or leerjonatan@gmail.com
Abstract
In this article, we focus on how taste is used in contemporary food education. By critically discussing a series of academic studies that design and evaluate taste education programs for children, we argue that most of the literature on taste education demonstrates a reductive understanding of taste and is essentially mistrustful of children’s taste rather than developing children’s ability to make critical food choices. Taste is seen as a barrier to the adoption of “correct” eating habits and is not recognized as an important sense, a source of pleasure, or a central way of sensually understanding and approaching the world. In other words, taste education becomes a tool to push children toward “hegemonic nutrition.”

Keywords
Taste education; hegemonic nutrition; food education; taste barriers; learning goals.
Food education in the Western world—especially for children—is focused almost exclusively on rigid health norms and simplified understandings of nutrition. Critics have described this approach as “hegemonic nutrition” (Hayes-Conroy and Hayes-Conroy 2013), and one of its consequences is that little or no space is left for children to reflect upon their eating experiences or to engage in the sensual pleasures of food (Rich and Evans, 2015). In recent decades, however, a different approach has come to the fore and has garnered increasing interest: taste education. This approach engages with the sensuality of eating and represents an innovative way of framing food education for children. Taste education takes the corporeal and individual experience of food seriously. It uses children's sensual engagement with their food as a tool to facilitate food education for children, as well as opening up a greater space for the agency of the children themselves in food education.

In this article, we present the results of a critical literature review we conducted in order to investigate how taste is used in contemporary food education. This critical literature review was originally presented in the form of a short report in Danish (Leer and Wistoft 2015), which examined various studies from a perspective rooted in a Nordic tradition of critical health education studies (Jensen 1995, Jensen et al. 2000, Wistoft 2009). In this perspective, learning is understood as an expansion of consciousness, and emphasis is placed on the importance of critical awareness and student agency, including the development of decision and action competence. In a Nordic context, action competence is defined as an educational ideal based on democratic learning processes. Such a perspective seeks to stimulate students to develop critical awareness, engage in reflection, and make individual critical decisions on the basis of educational activities (Schnack 2000).

Another central element in the Nordic school of critical health education is that the concept of health is understood not just as the absence of illness, but also as the promotion of quality of life. This means that discourses on health are not solely defined by the idea of risks and dangers, but that they also encompass ideas about how to make life better in ways that are meaningful in general. In relation to this ideal, it is important that quality of life is seen not as an objective category, but as an individual experience shaped by personal values and social contexts. When applied to food and taste education for children, this perspective on health calls for an increased focus on taste as an
expression of children's individual and social values. Thus taste also becomes a question not only of what food and eating practices children like and value, but also what they need to know, and change, in order to eat in ways that fit, that means are in accordance with their values. Value clarification is therefore a necessary educational tool. In our definition, value clarification involves dialogue between students and teachers about individual and social value (Wistoft, 2009); and with regard to food and taste education, value clarification involves dialogue with children about different taste preferences and food norms. The Nordic school of health education is therefore critical of top-down teaching based on universal and non-negotiable understandings of health, food, and life quality. Rather, it is founded on ideas of dialogue, the stimulation of individual agency, and critical awareness.

In our examination of the literature on taste education, we adopted this critical health perspective with the assumption that taste education potentially offers a more experimental, more sensual, and more engaging form of food education that could be seen as an alternative to the dominant hegemonic nutrition education ideology—and one that could be open to the principles of the Nordic critical health education paradigm. So we analyzed the literature focusing on the following questions: (1) What concepts of taste are provided in the studies? (2) What are the learning goals and learning approaches related to taste in food and taste education initiatives? (3) What pedagogical value clarification is provided? And (4) how are children's agency and critical decision-making competence weighed?

The main finding of our critical review is that, contrary to what one might expect, the literature on the existing programs and evaluations of taste education demonstrates a reductive understanding of taste. The studies are essentially mistrustful of children's taste. Taste is seen as a barrier to learning “correct” eating habits, rather than recognized as an important sense, a source of pleasure, a central instrument of sensually understanding and approaching the world. Taste education, in other words, becomes a tool to push children toward predefined, rigid eating behaviors. Through its critical examination of studies on taste education, this article contributes to an ongoing discussion of contemporary food education and adds to a growing corpus of Foucault-inspired studies that challenge the pedagogies, the normativity, and the power relations in food and nutrition education in Western cultures (Hayes-Conroy and Conroy 2013,
More specifically, the article’s contribution to food studies lies in emphasizing that taste education is a domain that calls for exploration in its own right from a critical food pedagogical perspective. Furthermore, the article offers ways of thinking and doing taste education differently.

By introducing the Nordic critical health education perspective into scientific discussions of taste and food education, this article is not only echoing Hayes-Conroy and Hayes-Conroy 2013, Rich and Evans 2015, Coveney et al., but it seeks to attach even greater importance to and emphasis to the students’ perspective and agency in taste education—and, by highlighting concepts such as value clarification and critical decision-making, in food education in general. This perspective also allows us to describe a series of alternative taste education initiatives based on these pedagogical values. This does not mean, however, that we believe that all taste and food education in the Nordic region follows these democratic principles, while food education in the rest of the world does not. In the Nordic region, we have a lot of debate about children’s agency, and there are many examples of contradictory visions of food education in the Nordic region (Andersen). Such struggles over the purpose and ideals of taste and food education are found all over the world. While the hegemonic nutrition perspective still appears to be dominant, it is increasingly being challenged, and we believe that the Nordic critical health education tradition offers new tools with which to challenge it even more—globally, anywhere in the world, in all locations.

**Taste education: history, agendas, and prevalence**

In recent decades, one particular French initiative has received a great deal of international attention and has profoundly influenced teaching and research on taste, children and education: “Les Classes du Goût.” This educational program was launched by the French chemist, philosopher of taste, and oenologist Jacques Puisais, who in 1974 began teaching taste courses in and around the central French city of Tours. In the decade that followed he developed taste lessons for children, and these were subsequently introduced in schools across France in a project spread over a school year and consisting of ten lessons with differing themes. The project was terminated in 1998 when the national body responsible for the taste classes, the Conseil National des Arts Culinaires, was closed down, in part because of a looming financial scandal. But before the closure of
the project, no fewer than 100,000 children had attended Puisais’ initiative about taste lessons. In 1999, his work was resumed by the newly founded L’Institut du Goût with a view to continuing and developing the principles behind Puisais’ taste classes. Since the 1990s, a number of other countries have developed an interest in Puisais’s pedagogy of taste, making efforts to integrate these methods into their own teaching systems. The new partners have formed a collaborative organization called the Sapere Network, which includes a number of European countries.1

Puisais’s initiative was driven by deep concern about children’s food habits in modern French society. Puisais viewed modernization and globalization as a threat to French culinary and national identity; the arrival and popularity of American products (such as fast food and ketchup) on the French market was considered a particular threat to French taste. Puisais saw children as a particularly vulnerable group, who needed guidance if they were to avoid becoming “taste illiterate”: “We must give our boys and girls reference points which allow them to make comparisons. Children who have never tasted a proper, fragrant tomato sauce with fresh tomatoes will always stick with ketchup” (Puisais and Pierre 1987).2 Taste education was presented as a way of making French children “worthy heirs” of the French culinary heritage (Garnier 2001, 503). There was a very explicit political agenda in Puisais’s Classes du Goût; in fact, they could be seen as a gastronationalist enterprise (DeSoucey 2010), since specific taste ideals were used to promote and protect the myth of a shared collective national identity. This national identity is created through a system of classification and distinction of taste (Bourdieu 1979), in which certain tastes are included in and others excluded from the national myth. Taste education marks and upholds national borders and taste identity in times of globalization and its many threats—such as fast food and ketchup.

The example of Classes du Goût also illustrates that taste education is never neutral or “innocent.” Rather, taste education—like all types of food education and indeed education in general—is closely related to normative agendas and ideological projects. These agendas may vary, however. For example, L’Institut du Goût has already revised the taste pedagogy launched by Puisais. In an undated text by the head of the institute, Patrick MacLeod, and the pedagogical supervisor Nathalie Politzer, a renewed pedagogical vision

2 Our translation.
for the project is proposed, which privileges the personal experience of taste. Rather than taking the objective, scientific categories of taste as a point of departure, it values room for children to discuss and understand how taste experiences differ from one individual to another. Hence, the focus of taste education is no longer the preserved national taste and identity, but the individual experience of taste. At the same time, taste education becomes a vehicle for lessons of tolerance, as children learn to respect and tolerate other children’s experiences, which may differ from their own (MacLeod and Politzer 2015). This ambition is very much in line with the Nordic tradition of critical health education.

A Critical Health Education Perspective on Taste Education

This article is informed by a Nordic health education tradition, most notably by the work of Karen Wistoft (Wistoft 2009, Wistoft 2013). This perspective understands health not as an objective or universal category, but as contextualized and dependent on individual experience. It follows that taste education, as well as health education, should be guided by value clarification and dialogue with students. Many food education programs fail to recognize the individual, social, or cultural values of food perception and taste. To conduct critical taste education programs, taste educators must exercise their competences to make sure that children become involved in the process of defining what tasty food is. Educators and individuals bring different values, traditions, knowledge, and ideologies into their food and taste educational practice. The professional challenge is to acquire the competences needed to clarify and integrate a range of differing values from different settings, cultural traditions and taste preferences (Wistoft, 2009).

If we understand taste education for children in this critical health perspective—as we do in the research project “Smag for Livet” (Taste for Life), of which this article forms part—then views on taste and taste education cannot be understood as universal truths, nor can the objective be to force taste ideals on children with the intention of adjusting their taste accordingly. Rather, the pedagogical task of taste education should be to engage students in reflective work in which they can be made aware of their own individual sense of taste and of how this can be used as a tool for navigating the world (Leer & Wistoft 2015). The student’s individual experience should also be taken seriously,

3 www.smagforlivet.dk
and teaching the classes in the program taste education should facilitate development of awareness, competence, and reflection in relation to taste. This perspective shares many features with that presented by MacLeod and Politzer 2015, but it differs from the original one defined by Puisais, which contained a clear and non-negotiable understanding of good and bad taste and left little room for individual agency—because, roughly speaking, the goal of the project was to make children like traditional French food and eating habits, and comprehend its superiority to foreign—particularly American—cuisine.

In adopting the critical health education perspective on taste education, our article can be understood as part of a larger critique within food studies that questions the long-standing perception of food and nutrition education based on objective truths and control-oriented strategies. This critique has been popularized among other by the term nutritionism (Pollan 2008, Scrinis 2013). For Scrinis, the nutritional gaze—which is the hegemonic perspective of nutritionism—is “a way of seeing and encountering food primarily as a collection of nutrients, and in terms of a set of standardized nutritional concepts and categories, such that it overpowers other ways of seeing and encountering food” (Scrinis 2013, 13–14). A similar perspective but one more closely related to education is offered in the anthology Doing Nutrition Differently (Hayes-Conroy and Hayes-Conroy 2013), which offers a series of ways to rethink nutrition beyond and against what is referred to as hegemonic nutrition, which is defined as a dominant educational ideology that understands food in standardized, reductionist, decontextualized, and hierarchical ways (Hayes-Conroy and Hayes-Conroy 2013, pp. 1–4). From a hegemonic nutritional perspective, there is only one truth about food, nutrition and health, and because nutrition “begins and ends with nutritional guidelines,” this truth is universally applicable (Hayes-Conroy and Hayes-Conroy 2013, 1). Hayes-Conroy and Hayes-Conroy propose understanding nutritional sciences as an “important, yet partial knowledge/practice and one that needs to be deeper in dialogue with other, diverse food and health knowledges/practices” (Hayes-Conroy and Hayes-Conroy 2013, 4). The pedagogical perspective and mode of interactions—essentially “listen to the nutritionist and do what s/he says”—are particularly challenged.

Much of this critique of nutrition discourse and education is concerned with the use of scientific discourse to discipline and control bodies and identities; this is often done by
reworking the ideas and concepts of the French philosopher Michel Foucault, notably his work on governmentality and disciplining (Foucault 1995). A central point is often that food education is closely related to scientific regimes of truth, to which the student must adhere. In this respect, food education serves as an instrument of power through which subjects and behavior can be controlled by official channels (Coveney, Begley et al. 2012).

This article contributes to the critical debate about nutrition and food education by offering a critical health education analysis of how taste education has been conducted and evaluated in contemporary food education. Our analysis incorporates many of the concerns and critiques raised concerning critical food education (Hayes-Conroy and Hayes-Conroy, 2015, Flowers and Swann 2015, Coveney et al. 2012) and nutritionism (Scrinis, 2013, Pollan 2008). However, the present article’s contribution to food studies lies in highlighting how hegemonic nutrition discourse also dominates the way taste is understood in food education.

Method
The article is based on a literature review conducted in the autumn of 2014 (Leer and Wistoft 2015).

Under the guidance of librarians from the Danish State Library, we searched the relevant databases Francis, ProQuest and Google Scholar with the following phrase:

Taste AND Food AND Learning OR Education AND Children
OR Students

Furthermore, we screened bibliographies of relevant literature and asked peers for relevant studies. The Google Scholar search resulted in approximately 453,000 hits, of which nine were included in our study (we stopped the search after one thousand hits as there had been nothing of relevance after the first two hundred hits). The Francis search was conducted in French and English, but resulted in no hits. The ProQuest search resulted in 322 hits, of which all were examined and four were included in our study. Two studies were brought to our attention by colleagues. These studies did not come up in the search because they were published after the search date and as a result of the use of keywords.
Criteria of inclusion were that the study should:

1. Be peer-reviewed
2. Be published in the last 10 years (between 2004 and 2014)
3. Focus explicitly on education and taste
4. Involve children

The search and selection process created the following list of studies to be included in our synthesis:

See FIGURE 1

Most of the above studies revolve around and evaluate taste education programs inspired by Puisais. There are studies that cover how Puisais's project has been adapted and reworked in a number of countries: France (Reverdy, Chesnel et al. 2008), Sweden (Jönsson, Ekström et al. 2005), Finland (Mustonen, Rantanen et al. 2009, Mustonen and Tuorila 2010, Mustonen, Oerlemans et al. 2012), the Netherlands (Battjes-Fries, Haveman-Nies et al. 2014), and South Korea (Shon, Park et al. 2012, Kim and Chung 2014). However, there are also two British studies that do not refer to Puisais’s work (Benton 2004, McKinley, Lowis et al. 2005), and there is a series of American studies that do not mention Puisais’s work but refer to the American tradition of school gardening (Libman 2007, Heim, Stang et al. 2009, Parmer, Salisbury-Glennon et al. 2009). Finally, one study is a review of evidence (Dovey, Staples et al. 2007).

All the studies are driven by a positivist research framework. The majority of the studies operate with quantitative methods (intervention and questionnaire interventions) and all use objective understandings of taste and children. Both taste and children are understood as universal categories that can be examined objectively by the scientist, who also can pronounce generalizable conclusions on the basis of his findings. Exceptions to this modus operandi are the review article and Libman 2007, Parmer 2009, Jönsson, Ekström et al. 2005 and McKinley, Lowis et al. 2005, which use more qualitative methods (interviews, observation, group interviews). As we shall see, however, the studies are still dominated by a positivist mindset.

In our analysis of the data, we examined the studies through the lens of critical health education (as described above). We were interested in extracting data from the literature
about (1) the understanding of taste in the studies and interventions, (2) the learning goals and learning potentials associated with taste education in the studies, and 3) the role of children as students of taste education. More specifically, our readings were guided by the following questions:

- How was children's taste problematized or seen as a resource?
- What pedagogical approaches are associated with taste education in the literature?
- Which forms of knowledge and competencies are related to taste education in the literature?

Our reading and coding of the corpus was guided by these three questions. During the analytical process, five themes emerged which were to be detected across the material: (1) Modernity as cause of bad food practices, (2) The neophobia crisis, (3) Taste as a barrier, (4) Controlling children's taste, and (5) Hands-on activities and school gardens. Theme 1 deals with the explication of the need for taste education interventions. Theme 2 involves a recurrent issue, namely that of neophobia — an irrational dislike of anything new or unfamiliar. Theme 3 describes the most common understanding of taste and the pedagogy behind it. Theme 4 describes the goal of taste education as it is described in the majority of the studies. Theme 5 examines how taste is used in school gardening literature. Themes 1, 2, and 3 emerged from the first question, theme 4 from the second question, and theme 5 from the third question.

**Analysis**

*Modernity as cause of bad food practices*

All the studies are critical of children's eating practices in general across the different countries, particularly in relation to children's unvaried diet and insufficient intake of fruit and vegetables. In this regard all the studies appear to be skeptical not only of modern foodways, but of modern life in general. Five studies directly relate the apparent nutrition concerns to broader societal criticism, and argue explicitly that modern culture and lifestyles have led to the degeneration of food culture (Shon et al. 2012; Kim et Chung 2014; Mustonen et al. 2008, Mustonen and Tuotila 2009; Jönsson et al. 2005). However, the specific points of criticism toward modern culture differ in the studies. The industrialization of food is presented as a particularly problematic phenomenon that
normalizes “artificial” and standardized tastes such as McDonald’s (Jönsson et al 2005; Kim and Chung 2014). Two Korean studies (Shon et al. 2012; Kim and Chung 2014) also criticize the globalization of food consumption, echoing Puisais’s critique of the Americanization of the food culture, but in a Korean context. These two studies understand globalization as an exclusively negative development in which people have lost touch with an “authentic” food tradition; traditional food is seemingly always described as being much healthier than contemporary food.

Four studies also blame bad eating habits on modern family life (Shon et al. 2012; Kim and Chung 2014; Mustonen et al. 2008; Mustonen and Tuotila 2009). A Finnish study underlines the modern busy lifestyle as a cause of an undesirable food culture:

The current lifestyle in industrialized countries acts as a main barrier to providing regular and balanced meals at home. Parents are busy and the need for convenience drives them to easy options like fast food or snacks (Mustonen et al. 2009, 353).

A study from South Korea argues that changes in gender roles are a significant reason for the decline in food culture; since modern women work and no longer devote all their time to household duties and cooking from scratch, they feed their children industrialized food products and several kinds of “convenience food” (Shon et al. 2012, 466).

These diagnoses of bad food culture are used to justify the interventions proposed by the studies; they give the impression that the current food culture is extremely problematic and that firm action needs to be taken to change children’s taste and encourage them to eat in accordance with official guidelines. However, it is striking that these parts of the studies often lack documentation. To a large extent, they recycle commonsense considerations and undocumented claims that everything was much better in the “good old days” when the housewife had a freshly prepared meal dominated by seasonal vegetables from the garden ready when the children and the father came home. As argued by Andersen and Larsen 2015), there are good reasons to question such myths, especially when they are based on assumptions rather than facts. These myths, however, are not only used to present a somewhat simplified story of the development of food culture; they are also used strategically as a political tool (Andersen and Larsen 2015p. 287) to justify
the claim that extreme measures should be taken to change food culture. The implication is that in the case of taste education for children, it is not enough to educate children about taste; their taste also has to be controlled (as we will see later in this article).

**The neophobia crisis**

As part of the inquietudes concerning contemporary food culture, five studies address the phenomenon of children’s fear of tasting new food items (Reverdy et al. 2008, Chesnel et al. 2008, Mustonen et al. 2009, Battjes-Fries, Haveman-Nies et al. 2014). This phenomenon is also called neophobia (Dovey, Staples et al. 2007). The exact cause and definition of the phenomenon is debatable, but a central question in the literature is: Is neophobia a physiological phenomenon or the result of cultural influence? Although there is no consensus in the research field, most researchers agree that the answer is a combination of the two. However, a number of studies highlight that children around the age of two are most likely to be apprehensive about new taste sensations and strange foods. This apprehension is typically explained as a consequence of “healthy” skepticism, caused by the children becoming mobile and thus able to eat food independently rather than being fed by their parents (Dovey, Staples et al. 2007, 183).

The studies highlight the health-related problems that follow from an unvaried diet, and they present neophobia as a diagnosis. Interventions aim to investigate whether taste education can be used as a cure. Consequently, even though several studies emphasize that taste is developed in the interplay between sociology and physiology, they still rely on the assumption that neophobia *can be unlearned* so as to make room for taste neophilia. A common argument is that repeated exposure to new foods over time will result in children's acceptance of taste. A so-called neophobia scale has been developed to measure degrees of neophobia (Pliner and Hobden 1992).

Overall, the studies confirm that taste education has modified neophobia to some extent. However, in many cases the effect is smaller than expected, and it appears to diminish over time (Reverdy, Chesnel et al. 2008, Mustonen, Rantanen et al. 2009, Battjes-Fries, Haveman-Nies et al. 2014). Therefore, the studies recommend more extensive taste education in order to further reduce neophobia.

**Taste as a barrier**

It was important in our readings to identify how the studies understand taste, since these
understandings form the points of departure for taste education interventions in schools. In all the studies, taste is presented as something negative—as a barrier to a proper, healthy diet. The general assumption is that children’s diet lacks variety and more particularly that it does not contain enough fruit and vegetables. At the same time, all the studies appear to consider taste as something plastic that can potentially be changed, corrected, or “fixed,” so that children eat more of what is good for them.

Reverdy et al. (2008) reflect on why the effect of a specific taste education intervention was not more significant: “Was it a matter of true loss of neophobia or rather a temporary phase of neophilia under the influence of a conscious effort to conform to the behavioral norms imposed by the education program? Did ‘reasoned’ and conscious choice temporarily overrule intuitive decision-making...?” (Reverdy, Chesnel et al. 2008, 161). Here we see a distinction drawn between reason and intuition in relation to taste. Intuition—in other words, the “corrupting” intuition that has ruined modern food culture and, particularly through exposure to sugar, has lost contact with the body’s natural needs—is associated with wrong taste, because it promotes unhealthy food consumption (Andersen 2015). This is seen in contrast to reason, which can be changed during the teaching course so as to put the “corrupted” intuition back on track. Unfortunately, according to the study, reason is inferior to intuition; therefore, taste only changes as long as the teaching addresses the taste of reason. Based on this, Reverdy et al., like most other studies, conclude that an effort should be made to teach taste more intensively from an earlier age, following the assumption that this will encourage “reasonable” taste to prevent the undesirable and sugar-craving intuitive taste. This is relevant both to the studies of neophobia and those in which taste education aims to make children eat more fruit and vegetables. In these examples, children are meant to internalize “reasonable” taste so that they intuitively make the reasonable choice, meaning that they increase their intake of fruit and vegetables. This intention is perhaps most explicitly expressed in Dovey et al. (2007), who call for “a multi-faceted approach to get children independently to choose and include fruits and vegetables in their diets” (Dovey, Staples et al. 2007, 190).

Controlling children’s taste
From the examples presented above, it becomes clear that, in all of the studies, the purpose of taste education is behavioral modification and the adjustment of children’s
taste. The sole exception here is Jönsson et al., where it is highlighted that the Swedish version of the Sapere taste program can also be used to stimulate verbalization and reflection in relation to food. In the rest of the studies, behavioral change is the main objective. This ambition of controlling children’s taste appears, however, in different forms and is justified by slightly different motivations.

One of the most extreme examples of a taste control strategy appears in the review “Should Healthy Eating Programmes Incorporate Interaction with Foods in Different Sensory Modalities?” (Dazeley, Houston-Price et al. 2012), where several sense-based and experimental teaching forms are criticized. The criticism mainly concerns the absence of a proven long-term effect on children’s healthy eating, or the fact that the studies’ results are not properly verified with control groups. The authors suggest a different approach:

School-age populations are perhaps better served, at present, by classroom interventions that are not primarily based on sensory interaction with foods, such as the Food Dudes programme, developed for children aged 4–11 years by psychologists at the University of Bangor. This intervention draws on the psychological principles of modeling and rewarding healthy eating behaviors as well as repeated taste exposure to target foods. Every day for 16 days, children are presented with a portion of fruit or vegetable, which they are required to taste in exchange of a Food Dudes sticker with the added incentive of a small prize (such as a pencil case) if they eat the whole portion. The exposure regimen is supported by a daily Food Dudes video, in which four cartoon super heroes gain special powers by eating fruit and vegetables in order to do battle with General Junk and his junk Punks (Dazeley, Houston-Price et al. 2012, 774–775).

This approach—using rewards and showing cartoons of superheroes eating fruit and vegetables while fighting junk food—is underpinned by a study proving that this method did indeed have a long-term effect on children’s eating habits; in other words, that the children ate more fruit and vegetables and less junk food both during and after the course. The “Food Dudes” method and other similar methods thus highlight behavioral change as the educational “goal.” Behavioral change means modeling children’s taste and adapting their sense to predefined taste ideals. This approach is echoed in the rest of the studies, maybe in less radical versions, but the ambition of modeling children’s taste so that it
follows the “official” ideals is constant.

*Hands-on activities and school gardens*

At first glance, the school garden studies (Parmer et al. 2009, Libman 2007, Heim et al. 2009) provide more leeway for taste experiences than the “Food Dudes” approach or similar approaches, particularly because teaching took place outside the classroom in garden areas – because of the spatial detachment from traditional classroom teaching and the emphasis on varied and physical activity. Nevertheless, the purpose of taste education in these studies is just as fixed and normative as in the others. Also, taste is still understood as something that needs to be “fixed” in a very specific way: “Gardening has been demonstrated to increase children’s nutrition knowledge and preference regarding fruit and vegetable consumption and to change behaviors regarding vegetable consumption” (Parmer, Salisbury-Glennon et al. 2009, 216). Again, the focus is on knowledge about nutrition (at the expense of topics such as the sensual pleasures of food or knowledge about the biology of food) and how the students’ intake of fruit and vegetables can be increased. In this sense, taste is conceived as *nothing but a preference for fruit and vegetables*.

This focus is also found in other school garden studies. Libman (2007) writes about developing agency in relation to food choices, but only when it comes to making the right, healthy food choices and avoiding fast food (Libman 2007, 9). As previously discussed, in these studies taste is also perceived as a barrier to good health, or as something which, through adjustment, can motivate a healthy diet. Developing competence and agency in relation to taste is equated with unlearning unhealthy habits and choosing healthy food. Action and competence are reduced to acceptance of, and compliance with, the predefined norms. In this sense, the purpose of education is seen as making the body accept the hegemonic ideals. Therefore, it is important to note that “hands-on” activities (which are a central part of school gardens) do *not* equal participant involvement, and that teaching which includes the body does not by definition give the students agency or room for critical reflection. At no time are the children given the possibility to draw their own conclusions from their own experiences, which may lead to informed food choices based on individual reflection. The school garden education can be just as rigid and narrow-minded as any other form of taste/food education: it depends entirely on the framework and the ideology of the garden education institution.
Discussion

In this section of the article, we discuss the taste education programs and studies surveyed above from a critical health perspective. We will distinguish between control and pedagogy, before using Foucault’s idea of “the docile body” to clarify this distinction and to argue that contemporary taste education focuses solely on control. We will ultimately call for a new form of taste education that focuses on learning. The ambition is to combine a value-reflected and learning-oriented approach to taste with a form of education that emphasizes critical decision-making. Such an approach transforms the focus of taste education to that of stimulating the children’s agency in relation to food and linking their taste experiences to critical reflection on food and eating practices.

Control vs pedagogy

From our pedagogical standpoint, rooted in the Nordic critical health approach, it is pertinent to ask whether the studies analyzed in this article actually deal with pedagogical activities or if they are driven by ambitions to control children’s behavior. Control and pedagogy are not the same thing, but many of the studies seem to disregard the difference. For example, the ambition to make children voluntarily or independently eat more fruit and vegetables (as presented in Dovey et al. 2007) merely expresses a desire for individuals to subject themselves to predefined health ideals and universal truths. If learning is perceived (as in the Nordic critical health tradition) as stimulating students’ critical reflections on the world and their position in it, and if it aspires to facilitate agency and the development of action competence, then this is not learning. The reflective ideal is based on the tradition of Bildung [personal and cultural development] or self-development. In this tradition, learning is characterized as an expansion of consciousness through gaining not only new insight and knowledge experiences, but also the capacity to reflect critically on these and relate them to one’s situation (Schnack, 2000). The Bildung approach to taste education is therefore in stark contrast to the approach promoted in the “Food Dudes” project, where the ambition was to coax children into eating in accordance with a predefined ideal that was not up for discussion. In such educational contexts, the students are provided neither with insight nor the possibility of expanding their consciousness, and even less are they encouraged to develop competences in order to make critical food choices. Some form of education undoubtedly takes place on these courses, but it is not aimed at learning (Bildung): it only aims at
control. Perhaps this practice is an efficient means to achieve goals, but the goals are not learning-oriented, in our opinion; they operate only with modeling and controlling behaviors, not with developing children’s competences, agencies, and awareness in relation to food. Taste is seen as a barrier to “correct” eating habits rather than recognized as an important sense, a source of pleasure, or a central way of sensually understanding and approaching food. Taste education thus becomes a tool to push children toward “hegemonic nutrition.” What is desired and produced and is therefore not perceptive, competent individuals, but rather what Foucault calls “docile bodies”—a concept introduced by Foucault as he analyzes the birth of the prison system in his book Surveiller et punir (1975). Foucault argues that over the course of the eighteenth century, a change occurred in the way the state exercised power over disobedient subjects. Corporal punishment and threats of violence were replaced with various forms of disciplining that were to become the dominant form of execution of power. So Foucault’s argument is that the state goes from a form of “hard” use of power based on fear and violence, to a “softer” form of power based on new techniques such as discipline and surveillance. Foucault also underlines that these “softer” forms should not be considered as soft, because they are highly effective in controlling and dominating citizens. These new forms of discipline developed in institutions, poorhouses, the military, schools, and prisons, where:

The human body was entering a machinery of power that explores it, breaks it down and rearranges it. A “political anatomy,” which was also a “mechanics of power,” was being born; it defined how one may have a hold over others’ bodies, not only so that they may do what one wishes, but so that they may operate as one wishes, with the techniques, the speed and the efficiency that one determines. Thus discipline produces subjected and practised bodies, “docile” bodies. Discipline increases the forces of the body (in economic terms of utility) and diminishes the same forces (in political terms of obedience) (Foucault 1995).

The purpose of taste education in the studies that we analyzed involves the same disciplining strategy. Through the disciplinary effect of repetition, students are meant to internalize preconceived values and ideal practices related to taste, so that their bodies (and tongues) “intuitively” act in accordance with these dietary ideals.
There is a strong connection and a strong similarity between how the studies analyzed in this review conceive of taste education and the disciplinary paradigm outlined by Foucault. All the studies largely follow the same logic. They take their point of departure in a perceived crisis, which defines the miserable state of contemporary food culture. The diagnosis varies slightly, but contemporary food practices are consistently presented as unhealthy and food culture as heading in a very dangerous direction. Children are described as a particularly vulnerable group whose taste can be led astray; this, it is argued, can have disastrous consequences if taste education does not put children's taste back on track. Such prescribed education entails disciplining the sense of taste. It leaves no room for individual taste experiences or for independent food choices.

As described above, according to Foucault, the new, dominant control technologies of the eighteenth century aimed to mold, discipline, and standardize bodies into “docile bodies” that were based on ideals and systems of power. In the same vein, contemporary taste education, as described in the literature analyzed here, aims—more or less explicitly—to make children's tongues docile, so that they obey the concepts of correct nutrition defined by the institutions of power. Just as in the passage from Foucault quoted above, the taste education described in the literature works to increase the power of the tongue to accept the institutionalized ideals of good taste, which empower these same institutions by increasing their control over and utility of these bodies. At the same time, this type of education diminishes individual agency and its capacity to oppose and question the ideals of good taste.

So the studies share the understanding that there is a crisis in children's taste in contemporary culture, and that action is needed to change children's taste. The only discussion in the literature relates to what method is the most effective. How can children's tongues be made as docile as possible? How can lasting obedience be assured?

From our pedagogical perspective, this is not pedagogy, but control. With such narrow goals and methods and limited understandings of taste, children, and learning, it is impossible to practice pedagogical activities that will create a framework for children to develop their competences and enable them to make informed food choices based on critical reflection.
Perhaps this reductive approach to taste and taste education can be explained by the disciplines within which the studies have been designed and conducted. These appear to be positivistic approaches, with quantitative data apparently the only reliable source of data. The learning goals that we find lacking are more difficult to put numbers to; they require a fundamentally different perspective on pedagogy and taste. Children would need to involved in a far more reflective process, with focus on the significance and meaning of taste as well as its aesthetic, cultural, and social dimensions. Measuring this form of education and learning would require completely different scientific methods and designs, and it would additionally involve talking to children to incorporate their ideas and experiences of food into the education programs. Those ideas and experiences might even have to form the starting point. So it would require a fundamental rethinking of the pedagogical task of taste education, including the forms of knowledge involved, as well as the roles of teachers, students, and researchers.

Concluding remarks: doing taste education differently

Based on our analysis of studies of taste education interventions, we conclude that all the studies in our review use taste education to modify children's eating habits, which are considered very poor. In this regard the studies echo Puisais's ambition to uphold national taste borders and taste identity; they also share the idea that taste education for children can be used as a tool to “better” children's health. However, the political, normative, and pedagogical assumptions of these interventions are never questioned or discussed. The reviewed literature operates with absolute distinctions between right and wrong eating habits. Puisais took for granted that French food was always good while American food was always bad, and the studies present similar dichotomist understandings of good vs. bad food practices, focusing almost exclusively on increasing the consumption of fruit and vegetables. The studies and the interventions are informed by the ideology of “hegemonic nutrition,” an uncontextualized and hierarchical approach to food education. Moreover, all the studies operate within a behavioristic pedagogy that is interested only in behavior modification; this can be understood through Foucault's theories of corporeal management. Other pedagogical aspects of taste education are not explored in the literature, and children's perspectives or experiences of taste are never meaningfully integrated into the study design or the didactic goals of the interventions and studies.
For these reasons, the studies analyzed in this article do not take into account the revisions of the goals and agendas of taste education presented by MacLeod and Politzer (2015), who call for children’s experience to be given a more central role in taste education and for taste education to be used for learning about diversity and tolerance. We have argued elsewhere that taste education offers a multitude of pedagogical potentials (Leer and Wistoft, 2015). By contrast with the hegemonic nutrition paradigm, these alternative formulations could be understood as a reflective taste pedagogy. This reflective taste pedagogy, based on the principles of the Nordic critical health tradition, is not anchored in behaviorist ideas, but focuses on how taste education can develop critical awareness and reflection in specific contexts about food and a variety of other subjects in school. Furthermore, such a reflective pedagogy would help to develop children’s agency in their approach to food and their social competences. A new quantitative study investigating students’ work with taste in relation to their own expected learning and value clarification has shown a connection between taste and learning (Christensen and Wistoft 2016). That study concludes that teachers need to create a balance between critical reflections and taste as a value-clarified approach in enabling students to achieve learning goals.

While “hegemonic nutrition” taste education is a subset of the general health paradigm, the learning discourse of well-being is a subset of the general educational and sociological paradigm (Wistoft and Qvortrup 2017). The idea behind this taste education, based on the principles of the critical Nordic tradition, is that taste must be realized by individuals themselves through learning processes. Learning cannot be injected by external actors. On the contrary, it is an internal mental process that can only be supported from “the outside.” This implies that taste educators can only teach taste indirectly, for example by establishing a supportive teaching and learning environment and by supporting learning processes that lead toward both the individual and collective understanding of tastiness.

To illustrate a different approach to taste education in accordance with the ideas of critical health education, we conclude this article by considering the Danish “Gardens for Bellies” school garden program (Dyg et al. 2016). This school garden program normally consists of eight class visits to centrally located gardens, or gardens located in or close to a school. The students attending the gardens range from kindergarten to ninth grade (age 6–15). Being outside in nature and learning in the school garden program contributes to
students’ food literacy (Dyg et al., 2016). For instance, in relation to taste, the students learn to critically assess and evaluate different kinds of vegetables produced in different ways based on their own sensual experience rather than on hierarchical understandings of good and bad taste. In addition, through the collaborative work of growing and cooking their own vegetables, the students are encouraged to experiment (e.g. to taste new plants and insects, to touch animal manure) and to improvise in the cooking process. Recipes are seen not so much as manuals that must be followed to the letter, but rather as a basis for improvisation. For instance, the ambition is not that the dishes prepared by different groups should taste the same, but rather that each group should add a personal touch to their dish and that groups should then compare their dishes and discuss the differences. Through shared taste experiences, the children become aware of their individual taste, while at the same time they develop social skills by contributing to their group (Wistoft, 2013). The published analyses of this project acknowledge that the friendly and democratic environment encourages cooperation in the gardens, but also that the natural environment has a special impact on the student’s self-reported taste experience and desire to learn.

In the “Garden for Bellies” example, children’s taste is not understood as a dangerous sense that stands in need of correction, as in the literature analyzed in this article. Children’s taste is defined here in positive terms. It is seen as a driver for learning processes and as supporting individual and collective learning processes. If we want to do taste education differently, we need to start understanding children’s taste not as a barrier, but as a resource for learning.
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