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Food and meal policies and guidelines in kindergartens in Norway and China: a comparative analysis

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ABSTRACT

Kindergarten has the potential to influence children's food choices and habits at an early age and prevent nutrition-related diseases later in life. This paper comparatively analyzed the goals and requirements for kindergarten food and meal policies and guidelines in Norway and China based on the author's self-constructed 'NES' analytical framework, including nutritional, educational, and social aspects. The findings suggest that while Norway and China both acknowledge the importance of nutritional importance of food and meals in kindergartens, Norway has paid significant attention to the social aspects of meals. There were also a number of differences between Norway and China in terms of specific educational goals related to food and meals. This analysis aimed to inform future policy direction across the fields of public health and educational policy and practice in Norway, China, and beyond.

KEYWORDS

Food and meals; kindergartens; policies; comparative study; Norway; China

Childhood overweight and obesity have increased dramatically since 1990 (de Onis, Blossner, and Borghi 2010). According to the World Health Organization (2020), 38 million children under the age of five were overweight or obese in 2019. The energy imbalance between energy intake and energy expenditure is a main causal factor for obesity (Reilly, Ness, and Sherriff 2007), and therefore developing a healthy eating habit early in life is essential. Children spend a large proportion of their waking days in kindergartens and the food eaten there makes a significant contribution to their total diet (Lucas et al. 2017) at a time when eating habits and food preferences are being formed (Birch and Fisher 1998; Nicklaus et al. 2004). Early childhood education and care (ECEC) settings thus provide tremendous opportunities to improve child development and overall health (Bock, Breitenstein, and Fischer 2012; Witt and Dunn 2012; Elford and Brown 2014; Manios et al. 2014; Tandon et al. 2016).

A number of studies worldwide have focused primarily on the nutritional role of food and meals in kindergartens (Farris et al. 2014; Lazarevic, Stojanovic, and Bogdanovic 2014). There also appears to be a contemporary trend focusing on sensory-based food education in kindergartens (Kähkönen et al. 2018; Nekitsing, Hetherington, and

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Blundell-Birtill 2018). However, the social dimensions in the field of children's food and meals in educational settings are traditionally ignored, especially in Eastern cultures. It is important to note that kindergarten can be deemed a social arena where the children 'contribute to their own childhood and thereby become part of a social and cultural construction process' (Markström and Halldén 2009, 112). In their work on children's views on lunchtime in the UK, Daniel and Gustafsson (2010) brought children's space to the fore and argued that it is unlikely that a focus on the nutritional aspect of the food alone is sufficient to provide children with space for their own agenda. This suggests that, as occupants of the space in their everyday lives, children's food and meals should be conceptualized by and interpreted through a holistic framework that considers more than the aspect of health in isolation. The discussion of mealtimes inspired the present article, in which the author presents a self-constructed 'NES' analytical framework and explored how food and meals are described and regulated from social, nutritional, and educational aspects in policy documents for kindergartens in Norway and China.

The policy document analysis in this paper is based on the assumption that government policy is first of all part of what classic Marxists have referred to as the 'state apparatus' (Althusser 2014), where the state can act by means of policies to influence local practices, health outcomes, and activate state apparatus onto people. Influential policy reforms can also influence the availability and accessibility of food and food practices in kindergartens. Further, government policy has the power to exert its desires in the form of values and beliefs, which is what Althusser referred to as the 'ideological state apparatus' (Althusser 2014).

According to Hedegaard's cultural-historical approach (Hedegaard 2009, 2012), policy research is part of examining the societal conditions, norms, and values in the conceptualization of child development. Therefore, it is crucial to understand the historically developed context of a society as a condition for institutional practices and children's participation in activities. This article is a desk research for a larger project on kindergarten food and meals in Norway and China. It serves to prepare future empirical work that will go beyond policy to examine the institutional and individual perspectives building on Hedegaard's cultural-historical approach. It is under this umbrella as well as the current climate of the public health issue of obesity that policies and guidelines are analyzed in this article.

In this study, Norway and China were selected to illustrate the differences and similarities in their respective approaches to regulate and organize food and meals in kindergartens. The rationale for choosing these two countries is threefold. First, it was evident that there was a growth of policy interest in government intervention on preschool food and meals in both countries (Health Directory 2018; The National Health Commission 2018). Second, the diversity of cultures (Western and Oriental) would enable the researcher to make a comparison. Third, this selection was pragmatic since the researcher herself has personal and professional connections in these two countries. In so doing, the researcher aimed to bring new knowledge into interdisciplinary aspects of food and meals in Norwegian and Chinese kindergartens and inspire policymakers to understand and reflect on their own approaches toward socioculturally and contextually appropriate meal practices.

Setting the scene: Kindergarten food and meals in Norway and China.

In Norway, 92.2% of children (aged 1–5) attend kindergarten¹ (Statistics Norway 2020a). Kindergartens in Norway cater for children up to the age of five years. There are both private kindergartens owned by private entities and public kindergartens owned by individual municipalities. In many kindergartens, children bring their own *matpakke*² (lunch box) for breakfast as well as some for lunch. According to a recent report from the Consumer Council and Diet- and Nutritional Federation (2018), only 37% of Norwegian kindergartens served hot food twice a week or more often. It is common for Norwegian kindergartens to serve cold open sandwiches consisting of wholemeal bread, vegetable margarine, and sandwich toppings such as liver pâté, fish, cheese, and meat cuts. In January 2019, the average Norwegian household paid 2600 kroner per month for a place at kindergarten, plus 322 kroner on average per month to cover food and other expenses (Statistics Norway 2020b).

In China, according to the government report, most children attend kindergartens,³ and the gross enrollment rate in 2018 was 81.7% (Ministry of Education 2019). There are both public and private kindergartens in China; the former are either fully funded or partially sponsored by the government and its associates, while the latter are run by private individuals and groups such as non-governmental organizations (NGOs) (Li, Yang, and Chen 2016). Most kindergartens in China provide a hot lunch (Gao et al. 2016). A typical lunchtime meal consists of a mix of rice, vegetables, and protein sources and a soup (Smith et al. 2013). School meal prices vary widely across the country due to regional variations in income, different price levels of foods, types of kindergartens (i.e. public, nonprofit private or profit private kindergartens), levels of kindergarten (based on the quality rating system), variations in kindergarten infrastructure, how many meals are provided, etc. According to the discussion on Chinese popular social media Weibo,⁴ the cost for food per month in Chinese kindergartens can range from several hundred to several thousand Chinese yuan. In addition, kindergartens are required to use food expenses exclusively, and the balance of profit and loss of food income per semester shall not exceed 2% (Ministry of Health 2012).

Methods

Analytical framework

According to Hedegaard's cultural-historical wholeness approach, the development of children is situated in concrete historical settings, institutional practices and the general everyday living conditions (Hedegaard and Fleer 2008). Food and meals in the kindergarten is embedded in a range of societal and institutional conditions within which children's food preferences and experiences develop. Drawing on some research approaches from anthropology, sociology, childhood studies, and public health, the author saw a need for a more holistic understanding of children's food and meals in kindergartens. The idea underlying the framework is to see food and meals in kindergartens from a life course perspective for child development. While giving particular attention to a long view of the connection to the history and the future opportunities, the framework also articulates the here and now process within which children participate, learn, and socialize at the time the children are sitting down to a meal. This framework aims to complement and enhance the understanding that development should be anchored in

everyday practice in time and space informed by the cultural-historical wholeness approach (Hedegaard 2009), and provide an analytical tool to incorporate different dimensions of food and meals in the kindergarten.

Kindergarten is not only an important educational and social arena, but also an arena for public health work. The self-constructed 'NES' analytical framework consists of three main aspects of food and meals in kindergartens, namely, nutritional, educational, and social aspects (see Figure 1). Since the three aspects are not independent constructs, they are presented as overlapping circles. Existing evidence emphasizes how the right amount of energy and nutrient intake is vital for children's growth, and food offered in the kindergartens has a profound effect on a child's nutritional status (Larson et al. 2011). The nutritional aspect in this paper concerns relevant documents that address the identification of children's nutritional needs and dietary requirements for meals served in kindergartens. Furthermore, research has indicated that a great deal of learning about food and eating occurs early in life (Birch and Fisher 1998), especially regarding food preferences and eating habits (Mennella and Ventura 2011; Ventura and Worobey 2013; De Cosmi, Scaglioni, and Agostoni 2017). Thus, the educational perspective examines the goals and objectives concerning food and health in kindergartens. Finally, as kindergarten is a social and cultural meeting place, mealtimes provide ample opportunities for interaction, participation, and dialog between children and adults. The requirements listed in the documents on this matter are examined from the social aspect.

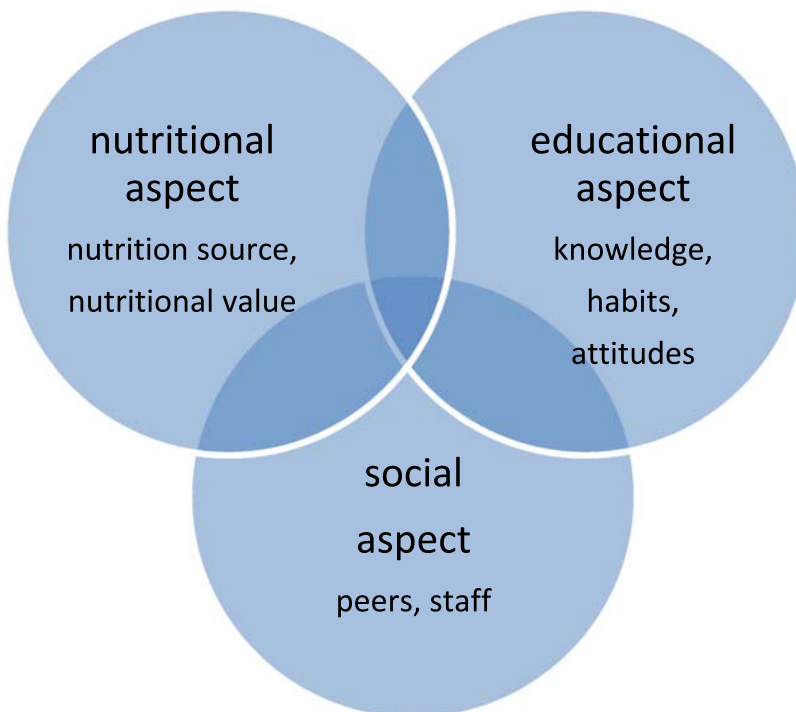


Figure 1. 'NES' Analytical framework.

Study design

This study was designed as a descriptive comparative analysis of key policy documents on kindergarten food and meals in Norway and China. The research questions of this study are as follows:

What are the main goals and focuses listed in the documents in terms of food and meals?

What are the nutritional requirements listed in the documents in Norway and China?

What are the educational goals in terms of food and meals in the two countries?

What are the requirements for socialization during mealtimes in the two countries?

Data source and data selection

Initially, the author searched for different combinations of the words ‘food kindergartens’, ‘meals in kindergartens’, ‘regulation’, ‘guideline’, in both Norwegian and Chinese languages by using the internet to scour websites of government and relevant ministries in the two countries (the Ministry of Education of the People’s Republic of China, the Chinese Central Government’s Official Web Portal, the Norwegian Directorate of Health, and The Norwegian legislation website). Policies and guidelines that operate at the national level were targeted, with a publication date cut-off of April 2020. Kindergarten laws and curriculums from each country were also included in analysis. The reasons for including them were: (a) to better understand the country context; (b) the curriculum has a substantial impact on the practices and educational aspects of food and meals in kindergartens, and (c) they reflect the institutional dominant values and norms of the two countries. The author has also consulted practitioners from her network in the two countries about what policies and guidelines are in place in their institutional practices of food and meals. By engaging with them in an early manner, the institutional realities and interests are taken into account. The final selection of the documents (n=7) was based on the result of internet search and the consultation with the practitioners.

Documents from Norway

The Kindergarten Act (Norwegian Ministry of Education and Research 2005) (hereinafter The Act) regulates kindergartens in Norway. The Act was published in 2005 and was last updated in 2018, and it applies to both private and public kindergartens. The Act consists of nine pages with guidance that regulates kindergartens’ content, children’s rights in kindergartens, and the responsibility of the different stakeholders.

The Framework Plan for the Kindergartens (The Framework Plan) (Norwegian Ministry of Education and Research 2017) is a regulatory framework plan governing the content and tasks of kindergartens. The new Framework Plan entered into force in August 2017 and is 57 pages long, with nine sections covering the fundamental values of kindergartens, responsibilities, and objectives, as well as the basic guidelines for activities in the kindergartens. Compared to its predecessor the newly revised Framework Plan has a stronger and more explicit focus on the use of terms such as diet, food, and health.

The National Guideline for Food and Meals in the Kindergartens (hereinafter the Guideline) (Norwegian Directorate of Health 2018) was published in December 2018 and replaced the 2007 guideline, and it serves as guiding documents for food and meal practices in Norwegian kindergartens. It is 41 pages long with 12 recommendations for food and meals in the kindergartens and provides detailed reasons and reflective questions for each recommendation proposed. Compared to the previous version, the new guideline includes some new themes, including sustainability and environmental considerations, food allergies, and eating disorders. The social environment for the meal is also reinforced in the new guideline. Dietary advice follows the Norwegian Directorate of Health's dietary advice (Health Directory 2016) which uses a circle as a food guide pictorial illustration. The circle is divided into ten different sections, with each section representing a food group showing a size proportional to the recommended quantity.

The Kindergarten Act and the Framework Plan for Kindergartens have versions in both Norwegian and English, while the National Guideline for Food and Meals in Kindergartens is only in Norwegian.

Documents from China

The Kindergarten Work Regulations (Ministry of Education 2016) (hereinafter, the Work Regulations) was issued in 1996 by the National Education Commission (renamed the Ministry of Education in 1998) and revised in 2016. The Work Regulations consist of ten pages of ten parts guiding the content, management, and financing of kindergartens. In the revised version of the Work Regulations, safety and healthcare work in kindergartens are two sections that have been given special attention.

The Early Learning and Development Guidelines for children aged 3–6 (hereinafter, the Learning Guidelines) (Ministry of Education 2012) is 51 pages long with five major parts: health, language, society, science, and art. The guidelines describe educational goals, the developmental characteristics of children from 3 to 6 years and provide guidance and suggestions for parents and kindergarten teachers on how to organize education and activities.

There are no national guidelines for food and meals for children in Chinese kindergartens, but the Regulations on Healthcare Work in Nursery and Kindergartens (hereinafter, Healthcare Regulation) (Ministry of Health 2012) and the dietary guidelines for Chinese preschool aged children serve as guiding documents for food and meal practices in Chinese kindergartens. The healthcare regulation is 43 pages long, consisting of four parts, including the duties of healthcare work, the content and requirements of healthcare work, the newly established health assessment, and healthcare-related forms and standards. The regulation provides healthcare content for kindergarten arrangements, food and meals, physical exercise, hygiene, prevention, and management of common diseases.

The above regulation refers to the Chinese Dietary Guidelines for Chinese Residents (The Chinese Nutrition Society 2016), which was directed at the general population (healthy people over 2 years of age) and includes recommendations for specific population groups. The dietary guideline has 343 pages in total of which pages 231–237 present a dietary guideline for preschool children. China uses a 'Food Guide Pagoda'

which is in the dietary guidelines in the general population, and there is also a specific ‘balanced diet pagoda’ targeting preschool aged children, which embodies the core recommendations for children in the guidelines. Kindergartens are required to make their weekly menu with serving sizes (*dailiang shipu*) based on this pagoda.

The Early Learning and Development Guidelines for children aged 3–6 are in both Chinese and English, while the other documents can only be found in Chinese versions.

Document analysis

Documents were analyzed using thematic content analysis. To begin with, the researcher read through all the documents in their original language to become familiar with the material, noting the initial ideas when rereading the documents. Descriptive coding (Miles, Huberman, and Saldaña 2020) was then utilized to summarize longer sentences in a word or shorter phrase. Codes were generated from the data deductively from the research questions and inductively as they emerged from the documents. The parts to be used in the analysis from the Norwegian documents which did not have English versions were translated along with those in the Chinese documents. Before proceeding to the next level of analysis, the codes were checked to ensure that they were reasonable, after which they were collated into potential themes informed by the research questions and the analytical framework.

Findings and discussion

Four main categories emerged from the research questions and analysis of documents: (1) overall goals and focus, (2) food guidance and nutritional requirements, (3) educational goals and learning objectives, and (4) socialization during mealtime.

Overall goals and focus

Health has been incorporated into documents in both Norway and China. While the contexts differ vastly, they are somewhat similar in terms of the goal of viewing kindergarten as an important arena for public health work and the promotion of health. For example, in the Norwegian Kindergarten Act, it says, ‘Kindergartens shall have a health-promoting and preventive function and contribute to even out social inequalities’ (Norwegian Ministry of Education and Research 2005, 1), and the Chinese kindergarten Management Regulation states, ‘Kindergarten shall facilitate children’s physical health, and develop children’s good life and hygiene habits’ (Ministry of Education 2016, 2). Both Norway and China have acknowledged the role of the kindergarten environment in children’s healthy development and hence this environment is a primary target for health-related policy initiatives. This is in line with the strategy adopted by the World Health Organization (WHO) and UNICEF in response to the growing burden of noncommunicable diseases (NCDs) and as an attempt to curb the childhood obesity epidemic (WHO 2008). Promoting a healthy environment in kindergartens and providing primary intervention during these years was deemed to be an essential part of the solution to overweight and obesity (Larson et al. 2011).

However, with different socioeconomic and cultural backgrounds, Norway and China also presented different aims to be achieved in their specific country context. In Chinese documents, food and meals have been addressed explicitly from a health perspective, and regulations have prioritized food safety, hygiene, and disease prevention. On the other hand, the Norwegian documents show that social democratic principles and values, such as equity and children's right to participation in mealtime, are highlighted.

The differences of aims in the two countries may be related to the different values and philosophies underlying the framework. In Norway, equity and equality are explicitly political and cultural goals. Children's right to participation is highly valued in the Norwegian early childhood education tradition (Bae 2009). Such views are grounded in a social pedagogy approach (Bennett 2005, 11), which is 'firmly play-based, with much movement, choice and child autonomy in evidence' (11). In China, Confucian principles are deeply rooted in both Chinese society and the education system. Traditional Confucian philosophy surrounding food and health stresses the cultivation of good health through diet, and advocates food and hygiene and dietary principles, that is, choosing the best way to cook and consume seasonal and fresh food (Liu, Mondot, and Niu 2012). Rapid economic growth and social changes in China during the last decades have also had a profound impact on its diet, especially on children's food and food culture (Jing 2000). Changes in public knowledge concerning the role of diet in health promotion might have further contributed to the increasing attention to nutritious food in China. In addition, one more thing to note is that kindergarten and school food safety has raised public concerns in China due to the outbreak of food safety scandals during the past decades. In response, the Chinese government has issued regulations to ensure food safety with a particular focus on supervision and accountability measures.

Food guidance and nutritional requirements

Both Norway and China have stipulated that the food served at kindergartens should be varied and in line with their national food guidelines. The 'food group approach' (Albon and Mukherji 2008, 19) was adopted in both countries to illustrate the food guide and ensure a ready supply of important nutrients. The guidelines for food and meals in the Norwegian kindergarten classified foods into three main groups (Norwegian Directorate of Health 2018), whereas the Chinese food guide proposed five categories (The Chinese Nutrition Society 2016). Among the grouped foods, grains, vegetables and fruits, fish, dairy products, eggs, and meat are presented in both countries, and a daily serving of the main food groups is recommended. Both countries also encourage daily consumption of fruits and vegetables. This is consistent with food guidance from many countries worldwide (Herforth et al. 2019). While both have a specific category of fruits and vegetables, the Norwegian guidelines explicitly mention berries, indicating the cultural importance and tradition of berry consumption in Norway.

In addition, both Norway and China presented recommendations on the consumption of fluids, where milk and an adequate supply of water are recommended, along with limited consumption of sugar-sweetened beverages. In addition, the Chinese regulations recommend a daily consumption of 300–400 ml of milk, while the Norwegian guideline did not specify a serving size of milk. Compared to Norway, where dairy has been an important source of nutrition throughout history, the tradition of milk

consumption is absent in the great majority of the Chinese population. Unlike their Norwegian counterparts, the prevalence of lactose intolerance in the Chinese population is as high as 85%, while in Norway, it is around 12% (Storhaug, Fosse, and Fadnes 2017). Consumption of milk in Chinese children is thus significantly linked to government endorsement and dairy industry initiatives (Wiley 2011). A recent large-scale epidemiological study has revealed an association between increased milk intake and increased body height and lowered obesity risk among Chinese children (Guo et al. 2020).

However, while they share the common aim of providing healthy and varied foods to children, the two countries presented different approaches to achieving this goal. It appears that Chinese documents have more quantitative elements where the daily amount and specific percentages of various nutrients and indicators for different age groups have been introduced, while the Norwegian guideline has more qualitative features where dietary recommendations and advice are provided. In addition, some aspects of the requirements were unique in content. For instance, the Chinese Healthcare Regulation mentions cooking methods and states that kindergartens should use scientific cooking methods (steaming, boiling, braising) with less seasoning to retain the nutrients, satisfy children's mild tastes, and be easily digestible (Ministry of Health 2012). The preparation of the dishes is highlighted, and it states that the food served should be appealing to children in terms of color, flavor, and taste (Ministry of Health 2012). There is no mention of cooking methods in the Norwegian Guideline, but there are recommendations on limiting the use of salt and hard margarine and butter in cooking to reduce the intake of saturated fat (Norwegian Directorate of Health 2018). The main reason for the differences is possibly due to the different eating habits and food preparation methods used by the two countries.

In addition, the Norwegian Guideline explicitly mentions the use of low-fat dairy products and restrictions on red meat consumption (Norwegian Directorate of Health 2018), while the Chinese guideline does not separately list these items. It is recommended in the WHO guideline that reducing the amount of total fat intake to less than 30% of total energy intake helps to prevent unhealthy weight gain and the risk of developing NCDs (WHO 2003). In line with the WHO recommendations, the New Nordic Diet has recommended a lower intake of meat and more plant foods to reduce the consumption of saturated fat and to arrive at a more sustainable diet (Mithril et al. 2012; Norden 2014). Current evidence suggests that the consumption of different types of meat and meat products has different health and environmental consequences (Godfray et al. 2018). One possible explanation for why the Chinese guidelines for preschool children did not separately list the requirements for red meat and low-fat dairy products might be due to concerns about micronutrient deficiency in Chinese children. Research has found that despite recent socioeconomic development in China, poor iron and zinc levels are common in Chinese preschool children (Liu et al. 2011). In addition, the prevalence of inadequate calcium was reported to be high in Chinese children (Wang et al. 2017). However, with the considerable urban-rural disparities regarding children's nutritional status in China, multilevel policies suggesting alternatives for dietary fat might be helpful. As such, it provides ample room allowing for flexibility in local practices.

Another distinct difference is that the Norwegian guideline explicitly mentions that kindergartens should pay attention to children with special dietary needs, including food allergies, food intolerance, illness, eating difficulties, children with disabilities,

and other special needs (Norwegian Directorate of Health 2018). There is only a brief mention of the special dietary needs in the Chinese regulation, which states that ‘in the kindergartens where condition permits, they can serve special diets for children with anemia, malnutrition, and food allergy’ (Ministry of Education 2012, 8). In Norway, the prevalence of food allergies was 6.8% in children less than three years old (Kvenshagen, Halvorsen, and Jacobsen 2009). In China it was noted that the prevalence of food allergy has increased significantly from 3.5% in 1999–7.7% in 2009 in one- and two-year-old children (Hu, Chen, and Li 2010), and recent evidence shows that the prevalence of food allergy among preschoolers in China is comparable to the reported prevalence in European regions (Prescott et al. 2013). This means that having a policy and legal requirements to cater to special dietary needs for children is vital. It is thus essential for both countries to detail clear policies and procedures to ensure that children’s individual dietary requirements are respected and supported. In addition, the attention given to environmentally friendly practices is evident in the Norwegian guideline, where it recommends a practice ‘with little food waste and a food offering where plant-based foods and fish and seafood are central’ (Norwegian Directorate of Health 2018). There is no mention of sustainable food practices in Chinese documents.

Educational goals and learning objectives

Food is explicitly addressed from a health perspective in both countries. Both point out that kindergartens should help children learn about different aspects of food and the relationship between food and health. One of the five learning/developmental domains in the Chinese guideline, namely health, states that the kindergarten shall ‘help children form good eating habits and help children learn about the nutrition values of the foods’ (Ministry of Education 2012, 10). Body, movement, food, and health as one of the seven subject areas in Norwegian framework plan, states ‘By participating in food and mealtime activities, the children shall become motivated to eat healthily and gain a rudimentary understanding of how healthy eating promotes good health’ (Norwegian Directorate for Education and Training 2017, 49).

While both countries have acknowledged the importance of good eating habits acquired at kindergarten for children’s further development and shared the goals of helping children to develop a varied diet and healthy eating habits, the Chinese Learning Guidelines appears to have a stronger focus on children’s eating behaviors, by pointing out that kindergartens should help children to form the habit of eating the right amount regularly and slowly, and avoiding picky eating and the habit of playing during mealtimes (Ministry of Education 2012, 10).

Moreover, both countries mentioned teachers’ roles at mealtimes, but with a slightly different focus. The Chinese Learning Guidelines emphasized teachers’ supervisory and modeling role in connection to children’s healthy eating habits, while Norwegian documents also give weight to the importance of teachers’ roles in social interaction and dialogic engagement with children during meals. Bandura’s social learning theory (1977) supports the idea that teachers can influence children’s knowledge and behaviors. Observational learning, as a powerful tool in social learning theory, provides context for the teacher’s role as an influential agent of change for children’s eating habits. Previous

evidence has shown that the staff's modeling and nutrition education are associated with children's dietary intake (Ward et al. 2017).

Socialization during mealtime

The Chinese Healthcare Regulation has regulated the physical dining environment and stated that the dining environment should be clean, tidy, and comfortable (Ministry of Health 2012, 7), but does not explicitly mention the human environment and socialization during mealtime. The Norwegian documents, however, appear to have moved beyond the traditional realms of the nutritional value of the food to the social functions of meals in kindergarten and pay considerable attention to how mealtime can be experienced for children as a meeting place for social interaction and inclusion. Furthermore, community building during children's mealtimes is particularly pointed out in the Norwegian framework plan, stating that the staff shall 'use mealtimes and cooking to enable the children to enjoy food, participate, converse and feel togetherness' (Norwegian Directorate for Education and Training 2017, 50). A possible explanation for why the Chinese guidelines appear to put less weight on the social function of meals is perhaps due to the ancient Confucian teaching of not talking when eating.⁵ The Chinese believe that talking during a meal is not good for children's digestion, and the Chinese guidelines also recommend helping children to pay attention to what they eat.

Mealtimes vary within and across cultures. Using ethnographic evidence, anthropologists Ochs and Shohet (2006) shed light on the cultural structuring of mealtime socialization and how mealtimes function as cultural sites for the socialization of people into competent and appropriate members of a society. Food is particularly interesting in this respect because eating is a way to incorporate local culture. Children's food consumption can be seen as cultural practices in public spaces, thus suggesting important cultural dimensions in the development of children's socialization.

Conclusion and implications

By presenting the author's self-constructed 'NES' analytical framework including nutritional, educational, and social aspects, this paper offers a holistic framework for understanding the complexities of food and meals in educational settings. The comparative analysis suggests that Norway and China share the goals of seeing kindergarten as an important arena for public health work and the promotion of health as both have regulated that kindergartens should provide healthy and nutritious food for children. While both acknowledge the importance of health regarding food and meals, the Chinese documents presented a strong focus on the nutritional aspects, particularly in the preparation and provision of food, while the Norwegian documents paid significant attention to the social aspects of food and meals in kindergartens. From an educational perspective, both countries mentioned learning about healthy eating habits. However, the Chinese guidelines have a stronger focus on children's eating behaviors, while the Norwegian guideline also pays significant attention to children's social learning and community building during mealtimes.

Norway and China are unique in both food culture and eating patterns. The differences in terms of what and how to eat in kindergartens evoke an awareness of cultural

differences since the structure of kindergarten meals, for the most part, represents the food culture by reproducing the wider society's dominant norms. The differences may also be related to contextual factors and different philosophies underlying the two frameworks. While arguing for a more nuanced understanding of traditions and cultures, the author also believes that this comparative study generates some implications. First, from a nutritional aspect, with the present global movement toward a sustainable food future, the integration of sustainability in all policies is essential to minimize the environmental challenges with which the world is currently faced (Tuomisto 2018). In this respect, China could take inspiration from the Norwegian guideline, and consider environmental sustainability by including guidance such as choosing meat with a low environmental impact, more plant-based foods, and the reduction of food waste. In return, since early experience of food and meals serves as the foundation for the continuing development of food preferences across the lifespan (Ventura and Worobey 2013), the Chinese guide on food presentation and the consideration of sensory characteristics may serve as an inspiration to Norway. It could be fruitful to integrate sensory-based strategies with policies on food and meals in kindergartens. Early childhood is an ideal place for children to observe and learn from both their teachers and other children. From an educational perspective, the integration of teachers' roles in healthy eating habits and social interaction could be fruitful. From a social perspective, the Norwegian guide, which sees the kindergarten as a social arena, might shed some light on China's current guidelines.

Finally, the author suggests that future policy directions should have a child-centered policy founded upon procedures for meeting children's nutritional, social, and learning needs. Thus, a focus on both children's agency and relationships in the policy documents would be beneficial. Shared meals in kindergartens are an arena for children to enjoy food and fellowship. Children should be given opportunities to engage in active participation through interaction. However, the guidelines and policies themselves do not ensure compliance with them; they will only have an impact on children's diet if both the kindergarten and staff fully embrace it. The author thus suggests that all relevant stakeholders work across all sectors to deliver such policies.

Notes

1. The Norwegian term for institutions providing early childhood education and care for children between 0 and 5 years of age is *barnehage*, directly translated to kindergarten.
2. It refers to a simple open-faced sandwich that is easily taken to school or work.
3. In China, the term 'kindergarten' refers to full-day programs that serve children from age 3 to 6. There are three main types of early childhood education and care institutions in China. Nurseries often serve children under the age of 3, and the so-called 'preschool classes' attached to primary schools are for children of 5–6 years.
4. Weibo is a popular Chinese microblogging website, usually known as the Chinese version of Twitter.
5. It came from 'Confucian Analects (论语)', the original saying is '食不語, 寢不言,' which can be translated to 'When eating, do not converse; when in bed, do not speak'.

Disclosure statement

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