CORE Organic

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Organic Food for Youth in Public Settings: Potentials and Challenges. Preliminary Recommendations from a European Study

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Organic and healthy – two goals in one go

A comparative analysis study among public primary schools in Denmark and Germany.

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Abstract

There is a growing health concern over obese and overweight children. Schools are a well suited setting for children for learning and adopting sound life skills. Using schools in healthy eating strategies may play an important role in preventing children from becoming obese and overweight. As a result a growing number of schools and municipalities engage in initiatives that promote healthy foods and eating. Some of these initiatives however are not focused only on healthy eating alone, but involve objectives to promote more sustainable consumption through developing organic supply chains for school food services. The question therefore arises whether these two change objectives and drivers interact. This paper investigates the interrelation between the two objectives: healthy eating and organic consumption. Can these two goals be reached in one go as previous studies indicate? Is it so that developing either of these strategies leads to a raise of awareness in school food services in such a way that the other strategy is supported at the same time? The paper investigates this possible twin ship by studying characteristics of school food services in Denmark and in Germany. In both cases delivery of school food is voluntary and thus subject to an active decision by schools. The study uses "proxies" as an indicator for healthy eating, such as availability of healthier food items, adoption of food and health issues in curricular activities etc. The study was initiated in Denmark, where a web-based questionnaire methodology was developed. The questionnaire was distributed to schools having a school food service, and answered by school food coordinators. As a second step the questionnaire was translated and adapted to be used in Germany. The questionnaire explored the attitudes, policies and actions in relation to organic and healthy foods served in the schools. Both Danish and German results indicate that schools with organic supply tend to be healthier when measured in terms of "proxies" for healthy eating.

Keywords: organic food, school food service, healthy eating, obesity, overweight.

1. Introduction

Schools have an important role to play in teaching children fundamental life skills, but also to offer an opportunity to establish a healthy eating pattern (Council of Europe, 2005; WHO, 2006; EU DG SANCO, 2007). The foods and drinks which children choose at school are contributing to shaping their dietary habits and studies show that behaviour adopted in early age tends to track into adulthood (Hursti et al., 1999). Hence, school could be a vital setting to help children in their shaping healthy eating habits. Many aspects of health are linked to nutrition; however, across Europe most attention has been paid to obesity and overweight in recent years (NEPHO, 2005) and hence these aspects are focussed here.

Within public health nutrition, BMI (Body Mass Index) is often used to measure the effect of healthy eating initiatives since poor dietary habits has been shown to be a risk factor for development of overweight and obesity. However, to measure BMI over time in a certain population is extremely time consuming. Further, the development of overweight and obesity occurs over a long period of time, and the response to healthy eating is associated with considerable "intertia". Alternatively, dietary intake can be measured, but is also very time consuming. The present study uses "proxies" of healthy eating to test whether an interest in healthy eating in school is followed by an interest in organic school food consumption. The proxies are the respondents' answers to questions about indicators of healthy eating, such as the types of foods sold in schools, nutritionally calculated school meals, etc. The relationship of the proxies to dietary intake and BMI is illustrated in Figure 1.

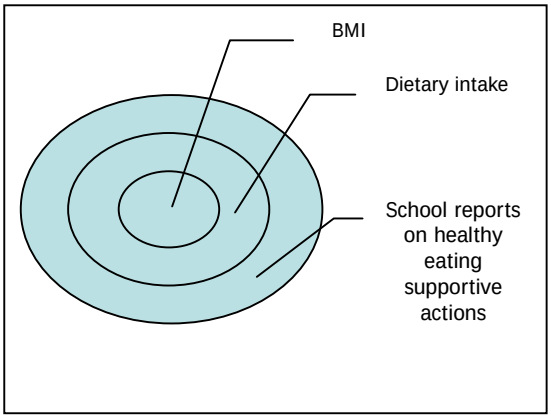

Figure 1. How to measure health impact of school food.
The figure shows the relationship between indicators for children's health and proxies for healthy eating. The three levels are: BMI of students – a proxy for health status. Dietary intake of student – a proxy for risk of developing obesity (increased BMI), School reports on healthy eating supportive actions - a proxy for healthy eating of students

In Denmark, by December 2006 20-25% of the primary schools had a school food service where a complete meal was served daily (Hansen *et al.*, 2008). About 50% had some sort of simple food arrangement, e.g. a school booth offering drinks and yoghurt, whereas 25 % had no food offer. There are three Danish municipalities, Copenhagen, Roskilde and Gladsaxe (He *et al.*, 2009), having used much resources to establish school food service systems with special emphasis on a high share of organic products, and much work has been devoted to compose appropriate and popular dishes. However, only a limited number of pupils buy the school food. Lunch boxes from home remain the most common and traditional way for Danish children to have lunch at school. Denmark has recently adopted national guidelines[2] and the Government funded in 2008 grants for schools that wanted to implement school meals.

In Germany, the school day has traditionally ended early in the afternoon, and the pupils have been used to go home for lunch. Most schools have a kiosk where pupils can buy food items such as milk, sandwiches and snacks. During the school day, there are several breaks (15-30 minutes) where food can be consumed. The German school system is currently rapidly changing, with increasing length of the school days. An increasing number of schools offer a whole day system (08:00-16:00), where a meal service is included. Other schools have a voluntarily system of childcare in the morning and afternoon. The pupils who stay longer in the afternoon can buy a warm meal, and some schools involve the pupils in preparing meals for other children with supervision by home economics teachers. In such cases, the food may become cheaper for the pupils to buy than when delivered by a catering company, and such school meal systems have become quite popular (Milotich, 1999). In the eastern parts of Germany (former GDR), school meals were common for many years, and the tradition and infrastructure is still existing. Some German federal states, e.g. Berlin, have public goals of organic consumption, and include a demand of at least 10% organic ingredients in their call for tenders with school meal suppliers (Nölting *et al.*, 2009). A newly established network organisation for school food is an important factor in this sector in Germany.

The previous studies have shown that in fact processes and attitudes related to organic foods implement seems to associate with changes in the health profile of the foods on offer in different types of public catering.

For example, the former research has shown that "green" worksite canteen catering managers offered more healthy food items than their non green counterparts (Mikkelsen *et al.*, 2006).

The aim of the present paper is to investigate the relation between two important objectives: Healthy eating and organic consumption. Can these two goals be reached in one go, as previous studies indicate? Will any one of these strategies lead to a raise of awareness in school food services in such a way that the other strategy is concurrently supported?

[2] Healthy school meals - Nutrition calculations of school meals small portion for 7-10 year old children (http://www.foedevarestyrelsen.dk/Publikationer/Alle_publikationer/2009/207.htm)
Healthy school meals - Nutrition calculations of school meals small portion 11-15 year old children (http://www.foedevarestyrelsen.dk/Publikationer/Alle_publikationer/2009/208.htm)

2. Methods

The empirical material of this study consists of answers to a quantitative survey where the informants used a self-administered Web Based Questionnaire (WBQ). In Denmark, this was done by sampling schools with a record of school food service and by stratifying it into two groups. The sample obtains an approximate even distribution of schools having organic food provision, and schools with no organic food provision. In Germany, the federal state of Hesse was chosen. Due to restricted access for external researchers, it was not possible to base the sampling on information whether schools had food service or not, nor could a stratification of organic and conventional provision be carried out. The survey was distributed in 179 public primary schools in Zealand of Denmark and around 1050 public primary and secondary schools in Hesse, Germany (see table 1). Informants were school staff in charge of the school food service, in our study named as school food coordinators. In practice this person could be anyone from the school headmaster to a school food caterer.

Table 1. Summary of survey key figures.
The table shows status of distribution and respondence of WBQ in Denmark and Germany**.**

	Denmark	Germany
Distributed	179	around 1050
Partially completed	13	57
Completed	79	34
No respondence	87	around 959

The survey was carried out in Denmark in summer 2007 and in Hesse in the autumn of 2009 (see figure 2). The Danish questionnaire was translated to German and slightly changed to adapt to German conditions; however, the core content of the WBQ was not changed. A pilot test of the questionnaire was carried out in each country. In Denmark, the sampling of two types of schools (an organic school bases its food provision on a certain amount of organic food, whereas the non-organic school bases its provision on conventional food supply) for pilot test was based on information from an interview with the municipal school food coordinator in Roskilde (He *et al.*, 2009). Therefore, the one school was known to provide meals with a certain amount of organic foods and the other school known to provide meals based only on conventional food supply. In Germany, the sampling of pilot test was conducted by our iPOPY colleagues in Hesse. The WBQ was sent out to three experts in the field of school meals, one social worker, one person who involved in the planning of school meals and one consultant. Three experts read it and gave some comments but most for grammar.

After some modifications, the completed questionnaire was converted to a web based version using the software SurveyXact (http://www.surveyxact.com). The final WBQ was made available for respondents through a web browser link.

In Denmark, organic schools were selected through assistance from the school meal official in the municipalities of Copenhagen and Roskilde. Both cities have established school food service systems with a high share of organic food. The officials provided a list of school names. In addition, some organic schools in other municipalities were selected, known to be based on organic supply because they had participated in research projects with the National Food Institute. At the last, 93 Danish schools known to have school food service based on organic supply were selected. The 86 non-organic schools were sampled as non organic schools from research records of the National Food Institute,. The approach to develop the final e-mails list of schools was done through a search at the Danish Education Ministry homepage (http://www.uvm.dk/). After collecting all school names, all contact information of the schools were identified by the homepage search engine.

The questionnaire was sent out individually and directly to 179 schools. The WBQ was open for three weeks. To increase the response rate the mail was addressed to the e-mail of a specific person at the school in cases where information was available of the person responsible for the food service. Reminder letters were sent by e-mail one to two weeks after distributing the initial invitation to participants.

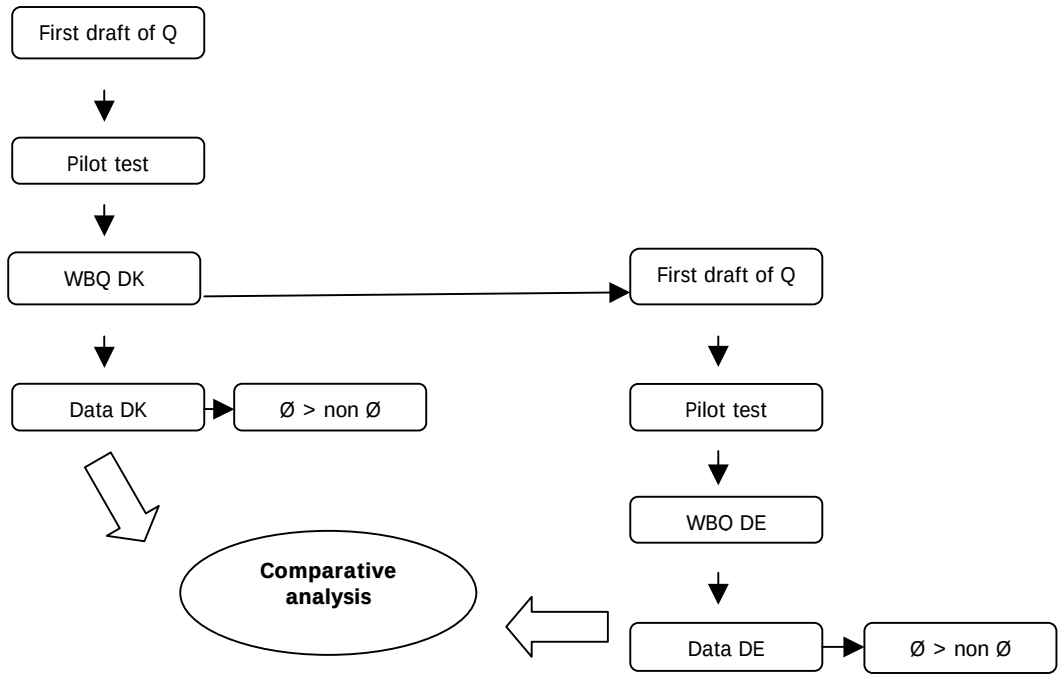

Figure 2. Flow sheet of survey.
The figure shows the steps in the survey process in Denmark and Germany. Legend: Ø= Organic, non Ø = conventional**.**

In Germany, there are strict limitations to handling out schools' contact information, and it was difficult to attract the interest of German federal states to participate in the study. In the state of Hesse this was finally made possible and WBQ link was inserted into the monthly school newsletter made by their School Coordination Centre.

The WBQ was open for 2 months. To increase the response, the link was put on the website of the School Coordinator Centre in addition to in the newsletter. Further, one reminder letter was prepared and sent one month after distributing the WBQ by newsletter. The link to the WBQ was addressed again in the email, emphasizing a small lottery incentive, i.e. an economy airfare round trip to visit a case of organic school in Denmark or Italy.

The WBQ was constructed to explore the attitude of the respondents, and to identify existing school food policies such as POP (Public Organic food Procurement) policy and FNP (Food and Nutrition Policy), as well as serving practices. POP policy refers to a policy, in which a particular amount of specified foods are anticipated to be organic and which are practiced in public organizations offering food (He *et al.*, 2008). FNP is a set of written and adopted principles that aims to fulfil nutritional needs of pupils at schools, and ensure availability and accessibility of healthy foods (He *et al.*, 2008).

The questionnaire asked about the opinions of the school food coordinators regarding promoting organic food and healthy eating habits through school meals service and curricular activities related to food.

The data from the WBQs were captured in a database and analysed in an electronic spreadsheet. School coordinators reports on the three healthy eating supportive actions: adoption of a food & nutrition policy, operation of a nutrition committee and compliance with untraditional guidelines was then analysed for associations with the type of school food supply (organic/conventional).

3. Results

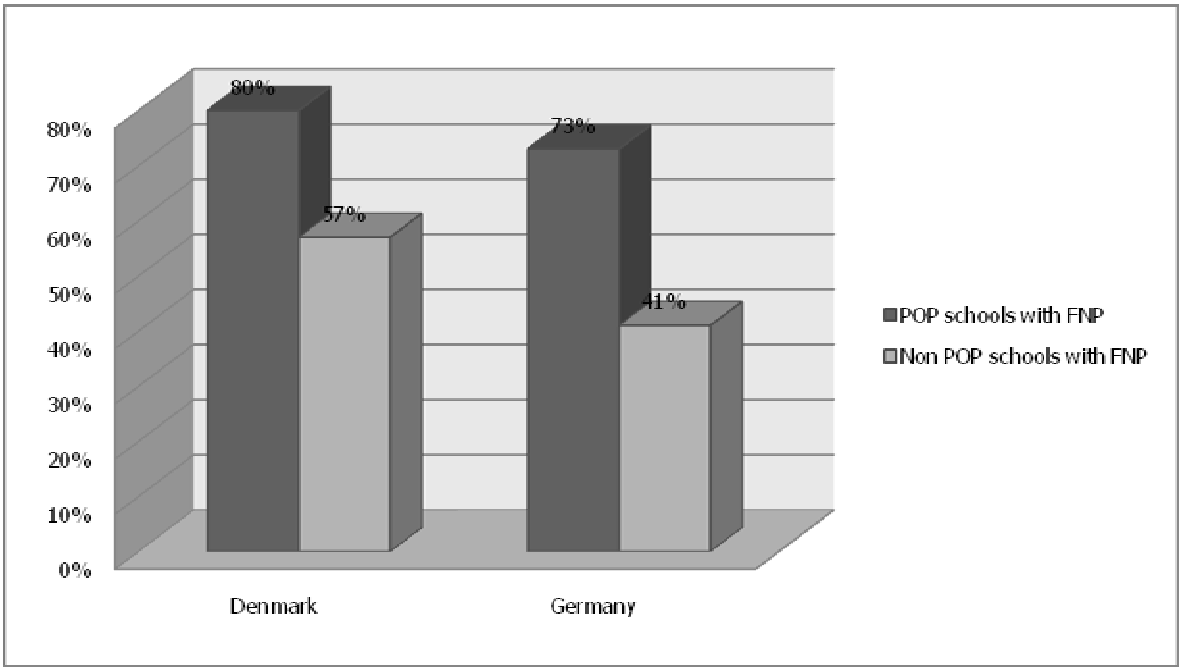

Figure 3. Having a food and nutrition policy?
The figure shows the percentage of POP and non POP schools that have adopted a FNP in Denmark and Germany.

The Danish results indicated 20 out of 92 respondent schools claimed to have a school food policy promoting the consumption of organic food. 63 schools answered that they did not have any policy to promote organic, and 3 informants did not know whether the school had such a policy. More than half of the schools, 52 out of 92, claimed to have a Food and Nutrition Policy.

The German data showed that only 11 out of 91 respondent schools answered they have adopted a POP policy regarding schools food service. 27 schools gave the information that they did not have such a policy, and 2 schools reported not to know whether they had an organic policy. One fourth of the respondent schools, 22 out of 91 schools reported to have a FNP.

In this paper, the schools which have adopted a POP policy as are labelled POP schools, whereas the schools that did not have such a policy are labelled non POP schools. The figure illustrates that 90% of POP schools in Denmark have adopted a food & nutrition policy, where as only 57% of the non POP schools stated they had this policy. The same tendency is the case for the German schools, 73% of POP schools in contrast to 41% of the non POP schools have adopted a FNP. Thus, the results indicate that the POP schools in two countries are more likely to involve a policy facilitating healthy eating than non POP schools. However, the bars show the Danish schools are more actively to engage themselves in establishing a FNP than German schools.

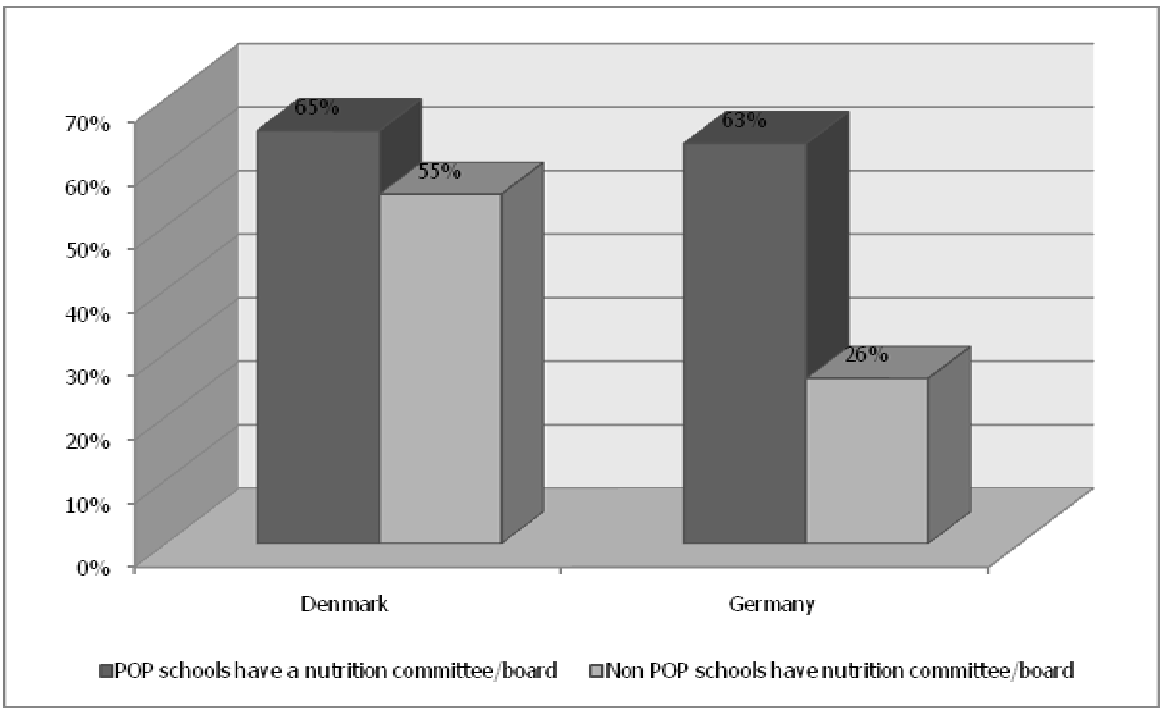

Figure 4. Having a nutrition committee?
The figure shows the percentage of POP/non POP schools that have a nutrition committee or board regarding pupils' health and nutrition aspects in Denmark and Germany.

Figure 4 illustrates that 65% of Danish POP schools reports to have a nutrition group/committee/board which are responsible for children's health. The same is the case for 55% of the non POP schools. So there is only a slight difference between the Danish POP schools and non POP schools in regard to have such school board. For the German schools on the contrary there is a big difference between the POP schools and non POP schools. 63% of the POP schools, almost the same as Danish POP school percentage, have a nutrition committee, but only 26% fo the non POP schools involved a nutrition board in their schools. In both countries, above half of the POP schools have established a nutrition board to deal with the healthy issues for children during school days. Results indicate that POP schools are superior in taking into consideration health and nutrition issues than non POP schools, especially in the German schools. Nevertheless, half of the non POP schools in Denmark also have a nutrition committee, so these non organic schools are willing to think over children's health, even though organic prospects have not been put on the agenda.

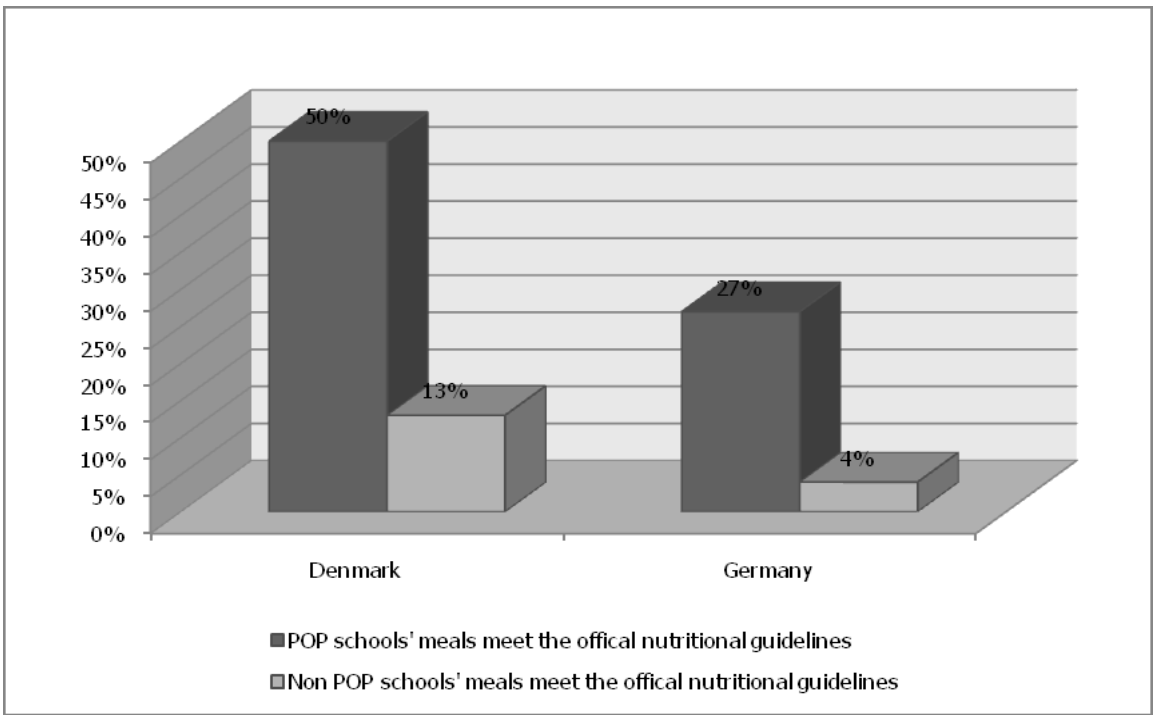

Figure 5. Meeting nutritional guidelines?
The figure shows the percentage of POP/non POP schools in Denmark and Germany that meet the official nutritional guidelines for school meals.

Figure 5 shows that half of the POP schools in Denmark report that their school meals meet the official nutritional guidelines, where as only 13% of non POP schools report to follow these guidelines. In Germany, 27% of POP schools report to meet guidelines where as only 4% of non POP schools reports the same. The data show that in general Danish schools are more complying with guidelines than are the German schools. It can further be seen that POP schools are superior in this aspect compared to the non POP schools.

4. Conclusion

The results show that schools with organic supplies and policies are performing better when measured against the three indicators of healthy eating: adoption of a food and nutrition policy, operation of a nutrition committee and compliance with official guidelines. It is worth noting that the existence of such measures is by no means a proof of the fact that students will eat healthier. On the other hand such measures have shown to be determinants of the availability of healthier foods. As shown in several studies on fruit and vegetable intake availability of healthy food in most cases associates with food intake of such foods. These results suggest that schools having based their supply in organic food might be taking a different approach to school food service. The complicated task of introducing school food in schools based on organic supply has been reported in many cases from both Denmark and Germany (He *et al.*, 2009 & Nölting *et al.*, 2009) and might lead to a local policy process involving negotiations among stakeholders and eventually leading to a raised awareness on food and nutrition issues. Schools not having to face the challenge of introducing organic supply are not forced to go through these steps. Although the studies show interesting differences more data are needed to verify the results. However the study shows that conducting surveys in school food environments is a challenge. School food is a newly established research field but due to the huge opportunities in terms of health promotion, food education and sustainable consumption an increased research interest can be expected. Therefore it is necessary to strengthen the methodology used in this field and the research collaboration within this field.

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