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Food, nutrition or cooking literacy—a review of concepts and competencies regarding food education

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Abstract

This article presents a review of the concept of food literacy based on 14 articles and reports and two textbooks. Food literacy is currently discussed as an aim of food education in the western world, partly inspired of a fundamental literacy understanding and partly of health literacy or other related literacy areas to food. The works are presented through their components and concepts of food literacy, and further discussed in the light of food elements included and seen in relation to aims concerning competencies. The definitions and content of the works presented reveal both similarities and differences concerning the understanding of food literacy, ranging from a narrower understanding of food literacy as the ability to read food messages, to broader interpretations aimed at empowerment and self-efficacy concerning food and nutrition, and from simple cooking skills to life skills and education towards understanding food as something which is dependent on cultural, social and individual factors.

Keywords: Food literacy, nutrition literacy, cooking literacy, competencies, food education/food Bildung, children and adolescents

Introduction

Food is a basic premise for development and survival; it is part of our living conditions and a question of lifestyle. Through food, human beings can experience pleasure, joy and company, but at the same time, food can be a problem or can even be seen as a risk. To choose, make and eat food is a learning process, therefore food and food education have been part of human life throughout civilisation, both as informal learning and formal education carried out as instruction, experimentation and/or imitation, primarily taught within schools as Home Economics. The aim of food education has differed and been described in different terms. Now the term food literacy has moved into education as an aim, which is why a discussion of food literacy might be of interest to researchers, educators and practitioners within the field.

In the past ten years, the concept of literacy has moved into areas such as health and to health-related fields such as food and nutrition. Literacy, as such, has always been an aim of education, but understood as “literate meant to be familiar with literature or, more generally, well educated, learned” (UNESCO, 2006, p. 148). These phrases are followed by four understandings of literacy: 1) as an autonomous set of skills, 2) as applied, practised and situated, 3) as a learning process, 4) as text (UNESCO, 2006, p. 148). In the report Toward
Universal Learning, literacy is one of seven domains of a global learning framework and is set in close relation to communication (Force, 2013). In a number of works, Paulo Freire has discussed literacy and has understood it as both reading the word and the world, and seen literacy as critical, and as a precondition for self and social empowerment (Freire & Macedo, 1987), as literacy means ‘a dialectical relationship between human beings and the world’ (Giroux in Freire & Macedo, 1987 p. 7). To a certain extent, this understanding of literacy has been influential on the use of the concept in various subjects such as scientific literacy, information literacy or cultural literacy, as well as health (as mentioned above). Food and nutrition literacy is one of the latest concepts. Therefore, it is of great interest to examine the way in which literacy is understood when the concept is taken out of its inborn circumstances and used in other relations. In her work (included in the review), Bartsch (2008) claims that the present educational discussion is influenced by literacy approaches. The different literacy approaches can be valuable to broaden the field of food education, as they contribute to a critical and constructive perspective on food education and understanding of food and eating.

This article focuses on literacy regarding food in a broad sense, as food deals with nutrition, producing, cooking and eating; but also with growing, consuming and handling foods. The present preoccupation with food, nutrition, cooking or kitchen literacy is partly caused by a concern of the loss of knowledge of food and nutrition and the obesogenic society (Block et al., 2011 p. 5) and partly deskilling or the loss of cooking competencies (Caraher & Lang, 1998; Caraher, Dixon, Lang & Carr-Hill et al., 1999; Jaffe & Gertler, 2006; Thonney & Bisogni, 2006). An example of the concern for this loss of competencies is the debate book by Ann Vileisis entitled Kitchen literacy, with the subtitle: How we lost knowledge of where food comes from and why we need to get it back (Vileisis, 2008). Educational examples reasoned in this concern of lost knowledge of how food is grown, produced or cooked are seen in a lot of local school food, garden and/or cooking projects in western societies, where pupils grow vegetables and visit farms to learn about food and how food is produced and becomes part of their nutrition and meals (Thonney & Bisogni, 2006; Rawl, Kolasa, Lee, Whetstone 2008; Nowak, Kolouch, Schneyer, & Roberts, 2012; Wistoft, Otte, Stovgaard & Breiting, 2011; and Food Literacy Center, 2013). In the evaluation work conducted by Wistoft et al. (2011) it is said that “school gardens today are a compensation of the alienation from nature and foods, which features the life of many children—and grown-ups, but also an offer of presence and fellowship in a limited time” (p. 12). Another American project called Food, Land and People has been carried out as a teaching project of 55 lesson units based on a conceptual framework and reasoned in the “growing lack of agricultural knowledge” (Powell & Agnew, 2011), and also consumer deskilling seen as a lack of basic food knowledge is at concern (Jaffe & Gertler, 2006).

This article contains a critical review of peer works from the international arena on food literacy as a concept primarily related to children and adolescents in an educational setting. The search is focused on food literacy, the concepts used and competencies described. School food projects that do not include a discussion or presentation of literacy are not taken into consideration. The review offers theoretical approaches and discusses the components and content of food literacy (understood in terms of nutrition, food and cooking/kitchen
literacy), as well as putting forward new perspectives for education within food, nutrition and Home Economics.

Method

An initial search for certain key words (food literacy, and/or nutrition literacy and/or kitchen-cooking literacy and children and adolescents) was carried out in relevant databases containing articles, books and reports. The database used was ProQuest, which includes the databases Sociological Abstracts, Psych Info and ERIC, and the search only involved peer-reviewed work. The databases contained a wide variety of journals, as articles could be seen as food or nutrition works or related to culture or agriculture or be an educational work. The search was carried out in English, German, Danish, Swedish and Norwegian. The time period selected was 1995 and onwards, as most of the research is done after year 2000. The search period was December 2012 to February 2013. There were 221 results. All were reviewed but only 21 were selected for a closer review. Of these, six were not relevant, as they did not have a theoretical approach, which gave 15 articles and reports. Further, one very comprehensive review of nutrition and health literacy which was a review to inform nutrition and dietetic research and practice, was omitted as it was from a patient perspective (Carbone & Zoellner, 2012).

That gave 14 works in all, which were supplemented with two academic works by a Danish and German author, as they specifically included understandings and discussions of food literacy or rather, food Bildung. More works and reports concerning what and how to teach nutrition and food have been developed in recent years without using the term literacy, an example of this is The European Food (www.europeanfoodframwork.eu), but as it does not use the term literacy it was excluded.

Finally, three health literacy articles written by Nutbeam (2000), Kickbusch (2004, 2008), and St Leger (2001) are used in the following part as theoretical contribution and understanding of the term literacy, as more of the food literacy articles build on these understandings. If searching only for food, nutrition, and/or kitchen/cooking literacy without relating to the target group children and adolescents, a lot of works concerning nutrition literacy occurred mainly understood as plain ability to read and understand food labels or other text instructions concerning food and nutrition. Besides the one work based on patients’ perspectives, only works relating to children and adolescents’ food literacy (understood as food, nutrition, and or kitchen/cooking literacy) were chosen.

Key concepts and theoretical background

The article has a focus on two different concepts. The first is food as a general concept, including nutrition, meals, growing and cooking; and the second is literacy. The review concerns these two concepts in combination and relation to each other; but in order to understand them both, it is necessary to present them both independently before combining them into the concept of food literacy.
Food, nutrition, cooking and meals

*Reading the word* as one part of literacy could be translated to reading food in a broad sense, that means to understand food as an food item to relate to. The word food covers many issues and concepts, as presented in Figure 1 A model of the levels of food. Foods contain nutrients to supply us with the essential nutrients and energy. Foods or foodstuffs may in some cases be eaten directly (fruit, for instance), or they can be prepared, combined and cooked as part of a meal (mashed potatoes, or a full meal such as goulash and mashed potatoes, for instance). The eaten food represents, over a period, a person's food habits or food culture.

“Food is a complex case”, as Warde (1997) says in his work on the change of food habits. He adds, “Its consumption is universal, mundane and polyvalent. Everyone eats, most eat several times a day without much reflection; yet the activity is integrally connected with many other highly meaningful aspects of living.” (Warde, 1997 p. 181).

![Figure 1](image)

This figure illustrates the complexity of food. There are connections and overlaps. Level 1 represents natural science, necessary daily allowances, calories, vitamins, minerals, fibres and so forth. These items cannot be seen directly and they are also very complex and abstract for pupils without knowledge of nutrition and biochemistry to understand. The only components to see directly are fats, which as these appear as butter.

Level 2: Foods can be understood in a natural scientific way, a social and technological scientific understanding, and a cultural understanding. Foods are concrete and visible; they
are grouped in various ways (animal foods and vegetables, for instance), and can further be clustered in similar groups such as dairy foods, cereals, meats, and so forth. They can be grown, combined and cooked in many ways, the only limit being the imagination and competence of the chef concerned. However, cooking competences are decreasing in general according to a number of studies, a tendency which is seen as having serious implications for food education (Caraher et al., 1999; Jaffe & Gertler, 2005).

Level 3: Dishes and meals can also be understood in both a cultural and social scientific sense. To make dishes and meals demand that food items are changed from level 2 to 3 through preparing or cooking processes (in home or industry). Foods prepared to a dish or meal might imply a change so single food items cannot be identified, the visible dish or meal is at the plate but it is invisible, what is in it. However, the single meal and dish can be deciphered as Mary Douglas has described this; in what are most important ingredients and what less is. The meal can be understood as a language, a rhythm, a symbol, or a structure in life (Douglas, 1975; Douglas & Nicod, 1974) and/or it can be seen as a way of organising social relations within different contexts. Lastly, it can be seen basically as a material for living and developing.

Out of these three levels the fourth level appears, which is food in general or diet, which is a person’s food habits or food culture seen over time and related to place and social environment. In other words, food is indeed a complex issue, and the complexity of food must have an impact on the concept and understanding of food literacy and education as well. This will be explained in greater detail below.

Literacy, competencies, Bildung

Literacy is both reading the food and the world, according to Freire (1987). Reading the world demands education. The formal aim of education might be described in different terms, for example, literacy, or Bildung, or as competencies, qualifications and skills. In this study literacy is the central concept to be examined, but it may be useful to connect the term to other educational concepts and aims as just mentioned, or to unfold and supplement the term literacy with other understandings. According to UNESCO (2005), being well educated is related to skills, learned and used as applied, practised and situated, and finally understanding texts. Skills in the case of food can be seen as growing, choosing, cooking, serving and tasting in different settings or situations. As shown in Figure 1, understanding texts about food is related to nutrition, foods, and also to food culture and consumption, so the texts run through the figure but differ in scientific base and also literacy, as will be discussed in the following. As mentioned above, literacy has been used in other fields or subjects such as agricultural literacy (Powell & Agnew, 2011; Frick, Kahl & Wade, 1991), eco literacy and environmental literacy (McBride, Brewer, Berkowitz & Borrie, 2013) and health literacy, all of these closely related to food and foodstuffs. The specific term health literacy has primarily been developed in the works of Nutbeam, Kickbusch and St Leger (Nutbeam, 2000; Kickbusch, 2001; St Leger, 2001). Several of these works have been directly used or inspired for understanding of food literacy, as can be seen in the review study. Nutbeam and St Leger “have proposed that the health promoting school contributes to four main school-related outcomes: i) lifelong learning skills; ii) competencies and behaviours; iii) specific cognate knowledge and skills; and iv) self-attributes” (St Leger, 2001 p. 197). These
skills are further explored by St Leger with regard to nutrition, and are described in the educational outcomes described above, but not in terms of nutrition or food literacy. These outcomes can be seen as related to all levels of Figure 1 nutrition, foods, cooking, meals and food, although not elaborated in details. St Leger argues further that “all of these four school related health/education outcomes are dependent on students achieving each of Nutbeam’s three levels of health literacy” (St Leger, 2001 p. 198), which are health literacy as functional (level 1), interactive (level 2), and critical (level 3) (St Leger, 2001 p. 201; Nutbeam, 2000, p. 265). The literacy levels taken together in a school context might be described as Bildung, which means that education also seen as literacy should have an empowerment potential for the individual.

Food literacy

Based on the health literacy studies mentioned above, food literacy can be seen as skills, competencies, knowledge, behaviours, and self attributes regarding a functional, interactive and critical level, or as described by Benn (2014), presented in Table 1, as knowing, doing, sensing, wanting and caring, all together as being practical prudent at a personal level but also regarding food and meals together with others in everyday life.

Table 1 Competencies regarding food Bildung

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<tr>
<th>Competencies</th>
<th>Aims</th>
<th>Examples</th>
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<tbody>
<tr>
<td>To know</td>
<td>Understanding of coherence (knowing)</td>
<td>Prudence and ability to make decisions (e.g. To know coherence between intakes and health.)</td>
</tr>
<tr>
<td>To do</td>
<td>Everyday life competencies (capable and coping ability)</td>
<td>Practical and technical competencies (e.g. grow, lifeworld concerning food, to choose and cook to handle everyday life problems.)</td>
</tr>
<tr>
<td>To sense</td>
<td>Aesthetic impression and expression, food courage</td>
<td>Sensory competencies, food courage (e.g. perceptions of food through growing, cooking and tasting.)</td>
</tr>
<tr>
<td>To want</td>
<td>Responsibility and willingness (participation and action)</td>
<td>Citizenship and democracy (e.g. to participate in solving general food problems in society.)</td>
</tr>
<tr>
<td>To be</td>
<td>Carefulness (care for and care of)</td>
<td>Ethical considerations concerning oneself, others and environment (e.g. choices reflecting care.)</td>
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</table>

The review study will further explore the way in which food literacy is understood theoretically, empirically, practically and in concrete terms.

Food literacy—food Bildung—review results

The works selected in the review are gathered in Table 2. They fall into two main categories: food and nutrition literacy (14 examples), and kitchen and cooking literacy (2 examples), although there are parts of both categories in most of the works. Furthermore, these can be divided into four categories as shown in Table 2, but some of these are also going into both areas.

1. Theoretical research of the literacy concept (8 examples) Works no: 1, 2, 3, 4, 7, 11, 14, 16.
2. Empirical surveys (with theoretical approaches to food literacy (FL)) (5 examples), Works no: 6, 9, 11, 13, 15.

18
3. Educational programmes and guidelines based on 1) and/or 2) and/or 3)
(3 examples) Works no: Works no: 5, 8, 12.

The works will be grouped together in accordance with an overall view of food literacy: first
the theoretical approaches, then the empirical and theoretical approaches, followed by the
programmes, and lastly the intervention study.

Food literacy as a general educational aim as food Bildung/literacy approaches

All authors use Bildung as aim of food, meal or nutrition education. The German concept of
Bildung is also used in pedagogical and educational literature within English language, as the
term education is not always precise enough. Bildung can be understood as literacy,
depending on how broadly or narrowly the concept of literacy is used. In all three cases
literacy or Bildung is used in a broad sense, meaning empowerment as self-decision, co-
decision and solidarity (Klafki, 2005).

Bartsch (2008, p. 100) claims that the actual Bildung is decided through the literacy
approaches. This brings an actual, innovative concept for the food and consumption area in
education. On behalf of this, a reform of the curriculum is made in some of the German
States for nutrition and consumer education or Home Economics called REVIS. Essential is that
food and nutrition is seen both through natural and social science together with cultural
studies. Next the actor and her life world is important as human beings are acting subjects in
their life world, therefore learning is seen as a subjective construction process, and
knowledge as situated. Furthermore Antonovsky’s salutogenic approach is applied to the
educational themes meaning, that issues must be understandable, exemplary and applicable
for their lives; and that action possibilities give choices manageable and meaningful in
everyday life. Illustrated in a cube module (Bartsch, 2008, p. 100). They do not define food
literacy or nutrition and consumer literacy as such, but give an overall view on aim of food
Bildung, content and learning.

Heindl, who is also part of the REVIS group, has produced a book studying nutrition Bildung, a
school-based nutrition education guide from 1999 based on several workshops (Heindl, 2003,
pp. 225-239). In this book she outlines seven themes of nutrition Bildung, which are also part
of the national curriculum:

1. eating and body
2. eating habits, cultural and social influences
3. nutrition and personal health
4. foods, food quality and global consumption
5. foods, labels, consumer and consumption
6. foods, hygiene, preservation, and law
7. culture and techniques of cooking, aesthetic-culinary handling of foods.
<table>
<thead>
<tr>
<th>No</th>
<th>Author(s), (Year)</th>
<th>Title</th>
<th>Method</th>
<th>General perspectives</th>
</tr>
</thead>
</table>
| 1  | Bartsch, S. (2008)  
    (in German language) | Subjektorientierung in der Ernährungs- und Gesundheitsbildung | Theoretical analysis | Uses educational, didactical competence oriented German concept and Antonovsky's concepts sense of coherence as meaningfulness, manageability, comprehensibility |
| 2  | Block, LG, et al. (2011) | From Nutrients to Nurturance: A Conceptual Introduction to Food Well-being | Theoretical analysis | Suggest a paradigm shift from foods seen as health to food well-being (FWB). Food literacy is seen as 1 of 4 parts of FWB both at societal and individual level. Builds on Nutbeam, Suggest a 5-pin wheel model |
| 3  | Bublitz, MG et al. (2011) | The Quest for Eating Right: Advancing Food Well-being | Theoretical analysis | Food literacy is seen as one part of 5 core areas of food well-being. Food literacy is knowledge of nutrition and foods, and cooking. |
| 4  | Carlsen, HB, (2011)  
    (in Danish language) | Food and aesthetics | Theoretical analysis | Food Bildung is based on Klafki's understanding as self-determination, participatory democracy (citizenship) & solidarity built on 6 different dimensions of Bildung and on aesthetic philosophy. Suggests more models for learning and aesthetic experiences. |
| 5  | Evers, Tony (2009) | Building skills for health literacy-nutrition | Program built on Wisconsin Model Academic Standards for Nutrition & on National Health Education standards. | Content of nutrition literacy described as Nutrition, food safety, critical thinking skills, nutrition for health promotion, diversity, identification & classification of food. Primarily a handbook for nutrition professionals |
    (in German language) | Studienbuch Ernährungsbildung. Ein europäisches Konzept zur schulischen Gesundheitsförderung | Theoretical analysis based of European works of health education and health literacy theory. | Food Bildung involves the consideration of 7 theses necessary for education, meaning to deal both with foods, meals, nutrition and eating in a critical and aesthetic perspective. It is a German textbook for teacher education, Home Economics and health. |
<p>| 8  | Nowak et al. (2012) | Building Food Literacy and positive Relationships with Healthy Food In children through School Gardens | Curriculum program | Food literacy builds on hands-on physical activities (growing), cooking, science and social studies to increase food literacy. |</p>
<table>
<thead>
<tr>
<th>No</th>
<th>Author(s), (Year)</th>
<th>Title</th>
<th>Method</th>
<th>General perspectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Klimura, AH, (2010)</td>
<td>Food education as food literacy: privatised and gendered food knowledge in contemporary Japan</td>
<td>Empirical study of private food courses, and participants' motives to join.</td>
<td>Food education is understood here as food literacy, and as a conservative ideal to cook at home, and to keep feminine traditional ideals concerning food.</td>
</tr>
<tr>
<td>10</td>
<td>Pendergast, D, Garvis, S, Kanasa H (2011)</td>
<td>Insight from the Public on Home economics and Formal Food Literacy.</td>
<td>Empirical study, content analysis of posts regarding cooking education in Australia, refers to the health literacy concept of St Leger</td>
<td>Concept map from findings, 3 themes were seen: informal food literacy, formal food literacy learning I schools, formal food literacy in Home Economics. Nutbeam's health literacy components transferred to food literacy.</td>
</tr>
<tr>
<td>11</td>
<td>Smith, MG (2009)</td>
<td>Food or nutrition literacy? What concept should guide Home Economics education</td>
<td>Theoretical and empirical analysis of some curricula hold against health literacy</td>
<td>Food and nutrition literacy is related to Nutbeam's health literacy components.</td>
</tr>
<tr>
<td>12</td>
<td>Schniegel, S, Zehetgruber, R, Danninger, S, Setzwin, M, Wenk, R, Freudenberg, M, Muller, C, Groeneveld, M, (2009)</td>
<td>Savoury dishes for adult education and counselling Food Literacy Report with guidelines and toolbox</td>
<td>Food literacy program and toolbox</td>
<td>'Food literacy is the ability to organise one's everyday nutrition in a self-determined, responsible and enjoyable way.' (p.9) A guide targeted towards adult education &amp; socially disadvantaged groups</td>
</tr>
<tr>
<td>13</td>
<td>Snyder, S, (2009)</td>
<td>Ethnographies of Taste: Cooking, Cuisine, and Cultural Literacy</td>
<td>Theoretical and empirical study, analysis of four works</td>
<td>Food literacy draws on the following components: Meals, and meal preparation, food skills, nutrition knowledge, food involvement, and cooking</td>
</tr>
<tr>
<td>14</td>
<td>Thomas, H &amp; Irwin, JD (2011)</td>
<td>Cook it up! A community-based cooking program for at-risk youth: overview of a food literacy intervention</td>
<td>Cooking literacy program for adolescents - a community intervention</td>
<td>Food literacy seen as able to healthy food choices, skills and knowledge to buy, grow and cook food with implications for improving health</td>
</tr>
<tr>
<td>15</td>
<td>Vidgen, H &amp; Gallegos, D, (2011)</td>
<td>What is food literacy and does it influence what we eat: A Study of Australian food experts</td>
<td>Empirical survey based on phone interviews and online surveys of Australian food experts understanding of food literacy.</td>
<td>Eight potential components of food literacy were identified: Access, planning &amp; management, selection, knowledge of food origin, preparation, eating, nutrition, and language. A conceptual model was developed.</td>
</tr>
<tr>
<td>16</td>
<td>Vidgen, H &amp; Gallegos, D, (2010)</td>
<td>Food literacy: Time for a new term or just another buzzword</td>
<td>Theoretical literature review.</td>
<td>Food literacy draws on the following components: Meals, and meal preparation, food skills, nutrition knowledge, food involvement, and cooking</td>
</tr>
</tbody>
</table>
The themes have to be of current interest, the content has to regard both natural sciences, social and cultural sciences, regarding competences knowledge, and practical doing, attitudes, values and everyday life decisions must be part of education. Furthermore education must have a cross curricular approach, be activating and be participant oriented. Finally it is spiral curriculum regarding age differences and continuation through school from age 4 to 18 (Heindl, 2003, pp. 88-89).

Carlsen’s work, based on her PhD dissertation, has a theoretical approach built on the philosophy of aesthetics (Hohr, 1996), theories of learning taken from Illeris (Illeris, year), and educational philosophy taken from Klafki (2005). Based on Klafki she has developed a model for Food Bildung/ food literacy. (The concept of Bildung is discussed in the special issues on Bildung in the Journal of Philosophy of Education, 36(3), 2002, and Educational Philosophy and Theory, 35(2), 2003, as well as articles (Thompson, 2005, 2006). In the centre, the aim of food Bildung/food literacy is placed, surrounded by the general and overall aim of education (as in all education based on Klafki and critical theory), which is self-decision, co-decision and democracy, and solidarity. The six basic dimensions of education in order to fulfil food Bildung are to educate people towards this critical empowerment understanding.

1. a pleasure and sense-oriented treatment of own body
2. productivity in a craft and technical way for home
3. cognitive possibilities
4. aesthetic observation ability, design ability and judgment
5. the ability to make ethical and political decisions and to conduct ethical and political actions
6. possibilities of relations to fellow human-beings: the sociality (Carlsen, 2011 pp. 90-92)

With regard to learning, Carlsen has used and developed Illeris’s learning triangle to knowledge, aesthetic experience, and moral or ethical considerations and decisions (Carlsen, 2011, pp. 93-96).

**Food literacy as part of food wellbeing**

2. Block et al.(2011)

Block et al. (2011) have developed a new concept called food wellbeing, as they mean that food as health has to be changed to food wellbeing. Food as health is left as it contains views in which the focus are functional and medicinal, paternalistic and normative, restraint and restriction, and body mass index, whereas food as wellbeing is holistic and integrative, consumer oriented, has a positive approach and is directed to attitudes and behaviour. They have worked out a model: The Food Well-Being Pinwheel with food literacy as one of the five axes in this wheel. The others are: Food Availability, Food Policy, Food Marketing, and Food Socialization (Block et al., 2011, p. 6). All of these axes hold both a societal and individual part. For food literacy the societal part is education, guidelines and campaigns,
whereas the individual level is described as tool, heuristics, procedures and techniques. Block et al. (2011, p. 7) claim that “food literacy has three main components:

1. conceptual or declarative knowledge
2. procedural knowledge
3. ability or opportunity and motivation to apply or use that knowledge”

To acquire food literacy and further achieve food wellbeing

 evolves over the course of a person’s life. From a societal perspective, promoting food literacy may involve educating people about how to incorporate food into their daily routines in ways that support their food goals and their local, national, and international communities to preserve societal health (Block et al., p. 8, http://foodliteracyproject.org/)

The work of Bublitz et al. (2011) is built upon concepts developed by Block et al., which they try to match to an individual level, and to how food wellbeing could be measured. They conclude that social factors, economic issues and emotional knowledge are necessary areas besides food literacy, and that changes depend on motivation opportunity and ability (Bublitz et al., 2011, p. 8).

Food literacy as cultural literacy

Snyder examines the ethnographies of taste: cooking, cuisine, and cultural literacy through an examination of four different texts written by Nazarea (2005), Vileisis (2008), Kaplan (2006) and Thorp (2006). These texts represent different perspectives on food from the kitchen to industrial production, from garden to fields, from local knowledge to lost knowledge in a historical and present understanding. From these texts, Snyder concludes that cultural literacy or kitchen literacy draws on the following components: meals, and meal preparation, food skills, nutrition knowledge, food involvement, and cooking. His conclusion is ‘food literacy is so important to understanding not only our food, but our culture. Understanding culture, then, demands knowing about ourselves and all our culture’s intricate, messy, cultural, political, yet tasty, elements.’ (Page ref)

Food literacy built on the health literacy approach

Smith takes a starting point in the health problems of today and raises a discussion of whether Home Economics education should focus on food or nutrition literacy. The literacy concepts build on Nutbeam’s and St Leger’s health literacy concepts as functional, interactive and critical health literacy (pp. 52-53). Smith argues that speaking of “food literacy as an educational goal means adding that component to our ideal of an educated person” (p. 57), and follows up by adding: “A food literate student would understand that there are what Vaines (1999) calls Many Ways of Knowing. That is ‘life world (the world of lived experience); scientific (analytic/empirical; interpretive; critical science) and narrative’ (p. 57). For the
learner, Smith uses Pollan’s suggestion of co-creators. Food literacy, if taken seriously, is as if “the ordinary task of everyday life such as food provision become meaningful and sacred” (Smith, 2009, p. 59).

In their paper, Vidgen and Gallegos (which year) discuss the term food literacy based on three different sources. Their definitions are cited below:

Kolasa et al. (2001, a community project not included here), the definition is: ‘The capacity of an individual to obtain, interpret and understand basic food and nutrition information and services as well as the competence to use that information and services in ways that are health enhancing.’ (p. 3)

Taken from Schnögel et al. (2006), a Socrates-Grundtvig project included in this review, see below and from Stanton (2009): ‘Knowing where our food comes from; knowing what happens to it, how to cook it, and how to prepare it’ (p. 3). They find that ‘food literacy should extend beyond cooking’, as this is to oversimplify the concept. Therefore they use a term from Carahe & Lang (1999), saying that ‘food literacy needs to be framed as an essential life skill, irrespective of social class, which empowers an individual to take control over what they eat and make use of nutrition recommendations for better Health’ (p. 7).

Food literacy experienced by the public and the professionals within food area

6. Fordyce-Voorham (2011)
8. Pendergast, Garvis & Kanasa (2011)
13. Vidgen & Gallegos (2011)

Fordyce-Voorham conducted an interview study of 51 professionals within the food area (teachers, dieticians, nutritionists and chefs), who were asked to identify essential food skills for students. Food literacy came out as one subtheme seen by nearly all as ‘a critical component to include in a skill-based healthful eating program. Food literacy was seen mainly as an individual’s ability to read, understand, and act upon labels on fresh, canned, frozen, processed and takeout food.’ (p. 119). The necessary food skills were both consumer skills and meal skills, which incorporate all stages of food preparation and cooking. The acquisition of skills ‘refers to practical classes in schools involving food preparation and cooking’ (p. 116).

Pendergast, Garvis & Kanasa (2011) conducted a study based on 97 posts containing reactions from the public regarding a newspaper article on cooking in schools. Three main themes emerged: informal food literacy learning, formal food literacy in general, and formal literacy in Home Economics classes. A significant proportion of the respondents (36%) thought that food literacy should involve informal learning and should be the responsibility of the parents, whereas 18% thought that food literacy should be learned formally in school as part of Home Economics, and 23% asked for more compulsory teaching. Theoretical food literacy was seen as having the same elements as described in health literacy approaches, and learning was seen in a Bandura approach as obtaining self-efficacy.
Vidgen and Gallegos (2011) have conducted a study of definitions of food literacy and whether it influences what we eat, based upon 24 semi-structured telephone interviews of Australian food experts within education, food industry and production, gastronomy, nutrition and welfare. This was followed by two online surveys by the same food experts. Vidgen and Gallegos (2011, p. 2) claim that “food literacy” is an emerging term used to collectively describe a range of knowledge and skills needed to use food”. Based on the study, they made a conceptual model of the relation between food literacy and nutrition. Food literacy has the following components: Access, planning and management, selection, knowing where food comes from, preparation, nutrition, eating, and language (Vidgen & Gallegos, 2011, p. iv and p. 26). They make a direct link from food literacy to nutrition, which again has the following components: 1) Universal wellness, 2) primary prevention, Australian guide to healthy eating, and 3) secondary prevention and management, individualised needs. The experts were presented with three different definitions of food literacy, with 47% agreeing with the following definition: ‘The relative ability to basically understand the nature of food and how it is important to you, and how able you are to gain information about food, process it, analyse it and act upon it’ (Vidgen & Gallegos, 2011, p. 18).

Kimura (2011) has researched private food education courses, their certifications and definitions of food education and the participants’ motives for attending and their knowledge. The reasons for food education were 1) food education should be seen as necessary for improving public health outcomes, 2) food education is necessary to avoid confusion, and 3) food education as a way to uncover the ills of modern food system and taste education (Kimura, 2011, pp. 466-467). She concludes that the private courses make food a private, individual and genderised (female) problem. It is an

[...]idealization of ‘a family meal’ where families sit together to eat dinner, and ‘food from scratch’ made at home could exacerbate the conservative cultural mood that nostalgically constructs an ideal past which revolves around the ‘traditional’ (and implicitly heterosexual and upper-middle class) family completed by its male breadwinner/female homemaker icon. (p. 466).

This study showed that food literacy was a narrow concept, which is ‘embedded in the power configuration of society’ (p. 466), whereas Kimura (2011) thinks that food education should contain a broader societal perspective and wants ‘the food literacy framework contrasted with a more structural understanding of food-related behaviours and practices as functions of cultural and social influence, one’s class position, gender stereotypes, social infrastructure, and the macrostructure of food and agricultural systems’ (p. 480).

Food literacy as part practical food, health, nutrition’s programmes and guidelines
5. Evers (2009)
8. Nowak et al.(2012)
12. Schnügel et al.(2009)

Evers (2009) has produced a programme or guide for educators to work with health literacy and nutrition as part of this health education courses. This guide emphasises skills such as decision making, interpersonal communication, goal setting, self-management and advocacy. Nutrition literacy is seen as a general nutrition knowledge and food safety together with knowledge of foods as such. These parts should be taught as critical thinking skills and
practical reasoning learning nutrition as health promotion and healthy behaviours. The work is built on a definition of health literacy as: ‘The capacity of an individual to obtain, interpret and understand basic health information and services, along with the competence to use such information and services in ways that enhance health. Health-literate citizens are critical thinkers, problem solvers, and self-directed learners’ (Evers, 2009, p. ix).

Nowak et al. (2012, p. 392) describes how Slow Food Denver (SFD), a grass-roots organisation, believes that to reverse the trends in childhood obesity and other food-related diseases children must increase their food literacy to understand food and the benefits of a healthy diet.’ They refer to the definition of food literacy from Widgen & Gallegos (2011, no. 15 here) and reason the project with school gardens in school children’s lack of necessary knowledge and skills of where food comes from, and why good food is an important part in health. The programme encompasses the growing of fruits and vegetables, taste education and cooking in the school cafeteria. The gardening includes all aspects of producing foods and is built on the active participation of the students. The taste education is designed to broaden food preferences and carry out experiments with cooking and flavouring so ‘they form personal opinions about food and learn that, even at their age, they can create dishes they enjoy eating’ (Nowak et al., 2012, p. 393). In the cafeteria part of the programme students ‘are becoming part of the food supply chain for the school lunch program. They gain an appreciation of the hard work and effort by farmers and the safety concerns of all people that handle the food from the farm to their school’ (Nowak et al., 2012, p. 393).

The project developed by Schnögel et al. (2009) aimed at ‘supporting people all over Europe with organizing their everyday nutrition in a self-determined, responsible and enjoyable way’ (p. 7). This aim was also used as a definition of food literacy (p. 10). Furthermore, the project was seen as ‘a contribution towards the sustainable, democratic development of European citizenship’ (p. 7). The project has resulted in guidelines and a tool box, where educational targets and outcomes regarding competencies are explicitly formulated. Food literacy is seen as empowerment regarding nutritional behaviour, the ability to make decisions and to be provided with essential and necessary basic competences, for example, preparing meals (p. 12). The work does not use references concerning theories of literacy, learning and competencies, but has descriptions of everyday nutrition in modern life and suggestions for the content of courses or seminars.

**Food literacy as health intervention**

12. Thomas & Irwin (2011)

The intervention involved in this case was an 18-month cooking programme called *Cook it up* for at-risk youth in a Canadian province. Food literacy is defined as ‘the ability to make healthy food choices by having the skills and knowledge necessary to buy, grow, and cook food with implications for improving health’ (Thomas & Irwin, 2011, p. 2). To meet this, the objective was ‘to provide education and to increase skills and awareness of agriculture, healthy eating, food preparation, and food purchasing skills’ (p. 2). The content was directed towards ‘a hands-on food literacy education that highlighted general nutrition, food safety, selection, preparation, and cooking skills’ (p. 2). The anticipation of obstacles and barriers or unexpected opportunities, and finally evaluation, generated understanding about how the program and content could be improved’ (Thomas & Irwin, 2011, p. 5). The adolescents’ baseline cooking skills were measured through a questionnaire and post-test assessments of all participants.
<table>
<thead>
<tr>
<th>No.</th>
<th>Author/Year</th>
<th>Approaches</th>
<th>Concepts and elements of food and food issues, levels 1-4, figure 1</th>
<th>Concepts and elements of food literacy (FL) in the works</th>
<th>Concepts and elements of competencies from Table 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bartsch (2008)</td>
<td>FL* as a general educational food Bildung/literacy approaches</td>
<td>Both nutrition, foods, cooking, meals and food/diet, levels 1-4</td>
<td>FL is nutrition, health &amp; Consumer Bildung related to the life world taking a student centred salutogenic approach.</td>
<td>All 5 elements seen in relation to the individual, the social group and society</td>
</tr>
<tr>
<td>7</td>
<td>Heindl (2003)</td>
<td>Both nutrition, foods, cooking, meals and food/diet, levels 1-4</td>
<td>FL is health competences, functions for a prudent &amp; responsible participation in society. (p.88) Nutrition Bildung is based on 7 themes, see description.</td>
<td>All 5 elements 'continued building of knowledge and practical skills and critical attitudes within the theme nutrition, health to be able to take everyday life decisions' (p.89)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Carlsen (2011)</td>
<td>Both nutrition, foods, cooking, meals and food/diet, levels 1-4</td>
<td>FL is self-decision, co-decision &amp; solidarity, and to be able and dare to choose according to central areas: knowledge of food &amp; health, considerations concerning moral, animal welfare, resources &amp; production, meaning of food as social factor and an area for enjoyment through taste (p.89)</td>
<td>All 5 elements, but described according to Klafki's 6 dimensions 1. a pleasure and sense oriented treatment of own body, 2. productivity in a craft &amp; technique 3. cognitive possibilities 4. aesthetic observation ability, design ability and judgment 5. ethical &amp; political decisions &amp; actions 6. sociality (Carlsen, 2011 pp. 90-92)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Block et al. (2011)</td>
<td>FL as part of Food Wellbeing</td>
<td>Nutrition, foods, cooking, meals (partly), levels 1-4 (some parts in other part of main concept Food Wellbeing)</td>
<td>FL is built on Health Literacy. Defined as 'more than knowledge motivation, understanding nutrition information and acting on that knowledge.' (p.7)</td>
<td>3 elements: To know, to do, to be willing. FL has 3 main concepts: 1) conceptual, 2) procedural, 3) ability, opportunity &amp; motivation to use knowledge (p.7)</td>
</tr>
<tr>
<td>3</td>
<td>Bublitz et al. (2011)</td>
<td>Nutrition, foods/cooking &amp; meals, levels 1-3</td>
<td>FL is only seen as one part of 5 of the concept: food wellbeing</td>
<td>Only elements 1 and 2 From declarative knowledge to procedural knowledge</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Snyder (2009)</td>
<td>FL as literacy cultural foods/cooking &amp; meals, food culture, levels 2-4</td>
<td>FL is cultural literacy</td>
<td>To know, to do, to explore, partly to be, Knowledge of foods, cooking competencies, Sense: Taste, touch, feel, scent</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Smith (2009)</td>
<td>Both nutrition, foods, cooking, meals and food/diet, levels 1-4</td>
<td>FL is built on other frameworks and theoretical approaches for example, Schnigel et al.; see definition in Table 1, Nutbeam, and others. FL is both food &amp; nutritional wellbeing</td>
<td>Knowing (Vaines, 1995) is from 1) life world, 2) scientific, 3) narrative All 5 elements</td>
<td></td>
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</tbody>
</table>

* Food Literacy = FL
<table>
<thead>
<tr>
<th>No.</th>
<th>Author(s)</th>
<th>Approaches</th>
<th>Concepts and elements of food and food literacy (FL) in the works</th>
<th>Concepts and elements of competencies from Table 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.</td>
<td>Vidgen &amp; Gallegos (2011)</td>
<td>Both nutrition, foods, cooking, meals and food/diet Level 1-4,</td>
<td>Refers to Smith's definitions (9). Claim a need for further clarification of FL.</td>
<td>Life skills mentioned. Not possible to extract elements from the article - see 13</td>
</tr>
<tr>
<td>6.</td>
<td>Fordyce-Voorham (2011)</td>
<td>FL as experienced by the public, course participants, and professionals within the food area</td>
<td>Nutrition, foods, cooking partly meals, levels 1-3</td>
<td>Ability to read, understand and act on foods Levels 1 and 2, to know and do mainly</td>
</tr>
<tr>
<td>10.</td>
<td>Pendergast, Garvis &amp; Kanas (2011)</td>
<td>Not clearly from this survey, level 2-3 foods, cooking, meals</td>
<td>Theoretical approach is based on health literacy, the empiric findings talks mainly of cooking</td>
<td>Theoretical all elements are mentioned, empiric findings mostly to know and do.</td>
</tr>
<tr>
<td>15.</td>
<td>Vidgen &amp; Gallegos (2011)</td>
<td>Nutrition, foods, cooking meals, diet, levels 1-4 (cooking is over emphasised)</td>
<td>Food literacy should be multi strategic approach of multiple points of food &amp; nutrition system, broadly looking at food (Caraher et al. 1999)</td>
<td>All 5 elements. Life skill (Lang &amp; Caraher, 1999), self-confidence, self-efficacy, empowerment and social inclusion</td>
</tr>
<tr>
<td>9.</td>
<td>Kimura (year)</td>
<td>Depends on the course; nutrition, foods, cooking, teaching, levels 1-4</td>
<td>FL is seen in the survey as individualised, gendered and privatised, but drawing on health literacy approaches it should be broadened towards this concept.</td>
<td>Elements primarily from 1-3 is seen in the study as food education is seen as necessary for 1) improving public health outcomes, 2) to avoid confusion, 3) to uncoverills of modern food systems</td>
</tr>
<tr>
<td>5.</td>
<td>Evers (2009)</td>
<td>FL as practical food, health, nutrition and part of food, health, nutrition policies</td>
<td>Nutrition, diet mainly level 1 and 4</td>
<td>Health/nutrition literacy is the capacity of an individual to obtain, interpret, and understand basic health information and services along eight the competence to use such information and services in ways that enhance health (p.9x) 1-2 and 4-5, 4 elements Nutrition, food safety, identification of foods, health promotion, critical thinking skills, practical reasoning, diversity</td>
</tr>
<tr>
<td>8.</td>
<td>Nowak et al. (year)</td>
<td>All levels of food, with a strong emphasis on level 2 and 3</td>
<td>FL is taken from Vidgen, 16: 'The relative ability to basically understand the nature of food and how it is important to you, and how able your are to gain information about food, process it, analyse it and act upon it.'</td>
<td>All 5 elements. 'The program integrates physical activity, cooking instruction, science, and social studies to increase students' food literacy. at three levels personal, school, and community.' (p.392)</td>
</tr>
<tr>
<td>10.</td>
<td>Schnégel et al. (2009)</td>
<td>Foods, cooking and meals in focus - levels 2-3 but also issues within 1 and 4</td>
<td>FL is the ability to organise one’s everyday nutrition In a self-determined, responsible and enjoyable way (10)</td>
<td>All 5 elements Empowerment, ability to make decisions, providing essential and necessary basic competences (p.12),</td>
</tr>
<tr>
<td>12.</td>
<td>Thomas &amp; Irwin (2011)</td>
<td>Primarily foods, cooking and meals - level 2 and 3 but part of level 1</td>
<td>FL is the ability to make healthy food choices aiming at empowerment, engagement, culture, food security, fun</td>
<td>To know and do: Skills &amp; knowledge to buy, grow, cook (but to explore, be willing and becoming implicit in the project). All 5 elements</td>
</tr>
</tbody>
</table>

* Food Literacy = FL
Discussion

There are clear similarities between the works presented here; but there are also differences both in methods to reveal food literacy and also in the theoretical understandings and the empirical findings. Table 3 presents this in short form. In the following the works are grouped and compared with the theoretical approaches and models presented earlier, the division being:

- Food literacy as a general educational food Bildung/literacy approaches
- Food literacy as part of food wellbeing
- Food literacy as cultural literacy
- Food literacy built on the health literacy approach
- Food literacy as experienced by the public, course participants, and professionals within the food area
- Food literacy as part of practical food, health and nutrition programmes and guidelines
- Food literacy as health intervention

Furthermore, the following concepts and elements will be included: 1) food and food issues, 2) food literacy, 3) competencies.

From the works different food literacy understandings occur together with formulation of competencies of varied kinds. Figure 1 is therefore elaborated as can be seen in Figure 2.

Food literacy can be seen in a narrow or broad sense (see Table 4); this depends on the understanding both of the term literacy and the food content. Literacy can be understood solely as reading, in this case reading as reading nutritional recommendations, food labels or recipes. If it shall be a broad understanding it must be both reading the word (in a broad sense) and the world as expressed by Freire (1987). From the concepts of the works broad/narrow binaries are outlined.

Both the narrow and broad understandings (see Table 4) are essential to bring into the debate of food literacy. The narrow understandings are however not the most common regarding the works presented, but is seen and may also be more common when it comes to practice. Attar (1990) wrote, when evaluating Home Economics in England, that ‘now is the time to take it away for good.’ The reason was that education within food and meals in Home Economics presented to pupils was representing the middle class teacher and her views on proper food and meals. Also the new more aesthetic view on food literacy can be a narrow education within the proper meal seen from a teacher perspective not considering pupils’ everyday life and conditions for food at home and in surroundings. A broad understanding of Bildung in a critical sense should involve critical considerations concerning what Klafki (2002) calls the key problems of the world today and tomorrow, such as environmental problems, inequality and insecurity, these are also connected to food and food literacy. Literacy is seen through food lenses in this work, these food lenses do affect what can go into the literacy concept.
Following UNESCO’s (2006, p. 148) definition of literacy, it means defining the skills needed in different contexts, how to apply these and how we develop pupils’ learning through chosen texts, artefacts and foods and educational methods. Texts in the case of food should be understood both as texts of different kinds, but also pictures, artefacts, and foods should be seen and understood as texts to be read, used and understood and so on.

Food literacy—Food ‘Bildung’

<table>
<thead>
<tr>
<th>Figure 2</th>
<th>Levels of food and literacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 4</td>
<td>Broad and narrow understandings of food literacy</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aspects</th>
<th>Broad understandings</th>
<th>Narrow understandings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aims</td>
<td>Empowerment, self-decision, co-decision and critical understanding concerning food, meals and wellbeing</td>
<td>Food literacy as plain literacy; understanding nutrition information, recipes and labels Healthy choices, proper nutrition and/or cooking competencies. Gendered - female education</td>
</tr>
<tr>
<td>Content</td>
<td>Food from production to eating. Aspects of nutrition, foods, meals, diets in a critical view concerning both the individual, the group and society Exemplary, student oriented themes</td>
<td>Food seen as single issues: Cooking, growing, nutrition, diet, ... Systematic courses external/teacher decided. Good advices in a normative format.</td>
</tr>
<tr>
<td>Actions/skills</td>
<td>Knowing, doing, experiencing, exploring, sensing Cultural skills in a broad sense</td>
<td>Reading skills/Academic skills Cooking skills in a narrow sense</td>
</tr>
<tr>
<td>Setting</td>
<td>From micro to macro - both individual and social oriented</td>
<td>Mainly micro - individual oriented</td>
</tr>
<tr>
<td>Learning</td>
<td>As an individual, active, complex process but facilitated by the teacher and the environment, foods, texts and artefacts - learning through 'poured' into the pupil through instruction and imitation.</td>
<td></td>
</tr>
</tbody>
</table>
Conclusion and perspectives

Food literacy is on the food agenda at present worldwide, partly reasoned in the diminishing food and/or cooking skills, which have given rise to worry and concern as it is seen as part of the health problems. This review has shown a variety of understandings of food literacy but also similarities and common agreements on the necessary elements in this food literacy. The narrow understanding is farthest related to understanding of nutrition or cooking and a fundamental critique is raised in Kimura’s work (2011), as she finds food literacy to be a narrow, gendered, oppressive understanding, and also in other works it is seen as an individual, victim-blaming approach. Opposite to this, other authors see food literacy as an opportunity for self-efficacy, empowerment and acquiring a sense of coherence and competencies regarding sensory, practical, theoretical and ethical fields. Food education must be include all levels of food in order to acquire a full food literacy or food Bildung, but not necessarily within the same time, class or age. The teaching content must be adjusted to the age group, and be based on previous education within the area. A very evident starting point when it comes to food is to use foods as materials for learning as they are before the children—to explore and experience with food (Table 2; Carlsen, 2011). The next step might be to do, make, cook as the practical part is needed and enjoyable, and using hands and tools is a cultural skill and part of being a human being in the late modern world, and it has an impact of a person’s life. The practical part is however, as suggested by Vidgen & Gallegos (2009), not the only competence needed. The sensory, practical experience must be connected to knowledge and knowing of many kinds (Bartsch, 2008; Heindl, 2003; Carlsen, 2011).

Food literacy comprises issues such as:

- Food courage, common ship, commensality, contexts
- Food curriculum, competencies, components
- Food wellbeing, health, life quality, life style, life world
- All food levels
- Food production, consumption, sustainability
- Literacy as education in an exemplary, problem, action, life world and pupil oriented understanding

In general, food is often seen in a very narrow understanding as nutrition and as a component in a narrow health understanding. But the works can, as presented and discussed, broaden the food and literacy understanding to a more comprehensive understanding of food literacy as food bildung. It is seen that both theoretical and practical elements of food literacy are necessary components food literacy. New concepts in this literacy understanding, such as food courage, food scapes and food wellbeing, might be worth considering and including in research on food education. It is evident that food is a necessary part of development and wellbeing of children and adolescents, but food may also be the reason for health problems.
and risks. Food and meals are both part of everyday life whatever this life is home, outside home, in schools and/or institutions. The works in the food literacy review might contribute to new understandings and opportunities as well as a critical view of what is going on in food education in the classroom or outside. It has been a standing discussion if food and food Bildung is a case for school or home. In my opinion it has to be a case for school, society, and home—it is too important to leave food to the private sphere or society alone, it must be education in a dialectic relationship between human beings, the word—read food—and the world. It is necessary to take food education and food literacy seriously.

Biography

Jette Benn is engaged in research and teaching within home economics, health and consumer education and material culture studies. Her works include action research in schools and evaluation of teacher education national and international and curriculum development.

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