

## **WHAT ABOUT THAT WRAPPER? USING CONSUMPTION DIARIES IN GREEN EDUCATION**

Kopnina, H. (2011) 'What about that wrapper? Using consumption diaries in green education'. *Environmental Anthropology Today*. Ed. by H. Kopnina and E. Shoreman-Ouimet, New York and Oxford: Routledge. Pp. 118-139.

Date: April 2010. Setting: classroom of an elementary school in Amsterdam. Participants: Four children aged 8, five parents, one teacher (as an observer).

Focus group moderator (FGM): Today we are going to talk about consumption - that is what we eat, drink and use, and what we throw away. I have to say I know as much as you do about consumption and probably less [...] I have your consumption diaries in front of me... First, I want to ask the kids: what is consumption?

Angela: It's that diary... that we had to like... make. Right?

Jan: It's what we eat and drink.

FMG [To the other 2 children]: What do you think?

Anneke: Same as [Angela].

Dirk: Consumption is when you consume things.

Dirk's father: [Laughs] And what is consumed?

Dirk: [shyly] Eating stuff...

Jan [Excitedly]: That's what I said!

FMG [Reading from Jan's diary]: 'Mum wants me to have sandwiches for breakfast. So I have to have at least one before going to school'. So, can you say you 'consume a sandwich?'

Jan [Readily]: Yeah!

FMG: What about drinks, is that also consumption?

[All children nod, their parents look encouraging. Jan slyly produces a wrapped sandwich from his school bag and bites into it; his mother shakes her head disapprovingly, audibly reminding him that he ‘shouldn’t eat in class’].

FMG: So, Jan has a sandwich! What shall we call it?

Dirk’s father: Consumption item?

[Everybody nods enthusiastically]

Jan’s mother: For all, it takes me to convince him to eat it in the morning...

[General enlivened discussion on the part of parents about the difficulty of feeding their children in the morning, till FMG’s interruption]:

FMG: What about that wrapper? [...] The sandwich wrapper?

[Confused whispering, shrugging on the part of the children, careful consideration and suspicious glances from the parents]

FMG: Is this a consumption item?

Dirk’s father: Yes.

FMG: Let’s ask the children first. What do you think?

Angela: Mmmm... I don’t know.

Jan: You cannot eat it!

FMG: So, it’s not a consumption item? What do you think, Anneke?

Anneke: I think... I think it is...

Anneke’s mother [defensively]: Are you going to say now that this is bad?

FMG: Why? Why do you say that – that it is bad?

[General uncomfortable silence. Anneke looks perplexed, Jan, Dirk, and Angela look at their parents, Anneke’s mother turns pink, Jan’s and Dirk’s fathers look from FMG to Anneke’s mother, the observant teacher reaches out for her notepad and taps it with her pen, Angela’s mother smiles soothingly into space].

(Recorded, transcribed and translated from Dutch by the author).

***[Insert photo here ]***

## **INTRODUCTION**

Environmental or 'green' education is an important driving force behind the 'greening' of society as it plays a critical role in raising environmental awareness and preparing students for green jobs. None of the existing environmental attitudes and behavior measures is focused on the evaluation of green education, especially in relation to consumption. To date, no longitudinal studies of children and students' attitudes towards consumption influenced by education exist. Also, little has been done to explore the socio-cultural context in which attitudes toward consumption are being formed and to explain the cross-cultural differences in environmental attitudes. This pilot study is designed to take the first step towards developing methods complementing existing quantitative measurements with qualitative strategies, such as consumption diaries, focus groups, and concept mapping. While this research is just a first attempt to tackle children's knowledge and attitudes consumption, preliminary results of the research on which this chapter is based and enthusiasm of the research participants encourage the author to stress the importance of consumption studies as part of green education for educational program developers. As a chapter of this volume, the author hopes that this study will add to the anthropological depository of research on the cultural variants in the perception of the environment in children.

This chapter draws upon the consumption diaries collected from the upper-elementary school children in Amsterdam, The Netherlands, between September 2009 and May 2010.

Consumption diaries are chronological documents recording purchase, use, and waste of materials, which can be used both as analytical tools and the means to stimulate environmental awareness. The four main methodological steps involved in this research were as follows.

Children were asked to complete the consumption diary, paying specific attention to use and

waste materials. Consequently, focus group meetings were held with parents and their children to discuss the diaries. Finally, interviews with the children were conducted in order to generate statements that supplement those generated by focus groups for carrying out the concept mapping analysis. The concept mapping analysis was then conducted to organize the order and analyze the ideas expressed in the focus group and interview sessions.

Pluralistic research combining different methodological tools might be beneficial for the study of EE at schools, especially in relation to the topic of ‘consumption’. The driving questions of this research were: 1. How aware are the children of their consumption patterns? 2. How important are the opinions of the children’s peers, parents, and teachers in their conceptions of consumption? (Socio-cultural influences) 3. How can consumption be translated into green education? (Conversion of social scientific data into pedagogical practice) 4. How can green education be assessed? (Evaluation).

In order to answer the first question, the environmental values of the children need to be addressed. This chapter reviews some of the available methodological tools used by sociologists and social psychologists for measuring children's environmental awareness and proposes alternatives combining traditional anthropological methods with those developed within other disciplines. In order to address the second question, the influence on the children's consumption patterns and perceptions thereof of their peer group, parents, teachers and other stakeholders need to be examined. To this end, the discussion of consumption diaries through focus group sessions and open interviews are employed to unravel the children’s and their parents’ perceptions and awareness of their consumption patterns. The more ethnographic approach to perceptions of consumption suggests the answer to the third question, by providing rich qualitative data on the basis of which comprehensive consumption-oriented program, integrated into the regular school curriculum can be developed. In order to be effective, such a course should be a product of collaborative effort between the children, their peers, their parents, their teachers and other stakeholders (such as educational managers, local policy-makers and the

researchers themselves). The program will also need to involve information not necessarily generated by present methodology, such as ‘responsible’ or ‘sustainable’ or ‘Cradle to Cradle’ consumption, which will be briefly discussed at the end of this chapter.

In order to address the last question, referring to the assessment of the program about consumption, the same methodology can be used to assess the possible changes in attitudes and behavior of children who have completed the program on consumption. Changes in actual consumption patterns could be deduced from the consumption diaries, changes in social dynamics can be observed on the basis of focus group session analysis, and changes in children's perceptions could be assessed through repeated in-depth interviews. This pilot study particularly addressed the first question, aiming to build a foundation for answering the other three, for which a wider methodological framework needs to be developed.

## **GREEN EDUCATION AND STUDIES OF ENVIRONMENTAL ATTITUDES**

Studies addressing green education were quite rare until recent years (for an overview, see Beard, 2009). The topics of learning and sustainability start to appear more frequently in interdisciplinary books and journals since the turn of the century (Louv 2005; Wals 2007; Reid et al 2008; Andrezejewski et al 2009). Studies measuring environmental awareness by school and college students are still limited to sociological, pedagogical or social psychological studies (Miller 1975; Kahn 1999; Eagles and Demare 1999). To date, social psychologists interested in environmental sustainability have applied knowledge from the research literature on attitudes (Kellert 1993; Rauwald & Moore 2002), conversion of environmental intentions to environmental behaviors (Gardner and Stern 2002; Kaiser 2004; Evans et al 2007), participation and environmental learning (Barratt Hacking et al. 2009), responsible environmental behavior (Hines et al 1987), the barriers to environmental behavior (Kollmuss and Agyeman 2002), behavioral change in environmental education (Heimlich and Ardoin 2008), behavior-based environmental attitudes (Kaiser, Oerke & Bogner 2007), moral reasoning and persuasion

(Gonzales et al 1988; Davis 1995; Kellert 1995), reasoning about environmental dilemmas (Kahn and Kellert 2002), commitment (Pallak et al 1980; Werner et al 1995), normative influence (Aronson & O’Leary 1982; Cialdini et al 1990), and incentives (Levitt & Leventhal 1986). Based on Maloney et al (1975) item sampling domains to measure adult environmental attitudes, Williams and McCrorie (1990) and Leeming and Dwyer (1995) developed the scale for measuring first to seventh graders behavioral commitments, affective states and knowledge about the environment.

Since the nineteen eighties, there was a marked interest in environmental education as a tool of infusion of ecological worldviews among the younger generations. Environmental education—both formal and informal from the elementary to university levels—has continued to help expand ecological worldview among students (Dunlap 2008:15). Even short educational programs can stimulate environmental awareness in children (Sanera and Shaw 1996; Manoli et al 2007) and college students (Rideout 2005). More recent efforts have moved away from local approaches to a broader conception of our relationship to nature, including cultural values (Stern & Dietz 1994; Stern 2000), how concern for nature can be increased through empathy (Schultz 2000 and 2001), and how our identity is shaped by the natural environment (Clayton & Opatow 2003). Various techniques have been used for the study of green values in children and adolescents, such as a behavior-based attitude scale, which is based on people’s recall of their past behavior (Kaiser et al 2007).

One of the most popular measures of ecological beliefs or worldview in studies that use theoretical models predicting environmental attitudes and behaviors is the New Ecological Paradigm (NEP) Scale. The scale is a widely used measure of people’s shifting worldviews from a human dominant view to an ecological one, with humans as part of nature. The original NEP scale consisted of three dimensions: the balance of nature, anthropocentrism, and limits to growth (Dunlap and Liere 1978). Later, additional elements were added to the scale, including human exemptionalism (the idea that human beings are exempt from constraints of nature), and

ecocrisis (concerns about the occurrence of potentially catastrophic environmental changes) (Dunlap 2008). The NEP Scale for children was developed, using a standard Likert-type format with wording changes to make it suitable for use with upper elementary school-aged children (Manoli et al 2007) and the other using a highly innovative adaptation of key themes of the NEP into games appropriate for first- and second-grade children (Evans et al. 2007). NEP scale was successfully applied internationally (Van Petegem and Blicek 2006). However, the author found the NEP scale inapplicable to the case of consumption as the study of this topic required consideration of the specifications of social and cultural contexts in which consumption study can serve as a starting point of integrating green education within European society.

As Efir notes in his contribution to this volume, despite societal and interdisciplinary interest in environmental learning, anthropological research on environmental learning has been very limited. While detailed ethnographic studies might add very valuable insights into the existing body of literature on environmental learning, anthropologists might also profit from incorporating interdisciplinary methodology into their toolkit.

## **CONSUMPTION IN ANTHROPOLOGY**

In his review of consumption studies in anthropology, Daniel Miller finds links to consumption in different subjects of anthropology, such as spheres of exchange, gifting, the study of prestige goods, sumptuary laws, cargo cults and so forth (Miller 1995:264). Sometimes all these subjects are linked through the study of material culture through archeology, but none of them amount to a recognized category of consumption studies. The publication of Mary Douglas and Baron Isherwood's *The World of Goods* (1978) and Pierre Bourdieu's *Distinction* (1984) lie at the root of the anthropology of consumption (Miller 1995:265).

According to the review of Mayer and McPherson (2004), early research in the field of consumption addressed energy use in the home (Pallak et al., 1980), littering (Cialdini et al.,

1990) and the re-use of materials (Burn 1991; Heckler 1994; Oskamp 2000). Broader studies included cross-cultural consumption (Howes 1996), culture of capitalism (Robbins 2007), consumer culture (Slater 1997; Wilk 2002, 2006, 2009, 2010), material culture (Miller 1998), consumption and everyday life (Mackay 1997), consumption and environmentalism (Miller 1995; Lilienfeld 1998; Shepherd 2002), and political ecology and consumption (Bryant and Goodman 2004). Ethnographic studies addressed barriers that consumers face in their attempts to reduce their environmental impacts (Isenhour 2010), myths of sustainable consumption (Wilk 2004), and consumption and garbage (Wilk 1982; Ritenbaugh 1984; Reilly and Hughes 1985; Radhje and Murphy 1992). However, neither of these studied linked consumption to attitudes and learning. Neither did literature on responsible or ethical consumption, such as third-party certification, e.g. Fair Trade (Bacon et al 2008, Jaffe et al 2004) or 'green consumption' (Connolly and Prothero 2008) link the environmental education to responsible consumption.

## **GREEN EDUCATION IN SCHOOLS IN THE NETHERLANDS**

Innovation in green education that takes consumption into account is necessary to address the 'sustainability', both in terms of recognizing global and historical forces that lead to environmental degradation and local – and in this case – Western patterns of consumption. The author argues that anthropologists could adapt some of the existing tools and measuring techniques for studies of environmental attitudes (such as the New Ecological Paradigm scale discussed in the following section) and combine them with their own ethnographic approach to produce rich contextual data necessary for innovation in green education.

Green education in The Netherlands has been developing in tune with the recent interest, expressed by the Dutch ministries of Education and Social Affairs, in 'preparing the new generation for green jobs of the future.' A number of organizations sponsored by these Dutch ministries have developed green education programs for school and college students. One organization coordinating such programs is the platform for Nature and Environment Education



(NME). NME, together with the Dutch testing and assessment company CITO, has developed guidelines for the development of green education in elementary schools, such as Nature Education for Elementary Schools (Thijssen 2002) and Sustainable Development for the Elementary Schools (Wagenaar 2007). The point of departure is integrating socially and environmentally relevant knowledge into the existing curriculum for subjects such as geography, botany, biology, and history. The Dutch Ministry of Education also supports Sustainable Teacher's Colleges Foundation (DHO), 'working on sustainable development in education; either through separate modules or by means of an incorporated view.' DHO developed an online forum called (Plado), in which professionals involved in environmental education can contact each other and share knowledge on issues of sustainable development in education. One of the themes developed by Plado is consumption and Cradle to Cradle principle. However, Cradle to Cradle is not (yet) discussed in relation to the school curriculum.

There are no consistent studies on either content or success of green programs at schools. A lot of what may be characterized as 'green education', including lessons on environmental awareness, alongside regular biology or geology lessons, is offered to school children without specific assessment of their 'green' values. Field trips to parks to study local plants and insects, tending 'school gardens' ('schooltuinen'), or lessons about poverty and pollution in the developing world are examples of activities that by broader definition could be characterized as green education. While, in accordance with the combined statistics from the United Nations Statistics Division, Economic Commission for Europe and Economic Commission for Africa, Dutch consumption of, for example, energy per capita is hundreds of times higher than that of most citizens of Sub-Saharan Africa, green education in the Netherlands includes no information on (domestic) consumption.

## **TWO ELEMENTARY SCHOOLS IN AMSTERDAM**

For this study, the sample consisted of the elementary school children aged between 7 and 10 from two Dutch elementary schools in the Amsterdam area. The sample also included parents of selected children and teachers for the second stage of research (focus groups). The children were contacted by their parents. One (Montessori) school contained the population of seventy-nine children aged between 7 and 10, and another (regular public) school containing the population of one hundred and twenty-two children of the same age. Both schools selected for this study were located in the predominantly 'white' (ethnically Dutch), well-to-do areas of Amsterdam. The majority of the teachers expressed interest in the results of the study. Ten of the teachers from the first school (out of a total of seventeen) and six from the second school (out of ten) expressed their interest in working together on developing a new program based on consumption education. Both directors and administrators expressed interest in research results and indicated that they would be willing to consider amendments to the curriculum.

The children were selected by contacting their parents through the class mailing lists. Parents and children received separate introductory letters. Invitation letters to parents contained basic information about the aim of the research and provided the rationale for allowing their children to participate in this study. The letter specified that the consumption items were not to be perceived as 'good' or 'bad' but needed to be listed to open up a focus group discussion. Children received a simplified version of this letter, inviting them to complete the diary.

The sample consisted of the elementary school children aged between 7 and 10 from two Dutch elementary schools in the Amsterdam area. The sample also included parents of selected children and teachers for the second stage of research (focus groups). The total of 59 adult family members (20 from the first school, 39 from the second school) participated and will be henceforth referred to as 'parents', including grandparents, older siblings, and other guardians. Thus, a total of 97 children, adult family members, and teachers participated in the focus group sessions, organized at respective school's locations.

**Table 1.**

Methodology	No of participants School 1		No of participants School 2	
	Children	Parents	Children	Parents
Consumption diary	31		60	
Focus group	15	9	19	12
Interview	5		12	
Concept mapping	31	20	60	39

Obvious sample limitations can be noted, including a self-selection bias (the fact that children and parents more interested in environmental issues volunteered to participate) and characteristic of the sample itself having to do with the fact that both schools were located in the predominantly ‘white’ (ethnically Dutch), well-to-do areas of Amsterdam. Another limitation has to do with the intergenerational differences and influences of parents over their children’s knowledge and opinions, which will be discussed in the reflection of this chapter. It needs to be noted that the Dutch parents and their children might examine different patterns of behavior than the other ethnic groups, which were not included in this sample. Studies of migrant groups in the Netherlands reveal large inter-generational behavioral differences between, for example, the Turks and the Moroccans (Stevens et al 2003). Some studies showed Dutch parents to be less authoritative and hierarchical than, for example, the Russians (Kopnina 2005). Cross-cultural studies on children’s consumption patterns and attitudes in more ethnically heterogeneous schools might offer very divergent data and valuable insights.

Another feature of the sample is that not all participants took part in all four steps of the methodological procedure. The parents' and children's opinions were sometimes measured separately, sometimes together as the author did not establish clear participation criteria for focus groups. Since the author was interested primarily in the qualitative detailed investigation of a small sample, issues associated with the peculiarity of a sample and low response rates are

partially justified for this study, but need to be addressed in case more rigorous study of this kind is undertaken. All these shortcomings are due to the fact that the present research constitutes a pilot study that lays a foundation for more ambitious research of green education with special focus on consumption.

## **METHODOLOGICAL STEPS**

The author finds herself in an emic position, as apparent from the segment from the group session quoted above. The researcher does not position herself as an authoritative or objective ‘expert’ while interacting with the group of participants, paying tribute to the self-reflective, subjectivist tradition of postmodern anthropology. Especially in the case of the focus group sessions, the researcher’s own ‘involved’ approach attempts to deploy both the Platonian dialectic and personal activist position at eliciting participants’ responses. This activist position refers to the ultimate goal of this research, namely measuring and simultaneously increasing the children’s (and incidentally their parents’) awareness of their own consumption patterns - something that will be discussed in the ‘next step’ section of this chapter. While ‘traditional’ anthropologists rarely conduct research with the intention of swaying the minds of their ‘informants’, the environmental anthropologists, some of whom have contributed to this volume, are increasingly using this type of ‘involved’ ethnography.

This study employed the four-step methodology procedure to elicit information about the children and their parents’ awareness of their consumption patterns. This procedure involved the use of consumption diaries by the children, which were consequently discussed in mixed children-parents’ focus groups, followed by in-depth interviews with the children. These procedures were used to generate statements on the subject of consumption. Qualitative data resulting from these sessions was organized through concept mapping analysis.

In contrast to the anthropological methodological tradition, the present methodology may strike the reader as a 'hybrid' between sociological, social psychological and pedagogical approaches. As discussed in the Introduction to this volume, (environmental) anthropology can no longer be defined in terms of clear methodological domains. Adding ethnographic skills to the existing methodological toolkit would be valuable for a deeper understanding of green education. Such skills comprise participant observation, discourse analysis, in-depth interviews; giving specific attention to the individual's worldview; group-generated dynamics in collaborative generation of knowledge; as well as subjective probing of socio-cultural and inter-generational factors comprising such knowledge. Standard evaluation procedures used for developing and assessing the success of educational programs (such as CITO in The Netherlands) rarely involve ethnographic studies. A greater reliance on ethnographic methodology could aid the examination of intergenerational processes and dynamics involved in the discussion of consumption between the children and their peers, or the children and their parents or teachers.

### **Consumption Diaries**

The simplest consumption diary (administered to the youngest segment of the children, between 7 and 8 years of age) consists of the following matrix: time of day (starting with 'when you wake up' to 'when you go to bed'), food and drink consumed, and waste products (specified as 'for example, packaging'). Multiple items could be entered in the one-time slot, but no room for clarifications or comments was allowed. Parents were asked to assist their children in completing this diary. The more advanced consumption diary (administered to the older segment of the children, between 8 and 9) consists of the same matrix, with the addition of 'energy' as separate categories. Finally, the age group between 9 and 10 years old is given an open-ended diary in which the children are asked to enter all consumed and disposed items, specifying in the introduction to the diary that they should consider food, drink, utilities use (such as water and electricity) and disposed items (including sanitary items). Other consumption

items, such as objects (clothes, furniture, etc.), cultural (cinema, theatre, etc.), transportation were excluded from the analysis.

Consumption diaries alone, however, cannot fulfill an anthropological study of consumption but are helpful in conjunction with a more qualitative study of behavior and attitudes, which focus groups and interviews provide. Consumption diaries completed by children with the assistance of their parents are neither objective nor concise as they only indicate the simplest types of consumer products (such as 'food' or 'drink') without quantifying these items (children are not asked, for example, how big or heavy their sandwich was) or specifying 'quality', such as composition or origin (such as what type of bread was used for the sandwich and whether the tomato in it was locally grown). Rather, the entries in the diary serve as a starting point for opening a discussion about consumption items, as well as quantity, composition, and origin of the products consumed. Children were asked to reflect on their diaries together with their parents during the focus-group sessions and individual interviews.

### **Focus group sessions**

At each school, the concept mapping meetings were held, led by a facilitator. Parents, teachers, and children were invited to participate in the focus group sessions to discuss the consumption diaries as well as ways to make consumption more 'responsible' and 'sustainable'. The term 'sustainability' was explained using the Brundtland definition in the case of parents and the formula 'good for health and nature' for the children. During the focus group sessions, this term was discussed in greater detail, bridging the gap between parents' and children's ideas about 'sustainability'.

The extract from a group discussion at the beginning of this section was used as an 'opener' for a discussion guided by the focal question: *'healthy and environmentally-friendly consumption should include the following....'*. At the first school, the meeting started with a 50-minute

brainstorm session during which participants were asked to formulate statements to complete the focal question. It needs to be noted that initially, the author conceived the focal question without evoking 'health' since the author believes that health and environment are not necessarily complementary to each other (Kopnina and Keune 2010). During the process of collaborative inquiry during the initial and largest focus group session involving 7 children of different ages, 9 parents and 1 teacher, the majority of participants has evoked the topic of 'health' in relation to consumption. Participants felt that the discussion of the environmental impact of consumption needs to be strengthened by its relation to health, thus convincing the researcher to include 'health' in the focus question. The following summary of the focus group discussion provides a clue as to why such a connection might indeed be significant (as well as why the author was reluctant to include it in the first place). Themes discussed in the two-hour session included questions of what consumption is, what 'healthy consumption' is and what 'environmentally-friendly consumption' is. These themes were largely organized under the 'food', 'drink', 'waste', and 'utility/energy' items.

In regard to food, while the ideas about healthy and environmentally-friendly items often overlapped (as in the case of 'organic', 'biological', or 'home-grown' foods), other items seemed to be either good for health but not 'environmentally-friendly' (such as peeling fruits for the fear of chemicals in the peel – thus reducing perceived risk of 'poisoning' but simultaneously wasting part of the fruit), or good for the environment but not necessarily healthy (veganism). A number of adult participants stressed ambiguity of presumed 'goodness' of biological (organic) food as, one of the participants remarked 'it requires more space to grow' ('environmentally bad'), and as another adult reflected, 'might not be all that healthy'.

As far as 'drink' is concerned, similar overlaps occurred as with food (for example, drinks without chemical additives such as taste enhancers were both viewed as 'healthy' and 'good for the environment'). Drinking tap water constituted a significant theme that divided the groups along the lines of beliefs in health safety and risks associated with factors such as 'treatment

chemicals', 'chloral substance', 'fluoride additive level' (all factors, without exception, named by the parents). Drinking bottled water was seen as less 'risky' than tap water by less than half of the parents, who evoked added 'minerals', 'vitamins', and particularly the 'purity' as greatest health advantages. During two focus groups, the opinions among parents clashed significantly over the advantages and disadvantages of tap versus bottled water. In the rare case when an 8-year-old girl joined the parents'-dominated the discussion, the subject of bottles was raised as the most problematic in the 'environmentally friendly' items. Another item discussed was 'packaged juice'. Whereas some parents pointed out that the color additives or sweeteners were 'not healthy', the children tended to think that juice was healthy (because, ironically, their parents told them so). When asked to elaborate on what the children perceived as healthy, a few younger children issued that the healthiness is due to 'the vitamins' and 'stuff that makes your bones and hair stronger' and, as a 7-year-old boy put it, 'natural and good for nature'. When asked to elaborate on that, the boy said that 'juice is made of apples... and oranges' and that those 'grow on trees... so it's good'.

The packaging was sometimes seen as 'healthy' (protecting food from germs and other contaminants and keeping it fresh) or 'unhealthy' (when packaging was thought to contain dangerous substances). In most cases, packaging was seen as 'bad for the environment', although some parents named the benefits of 'biodegradable' or 'eco-friendly' packaging. As to the 'packaging' of the juice, one parent came up with the statement: 'Nutritional and health information contained on [packages] helps us make informed choices'. An 8-year-old boy issued that packaging 'lets us see where the juice comes from', and while he could not elaborate on this point, his father supplied 'so we can choose not to buy juice that is flown from far away'. This statement unlocked the discussion about the information on the packaging that could be either 'good for health' (nutritional values) or environment (whether the product needs to be transported from afar). A 7-year-old girl supplied that if the juice needs to be 'flown from afar' it is good that the package 'protects it from spilling'. Transportation discussion sparked one parent's memory of the 'milk farmer' who used to collect milk bottles from the villagers and



bring them back refilled with milk. Older parents who were born outside of Amsterdam recalled the same event, one of them reflecting: 'This way you didn't have to throw away [the bottle]'. A 9-year-old boy asked: 'But cannot the packages be recycled?' which initiated the discussion on what is packaging made of, how it can be recycled or reused.

Groups with older children participated in the discussion of 'utilities', including water and electricity. The parents approximated the amount of water used to be much higher than the children, especially being aware of the water used for 'flushing toilet', 'taking a shower', 'washing hands', and 'cooking' – some naming water that was used for growing food or producing drinks they consumed. Children, however, seemed equally aware as their parents of the electricity use, especially 'the lights' and 'the use of electrical items', such as TV and computers and even 'electrical cars' (which neither of the adults had). Consumption was also discussed in terms of 'good or bad for others' as sustainable development was mentioned. Issues like 'fair payment to poor farmers in developing countries for their products' and 'using other country's land to produce the food we eat' were mentioned.

As the session was video-recorded and analyzed, the group's processes and dynamics were examined. The author observed the power shifts and information gaps between parents and their children, including situations when parents became defensive of their children's consumptive behavior (as can be seen from the extract from a session quoted at the beginning of this chapter) or when the children were corrected by their parents about their consumption. Other curious shifts were noted, such as the children actually 'educating' their parents about – in one case – more efficient use of utilities, or, in another case, about the more 'environmentally friendly' consumption of meat substitutes. The effects of intergenerational group dynamics and power shifts should be examined in greater detail in consequent research. These would also be of anthropological interest in regard to analyzing where, when and from whom children learn about and develop environmental consciences.

## **In-depth interviews**

In the course of the focus-group sessions, the researcher has noted that children's opinions were under-represented in mixed groups. Insufficient amount of children's statements in parents'-dominated groups necessitated the follow-up in-depth interviews with children in order to generate usable statements for concept mapping analysis. Interviews were held with seventeen children on the subjects raised during the focus group sessions.

Children were asked to reflect upon their consumption diaries as well as upon discussions raised by their parents and peers. The interview topics included the topic of consumption (what children understood it to be); consumption in general (with the interviewer specifying that consumption in itself is neither 'good', not 'bad', but also introducing the idea of 'global consumption' and 'country differences'); the quantity and quality of consumed items (how much of what is being consumed, composition and origin of consumed items); health effects of consumed items (which products are 'good for one'); environmental effects (what implications can there be for 'nature' and how 'nature' is being understood in relation to consumption). The interviewer has consciously allowed children to take the discussion in any direction as long as it stayed anchored in these broad topics. Perceiving potential ethical difficulties, connected with possible value judgments about the harmful effects of consumption or the possibility of evoking guilt or denial, the interviewer attempted to only elicit opinions already present among the children rather than 'educating' them about consumption. As in the case of focus group discussions, the researcher stressed her own lack of knowledge or judgment on what is 'good or bad' and her interest in what the children themselves thought about consumption. Interviews were recorded, transcribed and analyzed using the Qualitative analysis software program MAXQDA. This program helped to generate a number of statements from both the focus group and interview transcripts that enabled the researcher to undertake the concept mapping analysis.

## **Concept mapping**

Focus group sessions were conducted simultaneously with the concept mapping, which is commonly used to elicit ideas about complex issues in small groups, and to map those ideas in a structured way at the group level (Trochim 1987). The concept mapping method requires that statements are clear and do not contain multiple ideas. Therefore, the facilitator encouraged participants to clarify jargon and helped to edit the statements. Statements expressing similar ideas could be submitted only once. All statements were typed out on the computer and printed on a card. After a break, the participants received a complete set of cards. They were first asked to rate how important they considered each statement, using a five-point Likert scale: 1 (not important); 5 (extremely important). They were then asked to sort the statements logically according to themes or clusters and to provide a name for each cluster. These tasks were performed individually, with a group facilitator (but not the parents) helping the children. Subsequently, scoring forms were entered into the computer and preliminary results generated by the concept mapping software (concept maps) were discussed in the group.

The statements generated at the first meeting were also the basis of the concept mapping at the second school. Here, participants were only invited to rate and sort the statements generated at the first school and to discuss the preliminary results. Following this procedure, the mean priority and standard deviations (SD) of the ratings the participants assigned to each statement were calculated at the group level. This resulted in a rating list of statements for younger and older children and their parents. Multi-dimensional scaling techniques and cluster analysis were used to calculate how often statements were grouped into the same cluster. This resulted in a two-dimensional point map for each group. On these maps statements that were more often placed under the same theme by the group members are located closer to each other. The researcher selected the final number of clusters, based on the proximity and the content of the statements. To identify similarities and differences between the children and their parents, the clusters they produced were compared by content analysis.

## Results: The children.

Table 2. Clustered statements and their ratings: children.

Cluster 1. Food should not damage nature (7 statements)	<p>Food should be made without killing animals (5)</p> <p>Food should be made without using too many plants (5)</p> <p>Over-fishing is bad for nature (5)</p> <p>I want to be a vegetarian (4)</p> <p>Meat is important for my health but bad for nature (3)</p> <p>I may become a vegetarian some time (2)</p> <p>I am a vegetarian (1)</p>
Cluster 2. 'Packaging is not good for nature' (3)	<p>The packaging is dirty (as it pollutes nature) (4)</p> <p>The packaging uses too much space (4)</p> <p>It's too bad packaging goes in the garbage (3)</p>
Cluster 3 'Things do and how they affect the world' (5)	<p>I should not eat or drink too much (3)</p> <p>Eating too much is bad for nature (3)</p> <p>Eating eat other animals is not good (2)</p> <p>Eating 'vegetables' [plants] is not good (1)</p> <p>If I eat all plants there will be nothing left for animals to eat (1)</p>
Cluster 4. 'Things that are (not) good for others or yourself' (5)	<p>If we eat too much here the children in Africa will have no food (1)</p> <p>If you eat or drink too much there isn't too much food left in the world (1)</p> <p>Nature cannot always produce more for others (1)</p> <p>If you eat too much, you become fat (1)</p> <p>Eating enough is important for everybody (1)</p>
Cluster 5. Trade-offs (3)	<p>My parents never use their car, so we can sometimes take an airplane – and that saves energy (1)</p>

	<p>We pack our car full [of groceries], this way dad says we know what we need per week... and don't buy too much (1)</p> <p>If you use less electricity you can do other things (1)</p>
<p>Cluster 6.</p> <p>'Consumption and health' (2)</p>	<p>If you are fat it's unhealthy (1)</p> <p>Eating meat is unhealthy (1)</p>

### Results: The parents.

Table 3. Clustered statements and their ratings: parents.

<p>Cluster 1. General awareness of consumption (6 statements)</p>	<p>Knowledge of health benefits and risks of consumed items (6)</p> <p>Children and parents should know more about the consumption (6)</p> <p>Children should have nutritional knowledge (5)</p> <p>Nutritional knowledge should be passed from parents to children (3)</p> <p>Product developers have a responsibility to report facts (3)</p> <p>Producers need to report facts (2)</p>
<p>Cluster 2. 'Social responsibility' (4)</p>	<p>Consumers should use fair trade products (10)</p> <p>Consumers should pay more for Max Havelaar products (6)</p> <p>Distribution of food in the world needs to be fair (3)</p> <p>Rich and poor should be able to consume the same (1)</p>
<p>Cluster 3</p> <p>'Environmental awareness of consumed items' (8)</p>	<p>Fish consumption is good for health (6)</p> <p>The consumer should know whether the product is locally grown or imported (5)</p> <p>The consumer should know whether the pesticides were used (4)</p> <p>We are considering vegetarianism (4)</p> <p>We are vegetarians because meat consumption is bad (2)</p>

	<p>We are suggesting vegetarianism to our children (2)</p> <p>Over-fishing is bad for the environment (2)</p> <p>Increased population in The Netherlands leads to increased land use for food production (1)</p>
Cluster 4. 'Awareness of energy and water use' (5)	<p>More 'clean', 'green' or 'renewable' energy is needed (combined statements (8).</p> <p>Energy consumption influences climate change (3)</p> <p>We need to limit energy use (3)</p> <p>Our energy use should be more efficient (3)</p> <p>House isolation is needed to protect the house from cooling (1)</p>
Cluster 5. 'Environmental responsibility in regard to waste' (7)	<p>We need to do more to reduce the amount of waste (8)</p> <p>We need to limit packaging materials (5)</p> <p>Recycling is important (4)</p> <p>(Eco)-efficiency needs to be developed (4)</p> <p>Human waste can be used (3)</p> <p>Sewage systems should not be chemically treated (1)</p> <p>Human waste could be better used for fertilization (1)</p>
Cluster 6. Left-over statements (3)	<p>Over-consumption is related to the tragedy of the commons (1)</p> <p>Children need to be educated about the consumption (1)</p> <p>Talking about consumption makes us feel bad (1)</p>

## REFLECTION

Comparison of the clusters shows that parents and children identified common thematic clusters referring to social and environmental responsibility. Social responsibility was linked to both health (of the consumers) and the conditions of people who produce food. In cases like meat consumption and packaging being seen as 'bad for the environment' and 'chemical additives in

food and drink' as 'bad for health' parents and children's opinions overlapped. Some clusters, such as 'trade-offs' were present only in (older) children's groups. In the case of parents, greater importance was placed on health and social responsibility aspects of consumption, while children formed more 'environmental awareness' clusters. Children generally formed more clusters than their parents, with many semantic overlaps (as with 'if you eat too much you become too fat and it's unhealthy', related to both personal responsibility, social responsibility, health, and other possible cluster categories), each cluster containing fewer items (statements). This could be due to the fact that fewer children participated in the interviews than parents in the focus group sessions. Surprisingly, children placed a low priority on health issues. This could be due to the nature of interviewing (rather than group sessions that generated parents' statements). It is also possible that there is evidence of children's lower awareness of or stress over health concerns or an 'immortality' mindset – all these hypotheses need to be expanded in consequent research.

Based on the preliminary results, the author hopes that the data produced through this interactive collaborative inquiry will aid in the development of new elementary school programs addressing alternative modes of consumption. Much more vigorous research is needed to separate behavior (actual consumption patterns), intentions and perceptions of the children. This pilot study leaves us with many questions and calls for in-depth reflection on the place of consumption in our society in general and in green education in particular. Reflecting on how much of 'green education' is really 'lifestyle education' we may wonder how much of it is culturally and socio-economically biased? How explicit is the connection between consumption and the knowledge the children are gaining the processes of environmental protection and appreciation of the environment? While the parents seem to have a general idea of what can be 'good' for health and environment, it is hard to tell how the children perceive their own potentially positive role in 'responsible consumption'. Intergenerational differences in perceptions of (health and environmental) risk, as well as own agency and influence over-consumption choices and their

consequences of such choices need to be addressed in consequent research. Opinions of parents and their children and the influence of one on the other also need to be studied in greater detail.

In the evaluative meeting with the children, parents, and teachers discussing the concept mapping results, the research participants expressed their interest in the development of the pilot program on consumption in their schools. Findings from this research need yet to be incorporated into the larger framework of the educational program, incorporating the Cradle-to-Cradle principle into the 'sustainable consumption' program.

### **NEXT STEP: ALTERNATIVE MODES OF CONSUMPTION: CRADLE TO CRADLE PRINCIPLE**

The Cradle to Cradle principle refers to the concept developed by the American architect William McDonough and the German chemist Michael Braungart in their influential book 'Cradle to Cradle: Remaking the way we make things' (2002). The authors made the case that an industrial system that "takes, makes and wastes" can become a creator of goods and services that generate ecological, social and economic value. Arguing that the products and materials used for consumption do not necessarily have to be produced 'cradle to grave' and discarded through waste incinerators or in landfills, but can be retained for infinite use. The authors argued that consumption items could be designed to be retained in either biological or technical cycle. Resulting products will not be wasted but returned into either 'nature' or technical domain where they could be infinitely reproduced, rather than merely reused, recycled and actually down-cycled. Making a point of the fact that recycling is actually down-cycling, and that efficiency in a faulty system only makes consumption 'less bad', McDonough and Braungart produced a set of new ideas about consumption. The authors succeeded in producing a number of designs, ranging from construction to textiles (often based on pre-industrial knowledge of 'natural' building materials or 'organic' clothing) that not only brought them commercial success and recognition but also established Cradle to Cradle (C2C) practices and organizations across the globe. McDonough's and Braungart's responsible consumption can be very appealing to the



course aimed at critical and yet positive learning about consumption. Ethical considerations, implicit in the research presented in this chapter, such as the need to avoid guilt feelings about consumption in favor of positive learning, may be addressed through the application of the Cradle to Cradle principle.

## **CONCLUSION**

This research was conducted as a pilot study only on the basis of which proposed methodology could be tested and fine-tuned in order to conduct more ambitious research of green education with special focus on consumption. Although the scope of this chapter does not allow for it, this research could be embedded into the scholarship of the risk society - particularly environmental and health risk perceptions (Beck 1992; Giddens 2009) and consumption (Sahlins 1976; Baudrillard 1981; Carrier and Heyman 1997). In line with the work of two other contributors to this volume, Anderson (1996) and Efird (in this volume), the author finds anthropology of environmental learning to be of paramount importance in the environmental anthropologists' ambition to contribute to the understanding of societal influences on environmental change and to the development of solutions to environmental problems. While many techniques for measuring environmental attitudes, values and behaviors have been developed by sociologists and social psychologists, anthropologists seemed to have left this area to other disciplines. While anthropologists may be reluctant to 'measure' knowledge and attitudes, they could, however, contribute to the applied studies of children's understanding of the environment and how to protect it, as well as studies of green education, and studies of our own, western cultures' conceptions of and attitudes about nature and consumption. They could also be aided in these studies by the supplemental use of measuring devices such as the ones discussed. The ethnographic data on children's consumptive practices and perceptions are lacking, and more rigorous research is needed to provide a foundation for incorporating consumption into green education. The ethnographic methodology could be very useful in gaining insights into the consumption patterns and perceptions of children in their socio-cultural context. This research,

aimed at integrating various methodological strategies, did not try to exhaust but rather to open up some of the possibilities available to anthropologists for studying existing beliefs, values, perceptions and attitudes of children towards consumption. In order to find out whether the educational program addressing consumption is working, the same methodology used for the baseline measurement of consumptive patterns and attitudes can also be used to measure the success of the educational program on consumption.

The study of the social influences of children's peers, parents, and teachers in their consumption choices require further investigation, involving a diversified methodological toolkit. It is the author's hope that the results of this study will be relevant for teachers as well as policymakers as they can form a foundation for translating the existing knowledge on consumption into green education. The concept mapping data can be used as a foundation for the development of new curriculum, augmenting children's knowledge by providing a framework for responsible consumption, as suggested by the Cradle to Cradle principle.

The study of EE from a methodologically mixed perspective may lead us to propose a new Post-NEP model, informed by anthropological attention to ethnographic detail and cultural context, more nuanced and context-dependent than the current NEP theory. The state-of-the-art in environmental education research is dominated by quantitative studies characterized by uniform, standardized models, which, according to their critiques, fail to emphasize the socio-cultural dimension of the new phenomenon of green education. Through the new Post-NEP model, the appropriateness and socio-cultural sensitivity of disparate components of EE could be assessed in terms of the particularities of national contexts and integrated into the design of the successful green education programs. Appropriating sociology's concern for social patterning and anthropological expertise in cultural comparison, as well as combining methodological strengths of both disciplines, consequent research promises not only an innovative account of the national differences in green education but a positive policy output that could supplant the generic environmental policy approach that is proving more and more problematic in increasingly

diversified national settings.

Harnessing both sociological methodological focus on conceptualization and modeling as well as anthropology's specialization in an in-depth ethnographic study, consequent research may open new opportunities for embedding green education within socio-cultural processes through proposing the Post-NEP model based on the insights from the environmental social science.

Scholarship in the area of national appropriation of environmental policy has been over-determined either by instrumental, practical approaches that fail to take account of socio-cultural contexts in which generically formulated policy occurs or by purely 'socio-cultural' descriptions of how such policies are received at the grassroots level. Whereas current studies of green education focus on either societal benefits determined by instrumental needs (such as the necessity for long term sustainable solutions to the current environmental crisis), or by particularistic pedagogical prescriptions, consequent research may bridge that divide. Follow-up research drawn from this pilot study may do so by invoking two distinct strategies of inquiry: interdisciplinary methods (combining measuring scales and ethnographic approaches), twinned with the employment of focus group and concept mapping approaches as methods of inquiry. Consequent research may also address the explanatory theories of the formation of environmental attitudes in general and in relation to consumption in particular and to test a hypothesis that social, political and the institutional context – particularly environmental education - can be reliably assessed and shown to play an important role in shaping children's and adolescents' environmental perspectives.

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