

## 2.4 Participatory photo interviews for exploring children's food preferences

## Participatory Photo Interviews for Exploring Children's Food Preferences

### Abstract

This methodological paper elaborates the advantages and disadvantages of participatory photo interviews in exploring children's experiences with food. We studied 12 family comprising dyads of seven- and eight-year-old children and their parents to illustrate how the method can be used to identify and understand children's food preferences. Children took photos over a week's period while eating family dinners at home. The photos were then used to elicit information during separate in-depth interviews. Data were analysed by content analysis using NVivo 10, qualitative data analysis software. Participant photo interviews helped children remember and describe sensory, cognitive and affective situational associations of their meals with increased confidence. The approach helped explore interesting aspects of children's preferences such as their taste towards raw vegetables, the importance of controlling and choosing meal ingredients and ambivalent food preferences. Disadvantages were parental involvement during data collection and the potential for sensitive information to be revealed.

**Key words:** photographs; visual methods; photo elicitation; qualitative methods; sensory; Nvivo

## **Introduction**

Food consumption among children is largely guided by their food preferences, which are considered important predictors of future food choices and diet (Mikkilä, Räsänen, Raitakari, Pietinen, & Viikari, 2005; Wiggins, 2014). To ensure that authorities and parents are given appropriate recommendations on how to help young children develop healthy food habits, researchers face a challenge in choosing appropriate research methods to assess children's food preferences. Several researchers have argued that we need more qualitative studies that work more inductively to promote children's understandings and experiences with food (Barker & Weller, 2003; Chitakunye, 2012; Johansson, Mäkelä, Roos, Hillén, Hansen, Jensen, et al., 2009; Marshall & O'Donohoe, 2010). This methodological paper presents lessons from a study of children's experiences with eating shared family dinners at home to describe and discuss how the qualitative research method, participant photo interviews, can be useful to explore, understand and verify children's food preferences. Even though parents were interviewed, the children's experiences are the focus of this paper. Thus, parent's experiences are only used as a supplement to further understand information given by the children.

The structure of the paper is organised as follows. First, we describe photo interviews, in general, as a methodological approach and present some of the benefits and challenges that were reported in studies with children. Second, we describe the research procedure for our study, explaining how photos can be used during interviews and discussing lessons of the methodological approach. Third, we give a short discussion of some of the issues with children's food preferences and present some examples of the study results and discuss how participatory photo interviews helped us obtain interesting knowledge and greater understanding of children's food preferences. Further description of study results have been published elsewhere (Alm, Olsen & Honkanen, 2015). Finally, we discuss the empirical findings of the study and summarise the advantages and disadvantages of photo interviews to explore children's experiences with food. Implications for further exploration of food preferences among children are presented.

### ***Photo Interviews with Children***

Interviews are dominantly used in qualitative research and are considered the most appropriate method for accessing feelings, thoughts and intentions of research participants (Richard & Lahman, 2015). Because words and images are processed in different parts of the

brain, several researchers have used visualisations during interviews to evoke deeper elements of human consciousness (Harper, 2002). Since the 1950s, anthropologists and sociologists have used photographic research methods to explore various aspects of human life (Collier, 1957; Harper, 2002; Richard & Lahman, 2015). Since then, social science researchers have used photos across several disciplines and topics to elicit information from research participants (Clark-Ibáñez, 2004; Harris & Guillemin, 2012; Shin Rohani, Aung & Rohani, 2014). Numerous terms were applied to describe the researcher's use of photos during interviews. The American anthropologist John Collier was the first to use photos to elicit information during interviews (Collier, 1957; Harper, 2002). He named the approach 'photo elicitation', since then, terms such as 'photo interviews', 'autophotography', 'photovoice' (Jorgenson & Sullivan, 2009), 'visual diaries' (Chitakunye, 2012) and 'photoessays' (Harper, 2002) have been used. In studies with children, 'photo interviews' appears as the most prevalent term (Zartler & Richter, 2014); therefore, this convention is used in this study. Photographic approaches generally invite participants to take photos of various aspects of their lives, which are subsequently used during interviews to explore the subjective meanings of the images collectively (Jorgenson & Sullivan, 2009). In some cases, visual images are presented as photographs, videos, drawings, art paintings, cartoons or advertising billboards produced by either the researcher or an external source (Clark-Ibáñez, 2004; Harper, 2002; Harris & Guillemin, 2012; Richard & Lahman, 2015; Shin Rohani et al., 2014).

Few researchers have used photos to interview children about their food preferences (e.g. Chitakunye, 2012; Dennis Jr, Gaulocher, Carpiano, & Brown, 2009; Johansson, et al., 2009; Lachal, Speranza, Taïeb, Falissard, Lefèvre, Moro, et al., 2012; O'Connell, 2013). Although these studies share the consensus view that photos may not provide more objective information than traditional interviews; they agree that photos compliment what children tell the researchers and thereby provide a deeper understanding of their food preferences. An important challenge in food research is to enable informants to remember their actual food practices and consumption (Small, Sidora-Arcoleo, Vaughan, Creed-Capsel, Chung, & Stevens, 2009; Stephen, 2007). The habitual natures of everyday practices mean that they are often conducted without reflection, making such life aspects less accessible to study (O'Connell, 2013; Verplanken & Wood, 2006). Photographic approaches may be appropriate to the study of everyday life and habituated routines because they help the participant remember past events (Harper, 2002). In research with children, participant photo interviews

are known to be particularly useful (Shin Rohani et al., 2014). Photos may help children to reflect and verbalise their thoughts (e.g. cognitions and emotions) and reduce the power imbalance between the adult researcher and the child (Banister & Booth, 2005; Cappello, 2005; Clark-Ibáñez, 2004; Einarsdóttir, 2005; Epstein, Stevens, McKeever, & Baruchel, 2006; Harper, 2002; Zartler & Richter, 2014). Traditional interviews can be difficult to conduct with young children because their vivid imaginations make it difficult for the researcher to separate experience and fantasy without dismissing what the child is saying (Einarsdóttir, 2007; Punch, 2012). Additionally, it may be difficult to hold a child's attention during long interviews (Einarsdóttir, 2007; Johansson, et al., 2009). This can be overcome with photos.

Photo interviewing are a fun and user-friendly approach involving children as co-researchers (Dennis Jr et al., 2009; Einarsdóttir, 2007; Epstein et al., 2006; Jorgenson & Sullivan, 2009; Marshall, 2010). By allowing children to photograph their everyday experiences with food, researchers obtain an insight into children's private spaces which would be difficult to capture by traditional methods such as interviews or observations (Chitakunye, 2012; Jorgenson & Sullivan, 2009). Further, it has been argued that photos of children's meals may provide more reliable data about dietary intake (Small et al., 2009) and that photos may evoke sensory aspects of food (Harris & Guillemin, 2012; Justesen, Mikkelsen, & Gyimóthy, 2014; O'Connell & Brannen, 2014; Power, 2003).

A disadvantage of the photographic approach for children is that researchers do not have control over who actually takes the photos (Pauwels, 2004). In some cases, external sources not a part of the study were found to be the photographer of submitted photos (Smith, Gidlow, & Steel, 2012), whereas in other cases, photographic approaches have unintendedly evoked intimate and sensitive information (Clark-Ibáñez, 2004; O'Connell, 2013; Zartler & Richter, 2014). Children are quite concerned about producing a 'nice picture', either by arranging objects before taking the picture (Johansson, et al., 2009) or by avoiding photos of people or situations associated with negative experiences (Smith et al., 2012). In addition, photo interviews may be time-consuming and costly (Clark-Ibáñez, 2004; Punch, 2012).

## **Research Procedure**

This paper focusses on how photo interviewing can explore, understand and verify children's food preferences from a methodological perspective. Food preferences are used as

the empirical issue to evaluate the advantages and disadvantages of the methodology. Thus, the following section presents a detailed research procedure for a study involving 12 family comprising dyads of seven- and eight-year-old children and their parents in the Norwegian city Tromsø. The project was approved by the Norwegian Social Science Data Services (NSD, 2013)

### ***Recruitment***

Families were recruited through the Norwegian after-school programme, Skole Fritids Ordning (SFO), which provides municipal and voluntary child care for first- to fourth-grade primary-school children (Tromsø municipality, 2014). With permission of the school administration, we approached all second graders ( $n = 79$ ), aged seven and eight, at two SFOs and orally informed them about the study. The only recruitment criterion was that the child had to be aged seven or eight years. They were handed two information leaflets in Norwegian, one for parents and one for children, with a consent form to return. The parents' letter explained that participation involved children taking photos of their shared family dinner meals during one week. Both children and their parent who primarily cooked dinner were anticipated to participate in interviews afterwards. The letter, following the research of Kvale and Brinkman (2009), emphasised that personal data would be anonymised and stored securely and that participants could withdraw at any moment during the research process. Parents were advised to discuss participation with their children before returning the consent form. If a family chose to participate, the child could keep the camera which was used for collecting data as an incentive.

The children's information leaflet was based on advice from Alderson (2004) and had similar information to that provided for the parents. The leaflet was designed in A5 format with large print, simple language and illustrative pictures in the text. Fourteen families with nine girls and five boys volunteered to participate in the study. To maintain an even gender balance, the last two families with girls to volunteer were excluded from the study. The total sample consisted of 12 families with 7 girls, 5 boys and 17 parents, since both parents were interviewed in five of the families. They all had a Norwegian cultural background and came from two parent households. Their annual income level was partially higher than the average derived from Norwegian statistics (€ 92.000) (Statistics Norway, 2013). A further description of the sample is presented elsewhere (Alm, et al. (2015). Time spent for data collection was

two months with approximately 50 hours spent on recruitment as well as SFO and home visits for interviews.

### *Interviewing Children*

After receiving the consent forms from the parents we arranged group meetings comprising 2–5 children at SFO. On the basis of the advice from Alderson (2004), the first author read and discussed the information leaflet with the children. When children confirmed that they understood the participation requirement, they were asked to sign the leaflet with their names, emphasising their commitment to the study. In the following week, they were asked to take photos of their dinner meals at home and of the dishes they ate during one week. They were encouraged to take photos every day during the week to cover all possible varieties or stability over time. At the end of the group meetings, they were given instructions on how to use the cameras. We used digital cameras in preference to disposable cameras because they could be connected directly to a computer during interviews, thereby saving time and ensuring optimal quality (Zepeda & Deal, 2008). The cameras were equipped with an 8-GB memory card, which presented the only limitation to the number of photos that the children could take. Most children had never used or owned a camera before and they appeared highly motivated to participate in the study. The 12 cameras purchased including all equipment had a total cost of approximately 800 Euro.

After a week, the first author of this paper interviewed each child at SFO. Interviews were conducted in a closed class room to ensure a familiar environment for the children. To ensure their informed consent, we once again presented them with the information leaflet. The photos were downloaded onto a computer for chronological viewing during the interview. All study interviews were audio recorded and transcribed verbatim with the permission of the informants. Most questions were related to what the children said about their photos; however, as a support, we had prepared a short interview guide containing several questions concerning food preference (e.g. what type of food was preferred for dinner and why). Usually children gave such information on their own initiative while describing their photos. Thus, the interview guide was never completely used. Most photos illustrated various meals on dinner plates, prompting discussion about the extent of like or dislike for a dish. If children had difficulties expressing their food preferences, they were asked to grade foods from 1 to 10, grade 1 being food they clearly disliked and 10 indicating a strong preference. This was generally followed with questions such as ‘why do you like that so much/little?’ and ‘can you

tell me more about that?’ In a few interviews, the researcher initially attempted to ask the children about their experience with photographing before looking at the photos; however, the children appeared interested in viewing their pictures before talking with the researcher. All interviews ended by inquiring about children’s experiences of the research process. Children often said that photographing was fun; however, occasionally, they had to be reminded by their parents to take photos during family meals.

Interviewer: *‘How did you feel about taking pictures of the food you ate?’*

Girl: *‘... I thought it was fun ... I did not know it would take so long... I thought I would remember it, but I did not’.*

Interviews with children varied from 26–89 minutes, averaging 48 minutes. Most children appeared comfortable in the interview situation and talked with ease when discussing the photos with the researcher. In these cases, interviews lasted longer than anticipated because the children could focus and thoroughly discuss their answers. When children were more introverted and less talkative it was difficult to maintain concentration and get them to elaborate on their answers. Thus, we conducted shorter interviews and placed extra importance on parental interviews. The number of pictures submitted per child was 8–61, with 408 photos submitted for the entire sample. No memory card was full after one week of taking photos.

### ***Interviewing Parents***

To further understand the children’s food preferences, we integrated the parents’ perspectives as well into the study (Zartler, 2010). Interviews with the parent(s) generally preparing dinner were conducted in the family’s home after the child’s interview at SFO. In five of the families, both parents were interviewed because they shared the responsibility of cooking dinner meals in their home. Interviews always began by asking parents to describe typical dinners in their home, which gave prompts to discuss dinner routines, feelings about family meals, typical family discussions and foods they often consumed for dinner. A short interview guide was prepared with questions such as ‘Do you sometimes make dinner dishes that you do not like, and if so, why?’ Since the photos were taken by the children, the parent’s interview guide was more emphasised than the children’s interview guide. By the end of their interview, parents were allowed to view their child’s photos and describe and interpret the images. Photos were used to further discuss information given in response to the initial questions. To maintain confidentiality, no information given by the children was discussed



with parents. When parents were discussing their experiences, several parents mentioned that siblings of the informant child often did not want to be included in the pictures.

Interviewer: *‘Was there anyone in the family who found it bothersome, or...?’*

Mother: *‘Yes, her older sister complained a bit and did not want to be in the photo. If she did not feel she had nice hair or something like that ... but otherwise it was okay.’*

Parents reported that because photos could be taken quickly during meals, it did not interfere with their routine. When discussing whether the photos were representative of the family’s diet, several parents emphasised that they did not change the menu in any way for the study. Common reasons for participating in the study included the sense that it was an interesting study that may raise awareness of their own and their child’s diets, that their child pestered them to participate and that they would like to receive a digital camera for their child.

Interviewer: *‘Did you feel that you had to serve food you normally would not have, since he was going to take pictures of it?’*

Father: *‘- No, (...) he is eight years old, and if we were serving dinners out of the ordinary that week we would have been revealed (...). We tried to make it as a normal week. Some of our own part, to (...) think a bit more through what we eat, and that he should [think] more on what he eats.’*

We did elicit some *sensitive information*. Such information was generally raised by parents and rarely mentioned by the children. In one of the families, we discussed the mother’s concerns about her son’s high weight. Children’s weight was not discussed in any of the other interviews. In another family, we talked with the mother about conflicts she had with her ex-partner about how they should feed their children, emphasising that her ex-partner was much stricter than she was. These topics were discussed minimally because they were not within the scope of the study. Interview length with parents varied from 29–123 minutes.

During some interviews, it became clear that some of the *photos were taken by parents* and not the children. In one instance, the mother explained that she took a picture of a family dinner that was eaten while her son was at soccer practice. Both mother and son admitted that the boy did not eat the leftovers when he returned. In other cases, parents were asked by their child to take photos while he/she sat at the dining table. A few parents admitted that they had looked through their children’s photos and deleted some photos they thought were of poor

quality, were unnecessary for the study or simply did not want the researcher to see. In one case a girl had eaten fried chips while the rest of the family ate pizza. The only photo from that meal illustrated pizza since the mother instructed her daughter to only take a picture of the pizza.

Interviewer: *Is that your plate?*

Girl: *No, that's actually my mom's. Because I had fried chips, but was not allowed by my mom to take picture of it (...). She said; "No, you must take a picture of the pizza instead".*

Photos that the parents had taken or instructed their children to take gave the impression that the images were arranged and sometimes excluded other food that was present during the meal. In one case, the mother had taken a picture of the ingredients before she cooked the meal because she wanted to show the researcher the healthy ingredients contained in the final dish (Figure 2). However, photos independently taken by the children did not seem to be arranged because they concurred with the information that the children gave about the meal appearing at the photos.



*Figure 1. Photo taken by mother to show ingredients of a dish.*

### ***Analysing Photo Interview Material***

Data material prepared for analysis comprised transcribed interview texts from almost 22 hours of speech, 14 field notes continuously prepared throughout the data collection and 408 photos. The first author conducted the first stage of content analysis (Hsieh & Shannon,

2005) to check the transcripts for accuracy against tape recordings. Transcripts and photos were repeatedly read and studied to identify pre-determined themes, such as children's preferences for taste and texture (Zeinstra et al., 2007). 149 photos with similar motifs or irrelevant photos, such as pictures of food consumed for breakfast and lunch, were excluded from the analysis. Some themes emerged during the data analysis process, such as importance of keeping food segregated and being in control, providing choices and cooking together. These findings will be further discussed in the next chapter. Major topics and confusing and conflicting data were discussed between the co-authors to achieve objective understandings of the material (Zartler, 2010). If information provided by children and parents did not match, we sometimes used images in the photos or information linked to the photos, such as time and date taken, to decide whose comments were considered valid.

All transcripts, field notes and the 259 photos were analysed using NVivo 10, qualitative data analysis software (QSR International Pty Ltd, 2012). This software features multiple tools that facilitate coding and comparing of the data; its features also facilitate search queries, such as the search of word frequency and the text search functions, to identify the most frequently mentioned foods and dishes and explore their associations. While coding in NVivo 10, we realised the importance of the children's descriptions of the photos for further analysis. Without their descriptions, misinterpretation was easy. For example, knowing the cooking method used for the different dishes or knowing the ingredients in the photos that were eaten or refused would be difficult. Instead, the photos complemented our understanding of the narratives provided by children and parents, helping us to discover relations and patterns in the material. By coding data and utilising the search functions in Nvivo 10, we identified some unexpected issues that were important for exploring children's food preferences. For example the importance of being able to control and choose meal ingredients, aversion to mixed meal ingredients and ambivalent preferences. These findings will further be described.

### ***Exploring Children's Food Preferences through the Lens; Some Examples***

Food preferences are the choice of one food over another, which consists of both affective and cognitive associations towards the food (Zeinstra, Koelen, Kok, & de Graaf, 2007). Some preferences are inborn such as preferences towards sweet and salt, whereas others are subject to social learning (Williams, 2011). Because of the development of jaw muscles and teeth, young children typically prefer food with soft textures, whereas older

children prefer crisp and hard textures (Zeinstra et al., 2007). As children become older, taste rather than texture becomes a more decisive factor in food preferences. Feeding practices such as giving children a choice between a various foods can influence children's food preferences as well (Altintzoglou, Skuland, Carlehög, Sone, Heide, & Honkanen, 2015; van der Horst, 2012). In the following section, we present some examples of children's responses to their photos related to their sensory and situational associations to the food they had photographed.

#### *Taste and Texture*

Photos helped children to describe the sensory attributes of their food. The main reason underlying food preference was good *taste* such as the sweet taste of pancakes caused by sugar. By pointing at the different foods appearing in the photos, children could easily differentiate which food they liked or disliked the taste of. Several children explained that the *texture* and cooking method were important for their acceptance. Using photos, children could differentiate food by the cooking method used and could explain that they liked or disliked vegetables when they were served in the way shown in the photo. Children's descriptions of the photos proved to be necessary to understand how the children perceived the texture. Photos helped them remember how it felt to chew the food, like describing raw vegetables with a desirable crunchy 'munch effect'. Carrots, the most used vegetables, were often served as raw sticks; however, other vegetables such as broccoli and sweet peas were also served raw.

Girl: *I do not like boiled carrots because they have a different taste. But I like raw carrot. I like raw stuff.*

Interviewer: (...). *How is it when you chew it?*

Girl: *It's like crunchy. (...). I like it when it's crunchy.*

#### *Importance of Choice and Control*

The importance of making their *own food choices* was expressed by the children in various forms. Even though parents normally decided what food was bought and cooked, the children would express their preferences by either eating or refusing to eat. For example, taco was always served in separate bowls, and children could point at the different bowls in the photo to show the ingredients they chose to put in their tortilla wrap. One mother told us that she sometimes served other dishes in a similar way to taco, since her children seemed more motivated to eat the food when they were able to choose what to eat from the separate bowls (Figure 2).



**Figure 2.** Chicken, rice, paprika, sweet peas and carrots served in separate bowls.

Children were generally served dishes with all the ingredients present on one plate. Photos of dinner plates helped children explain why they refused to eat some foods. Children were more concerned with specific ingredients of a dish rather than the whole dish. Sometimes the dish contained unfamiliar combinations such as peanuts as pizza topping or orange juice in couscous. Our results showed that several children tended to have an *aversion towards mixed ingredients*. If parents blended food on a child's plate, it often caused an argument, and the child occasionally refused to eat the food. For example, one girl explained that she usually liked carrots, but when her mother poured gravy over them, she found that the combination caused a different and unwanted taste and refused them (Figure 3).



**Figure 3.** Fish cakes, macaroni, potatoes and raw shredded carrot with gravy.

Discussing children's aversion to mixed foods gave them the opportunity to elaborate on why the composition of meal ingredients was so important. Children described different *eating strategies*. Some children ate the food they liked the best first, following with food they liked less, making sure they got full of the food they liked best. Other children started with the food they liked less, saving the best for last.

Boy: *'I usually eat the meat first, and then the rice and then the salad.'*

Interviewer: *'Why do you think it's like that?'*

Boy: *'Because I like to eat the best first and the worst at the end.'*

### *Food Ambivalence*

By comparing pictures, we were able to gain insights into the complexity of children's food preferences. Some children expressed mixed feelings (both positive and negative) or ambivalence about their meals. As an example, one of the boys and his parents said that the boy had a strong aversion towards potatoes and that parents often tried to force him to eat potatoes. By comparing photos the boy had taken of different dishes with potatoes, we revealed that sometimes he chose to eat potatoes instead of salted lamb meat. Even though the boy clearly expressed an aversion to potatoes and did not mention lamb meat as an aversion; we revealed by the use of photos that he resented lamb meat more than potatoes.

Interviewer: *'Did you eat any of that food?'*

Boy: *'(...) I ate the potato.'*

Interviewer: *'Did you? But you said you did not like potato?'*

Boy: *'Sometimes I like it.'*

Interviewer: *'Sometimes? Why do you sometimes and sometimes not?'*

Boy: *'Because ... just because. Because...'*

## **Discussion and Implications**

This study aimed to explore children's dinner preferences and important associations related to dinner meal consumption in the home environment using participatory photo interview methodology. Findings from the study confirm several of the previously reported advantages and disadvantages associated with participatory photo interviews. In addition, the methodological approach provided some noteworthy insights into children's food preferences.



### *Advantages of Research Procedure*

As experienced by other researchers (Dennis Jr et. al., 2009; Einarsdóttir, 2007), we noticed the importance of children's descriptions of the photos to understand their meaning. The capacity of photos to evoke memories related to actual meals proved to be a major advantage of the photo interview methodology with children. While looking at the photos, children not only remembered what they had for dinner several days ago (Harper 2002) but also verbalised and reflected on the situation of the meal, including the weekday that the photo was taken on, who decided what to have for dinner, who prepared the food and what was said during the meal. Using their own photos, children seemed empowered to take the lead during interviews and seemed comfortable being interviewed by an adult stranger. These benefits are in agreement with previous reports (Banister & Booth, 2005; Cappello, 2005; Clark-Ibáñez, 2004; Einarsdottir, 2005; Epstein, et al., 2006; 2; Shin Rohani, Aung & Rohani, 2014; Zartler & Richter, 2014).

Because the photos illustrated real objects and events, it was easy separating fantasy from reality and holding the children's attention by referring to the photos when children started 'wandering off' during interviews (Einarsdóttir, 2007; Johansson, et al., 2009; Punch, 2012). Thus, most children could maintain concentration for long periods of time. As reported in previous studies (Dennis Jr, et al., 2009; Einarsdóttir, 2007; Epstein et al., 2006; Jorgenson & Sullivan, 2009; Marshall, 2010; Zartler, 2010), children stated that participating in the study was fun and easy. By asking children photographing while eating with the family, we were able to get insights into their 'private spaces', which could be difficult to observe with traditional techniques (Einarsdottir, 2005). Similar to a previous study by Small et al. (2009), we observed that the methodological approach provided reliable data about food consumption because the photos reflected real meals that illustrate typical food consumption amongst the families. Similar to other researcher's experiences of recruiting through schools (Banister & Booth, 2005; Zartler, 2010), we discovered that recruiting through SFO provided easy access to numerous children within the target age group. Because we first approached and informed the children rather than their parents, the children seemed highly motivated to participate in the study, as noted in the study by Zartler (2010). Several parents explained that they had to sign the confirmation letter because their children requested participation. The participating children took their involvement seriously and took ownership of the study. These experiences illustrate the importance of informing children about what participation in research implies and ensuring that they have given their free consent to participate in research.

The decision to use a digital camera instead of a disposable camera benefited the study in several ways, and has, to the best of our knowledge, only been discussed by Zepeda & Deal (2008) to a limited extent. Receiving a digital camera for their participation was an important motivator during recruitment and the camera was easy for seven- and eight-year-old children to use. Additionally, uploading the photos to a computer to be viewed directly on the screen shortly after being taken was easy, making it easier for the children to remember important information related to the photos. The digital camera allowed children and parents to evaluate the quality of the photos and to re-shoot if necessary. They could also evaluate if there were some photos they did not want to be included in the study. Giving the children an 8-GB memory card provided practically unlimited memory and minimised the chance of missing interesting information. We considered the cost of 800 Euro for the 12 cameras as inexpensive given their contribution to the study. Having digital photos also made analysis with the NVivo 10 software much easier because they could be coded and compared against each other by the software (QSR International Pty Ltd, 2012). The use of NVivo 10 provided useful insights into the data. By viewing the information for each code separately assigned to the individual interviews, finding relations and patterns in the material was simplified. The search tools in the software helped us explore those topics that were discussed most often and view the associations to those topics. For example, NVivo 10 helped us identify several themes we did not expect, such as the importance of being able to choose meal ingredients and the children's aversion to mixed meal ingredients.

We discovered that children's photos took independently, i.e. without their parent's interference, did not appear to be arranged or self-censored as other researchers have experienced (Johansson, et al., 2009; Smith, et al., 2012). A reasonable explanation for this may be that children in our study knew that beside themselves, only the researcher and their parents would view the photos with the data anonymised for publication. In the study by Johansson et al. (2009) children knew that other children would view their pictures during group interviews, making it important for them to present the 'nicest picture'. We further noticed that during interviews, children tended to take the lead. This tendency confirms findings by other researchers that photos give children something specific to talk about, reduce the formality of being interviewed by a stranger and provide an opportunity to lead the researcher through initial analysis of the photos (Banister & Booth, 2005; Einarsdóttir, 2007; Epstein, et al., 2006; Smith et al., 2012).



We experienced that the decision to include both children and parents in the study provided deeper understandings of children's food preferences (Zartler, 2010). Interviews conducted with both parents provided lengthy discussions and more depth to the data material than interviews conducted with only one parent. Parents' interviews were particularly important in those cases where children were introvert or did not provide much information. Despite this, we still felt that exposure to the photos stimulated cognitive recall and involvement, providing better data than what we would probably have received otherwise. For researchers who wish to conduct photo interviews with children, we urge them to be responsive to the behaviour of children during interviews. If they seem uncomfortable or tired, interviews should be short and the researcher should attempt to receive further information from their parents.

### *Disadvantages*

We experienced that the main disadvantage with participatory photo interviews was associated with the fact that photos were not produced by the researcher (Pauwels, 2004; Smith et al, 2012). The parental involvement in photographing confirms previous experiences that some parents tend to 'help' their children when participating in research (Harden, Backett-Milburn, Hill, & MacLean, 2010). Indeed, some parents do not consider their children to be autonomous or competent to understand what researchers want to include in the study (Barker & Weller, 2003). When parents interfere in the photographing, as we experienced, the reliability of the data is weakened. Compared with the photos independently taken by the children, photos taken by parents or on their instructions were arranged and often did not illustrate food that children had eaten. Conversely, parental involvement is a double-edged sword: obtaining photos from the entire week often required parents to remind their children to take photos. These experiences have important implications for future research. Researchers should stress that the child is responsibility to take photos and that parents are only allowed to view the pictures and delete pictures if there is material they feel is too private to include in the study. Parents' responsibility should be limited to reminding their child to take the photos. As discovered in previous studies (Clark-Ibáñez, 2004; O'Connell, 2013; Zartler & Richter, 2014), we did elicit some sensitive information. Our interpretation of the discussions we had with parents who were touched upon sensitive topics, such as concerns for their child's weight and arguments with ex-partners, was that parents may have an underlying agenda for participating in the study. We believe that these parents were searching

for advice on how to feed their children or gain support in disagreements they had had with an ex-partner. Food researchers who want to conduct photo interviews need to be prepared for such ethical dilemmas and clarify their role and the limitations of research participation.

Involving children in data gathering raises questions about who needs to provide informed consent to participate in research (Kvale & Brinkmann, 2009). Some people in the pictures such as grandparents, siblings or friends had not provided formal consent to be a part of the study. Siblings of the participating child often did not like to be photographed in this study. Thus, we recommend that children should be instructed to ask for permission to take photos of people who are not a part of the study. If such photos appear in the material, they should always ask the informant if consent was given before the photo was taken. If not, they should be excluded from further analysis.

As experienced by other researchers (O'Connell, 2013; O'Connell & Brannen, 2014), we also found that participatory photo interviews were time consuming, considering the time spent for recruiting participants and analysis of the data. Because of resource limitations, only the first author conducted data collection and the first stage of content analysis. Preparation for data collection and analysis of major topics and confusing and conflicting data were conducted collectively by both authors. Zartler (2010) argues that having functioning teams to conduct data collection and analysis provide more reliable results to qualitative research. Thus, future studies using participatory photo interviews need to consider these factors. In our experience, participatory photo interviews should include more researchers in the whole research process and are best suited for qualitative studies with relatively small samples. Such samples facilitate generalising of the findings to a broader or larger population (Lewis & Ritchie, 2008); however, in our experience, having a sample of 12 families seemed large enough to explore the chosen concepts and produce interesting and reliable findings.

### ***Implications for Exploring Children's Food Preferences***

This study presents some examples of how photo interviews with children may provide deeper understandings of children's perceptions of sensory and situational associations with their meals (Harris & Guillemin, 2012; Justesen et al., 2014; O'Connell & Brannen, 2014; Power, 2003). Photos evoked self-reflection about their preferences, facilitating the joint exploration of the influences on their preferences. Unsurprisingly, the children reported that 'taste' was the primary influence for food preference (Zeinstra et al., 2007) and that 'texture' was particularly important when consuming vegetables (Poelman,

Delahunty, & de Graaf, 2013; Zeinstra et al., 2007). We also discovered that a possible cognitive influencing factor for children's food preferences may be their 'ability to choose' what to eat. Such a notion supports previous studies which have shown that providing children with food choices tends to increase their preferences and liking for the chosen food (Altintzoglou et.al, 2015; van der Horst, 2012).

Using photo interviews provided some interesting but less researched findings about affective aspects of children's food preferences. For example, children's aversion to dishes with mixed ingredients and their desire to 'segregate food' on the plate was elicited when they were talking about the photos. We are convinced that this new information is a consequence of using photo interviews as a methodological approach because such information was not something we were aware of or actively asked for, but was elicited while the children described the food appearing in the photos and explained why they ate some foods and refused others. Only Søndergaard & Edelenbos (2007) have observed similar findings about children's aversion to mixed food, something which should be further explored in future research.

Information given by the children indicated that they wanted to be in control of what they ate, not only by refusing or accepting food but also by deciding the 'order' in which they consumed the different ingredients. We suggest that these findings indicate that children apply different eating strategies and want to be in control of what they eat (Szezeniak, 2002). The order or structure of meals during a week, a day and throughout a multiple-course meal has been a research topic among food anthropologists and psychologists (e.g. Douglas & Nicod, 1974; Rolls, Laster, & Summerfelt, 1991); however, we have not found any previous study that empirically tests the different effects and value of meal structure (for a composite meal). Future studies should test 'why, what and in which order' children prefer to eat their foods.

Mixed feelings or food 'ambivalence' is an important issue in research among adult consumers (Sparks et al., 2001); however, to our knowledge, it has not been investigated in children. We believe that the ambivalence that some children showed while discussing and comparing different meals in the photos, would be difficult to reveal by traditional interviews because it is largely dependent on memory. The photos helped children reconstruct past events and describe their behaviour, although they had difficulties explaining their reasons.

Thus, future research on food ambivalence may benefit from applying photo interviews as a methodological approach.

### *Conclusion*

Participatory photo interviews proved to be a valuable approach to actively engage children in research, helping them to remember and describe sensory and situational aspects of their meals. Although some clear disadvantages, such as parental involvement during data collection and the potential for sensitive information to be revealed, still persist, the prominent advantages indicates that photo interviews may be a promising approach for researchers seeking to explore children's food preferences and practices. Thus, the data is based on reports from a small sample. Additional research is needed to further evaluate our findings and suggestions.

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