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Children's Reasons for Accepting and Rejecting Food

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ABSTRACT

BACKGROUND: Food choice is a complex interplay influenced by various factors. Foods are not merely chosen because they are liked. Children's food habits are not stable and can change during lifetime, however, dietary habits formed in early childhood can build the basis for healthy food habits later in life. Good eating habits are essential for the prevention of chronic diseases, so it is important to study individual reasons for children's food acceptance and rejection. For understanding children's food intake, more knowledge is required about factors affecting food choice.

OBJECTIVE: The aim of the study was to investigate children's reasons for accepting and rejecting food.

METHODS: Children's reasons for food acceptance and rejection was measured by use of a quantitative multiple-response questionnaire stating reasons for acceptance and rejection. Reasons used for the questionnaire resulted from a previously conducted literature search and from qualitative interviews with 9 and 10-year-old children. Reported reasons from the main study for accepting and rejecting food items were expressed as percentage of the total number of reported reasons. Differences between genders stating reasons for accepting and rejecting food were calculated via Chi-square test. The frequencies of similar reasons for acceptance and rejection were compared to examine, if different reasons are responsible for acceptance and rejection of food. Further analysis involved the degree of liking of the food items by use of a 7-point Likert Scale calculating mean and SD. Children's willingness to retry the food items was expressed as the percentage of children, who were willing to try the food items again.

RESULTS: 205 Danish school children (99 boys and 196 girls) aged 10-13 years participated in the study. Results demonstrated that children's main reasons for accepting foods were *curiosity*, followed by *good taste*, *good smell* and *like appearance*, while children's main reasons for rejecting food were *bad taste*, *bad smell*, *dislike appearance*, *dislike texture* and *unfamiliarity*. Results also showed that the factors *smell*, *health* and *familiarity* were more important in food rejection, while *health* was more important in food acceptance irrespective of gender. Boys seemed to have a higher mean liking for all food items, a significant difference between genders was only shown for 5 of 9 food items. Boys also seemed to be more willing to retry the food items, but a significant difference between genders was shown for one food item only.

CONCLUSION: The current study provided promising insights into Danish primary school-aged children's reasons for accepting and rejecting food. It is unclear, however, whether the results are applicable to other age groups, cultures, and food items, so additional research is needed.

PREFACE

In September 2015, I got the great opportunity to begin the master program Human Nutrition at The University of Copenhagen. I was excited about my new field of study (as I hold a Bachelor degree in Biology) and followed the new/profound and relevant lectures with big interest. However, during the first year of my study, I started to miss something. While the lectures mainly embraced why a particular food may be "good" or "bad" for the human body, I had the demand to know more about why do we eat as we do? The answer turned out to be more complex than expected, but led me to learn even more about it and finally became my very intention to research about human's food choice. This thesis concludes my Master of Science education in Human Nutrition at The University of Copenhagen. The thesis was carried out from the 1st of September 2015 to 30th of August 2016 at the Department of Nutrition, Exercise and Sports. The thesis was conducted in cooperation with the project "Smag for Livet" funded by Nordea-fonden, which focuses on dissemination of the taste of food to children.

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Thank you.

Julia Sick

ABBREVIATIONS

et al.	Et alii
i.e.	In example
SD	Standard Deviation
%	Percentage

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1 INTRODUCTION

Food choice is a complex interplay influenced by various factors. Foods are not merely chosen because they are liked. There are several other reasons apart from taste, smell or appearance, which influence why a food is consumed. Physiological and psychological, but also emotional and socioeconomic factors were shown to contribute in the selection of food. Food choice begins already in childhood and is important for several reasons. Children's health, growth and development is affected by selected foods, which determine the nutritional intake. Children's food habits are not stable and can change during lifetime, however, dietary habits formed in early childhood can build the basis for healthy food habits later in life (Casey and Rozin, 1989). Poor dietary choices in adulthood can lead to the development of chronic diseases including heart disease, stroke, cancer, chronic respiratory diseases and diabetes, which are the major cause for mortality worldwide (WHO, 2016). Consequently, it is essential to be able to impact on children's food habits early to prevent such diseases (Douglas, 1998). For changing children's food intake, more knowledge is required about factors affecting food choice. Studies suggested that parents – as caregivers – are a major influence of children's eating habits as parental eating habits have a direct effect on children's. However, it has to be considered that parent's food choices are often influenced food preferences by other family members, especially food preferences of children (Koivisto Hursti and Sjödén, 1996, 1998). For these reasons, it is essential to study individual reasons for children's food acceptance and rejection. Despite their assumed importance, most researchers have not examined children's reasons for accepting and rejecting food directly. Rather than investigating reasons for dietary choices in children, researchers have described influencing factors determining food choice or relied on parental reports, which represents a large part of available knowledge concerning children's food choice (Hughner and Maher, 2006; Koivisto Hursti and Sjödén, 1996, 1997). However, research conducted directly by asking children about reasons for accepting and rejecting food seem to be limited. Furthermore, a majority of studies focus on food rejection (De Moura, 2007; Koivisto Hursti and Sjödén, 1996; Lafraire et al., 2015; Nordin et al., 2004), but both acceptance and rejection are an essential part for understanding food choice (Meiselman and MacFie, 1996). The following research question evolved:

What are children' reasons for accepting or rejecting food?

1.1 Objective

The aim of the study was to investigate children's reasons for accepting and rejecting food. In order to achieve this aim, 10 to 13-year-old Danish primary school children responded to a quantitative multiple-response questionnaire stating reasons for accepting and rejecting selected food items. It was intended to examine differences in genders in reasons for accepting and rejecting food. Furthermore, it was researched, if the acceptance and rejection of food underlies different reasons. Finally, children's liking of the food items and willingness to retry these were investigated.

1.2 Clarification of Words

Throughout this thesis, the term "food choice" is related to how people select food they eat (Meiselman and MacFie, 1996), "acceptance" is used interchangeably with "food acceptance", which means that a familiar or unfamiliar food would be liked to be consumed by an individual. Food acceptance does not necessarily include that a food is liked. The word liking is related to liking of food and denotes "enjoyment of eating food", while "preference" signifies the choice of one food over another one" (Nicklaus and Issanchou, 2007). The term "rejection" refers to "food rejection" and describes the reluctance to eat familiar or unfamiliar food. A food item can be rejected before, but also after it has been tasted. Importantly "food rejection" does not equal "food aversion" as this denotes a strong feeling of dislike. The term "food item" is used equivalently to any kind of food. The word "willingness to retry" corresponds to "willingness to retry food" and covers a consenting action of an individual to consume any kind of food again.

2 FOOD CHOICE

2.1 What is Food Choice?

Probably the main conformity of human beings is the dependency on food and water intake in order to sustain normal body functions (Bellisle, 2005). In return, how and why human's choose food varies considerably between individuals, but also within individuals over lifetime (Rozin and Vollmecke, 1986). Food choice – as part of human behaviour - seems to be more complex than expected, most notably due to an interplay between various factors (Bellisle, 2005; Douglas, 1998; Rozin and Vollmecke, 1986). Humans are born with an individual genetic imprint, plus a set of predispositions including innate preferences. However, during life-time these innate inclinations are modified by several influences forming human's food behaviour. Rozin et al. (1986) stated that food choice can be categorized into biological, psychological, social, cultural factors (Rozin and Vollmecke, 1986) as well as economical factors (Douglas, 1998; Rozin and Vollmecke, 1986). Notably, children are primarily influenced by home settings, parents and family (Douglas, 1998), but also peers and friends (Alles- White and Welch, 1985). Research into food choice examines how people select the food they eat. Food Choice stands for/is used equivalent to describe the human's selection of food, which involves both the acceptance and the rejection of food. Fallon and co-workers (Fallon and Rozin, 1983; Rozin and Fallon, 1986; Rozin and Vollmecke, 1986) suggested a categorisation of reasons for acceptance and rejection (see Table 2.1), which were found to be relevant for adults, but also to children. Reasons for food rejection include *distaste* (sensory affective factors), *danger* (anticipated consequences), *disgust* (ideational factors) and *inappropriateness* (ideational factors). Additionally, they suggested four main reasons for food acceptance, which comprise equivalent categories to rejection: *good taste* (sensory affective factors), *benefit* (anticipated consequences), *transvalue* (ideational factors) and *appropriateness* (ideational factors).

Table 2.1 Psychological Categorisation of Reasons for Acceptance and Rejection

	Reasons for Acceptance				**Reasons for Rejection**			
	Good taste	Beneficial	Appropriate	Transvalued	Distaste	Danger	Inappropriate	Disgust
Sensory properties	+			+	+			+
Anticipated consequences		+				+		
Ideational		**?**	+	+		**?**	+	+
	Examples: Saccharin	Examples: Medicines	Examples: Ritual foods	Examples: Leaving of heroes or deities	Examples: Beer, chili	Examples: Carcinogens, allergenic food	Examples: Grass, sand	Examples: Feces, insects

+: Indicated reason for acceptance or rejection, ? : may be involved in response, from (Fallon and Rozin, 1983)

Recent studies investigating reasons for accepting or rejecting food in Swedish children demonstrated similar reasons including good/bad taste, danger, inappropriateness, disgust (Koivisto Hursti and Sjödén, 1996, 1998, 1997). The findings suggest validity across cultures for the categories developed by Fallon and colleagues.

The before mentioned reasons for acceptance and rejection are of importance for investigating children's reasons of acceptance and rejection. However, the classification of the reasons stated by Fallon and co-workers may be insufficient and therefore needs further investigation (Koivisto Hursti and Sjödén, 1996). Researchers developed models to describe influences of food choice in a broader context (Furst et al., 1996; Nicklaus and Issanchou, 2007). These will be explained in the next section.

2.2 Food Choice Models

Researchers developed various frameworks on food choice to explain how and what influences contribute to the selection of food (Furst et al., 1996; Nicklaus and Issanchou, 2007). The Food Choice Model (see Figure 2.1), developed by Furst et al. (1996), is a conceptual model describing a dynamic system of interacting factors, which build a pathway leading to food choice as the endpoint. The three main components include 1) life course, 2) influences, and 3) the personal system. The person's life course involves influence of society, culture and physical environment to which a person is exposed to. The life course forms various influences including ideals, personal factors, resources, social framework and food context. These parameters interact with each other and model the personal system composed of conscious value negotiations (sensory perceptions, monetary considerations, convenience, health and nutrition, managing relationships and quality) and unconsciously operationalized strategies, which finally lead to food choice. (Furst et al., 1996)

The framework by Furst et al. (1996) seems to be a reasonable model to understand what factors influence humans' food choice. However, one has to consider that this model was developed for adults and therefore not all factors are likely to play a role in children's food choice. This may especially be the case for the personal system as children may negotiate values differently. Around the age of ~8 to ~12 children's reasoning abilities to process information about food may be developed but mostly restricted to concrete objects (Frewer and Trijp, 2007). Furthermore, economic factors may not be directly relevant in children's food choice as they only have very little money to spend or are less likely to be involved in the decision-making what food products are consumed in their family's household (Frewer and Trijp, 2007).

However, parent's economic resources may influence what food is available and consumed by the children. Additionally, parental (Contento et al., 1993; Fisher et al., 2002; Galloway et al., 2005) and peer (Hendy, 2002; Houldcroft et al., 2014) influences as well as sensory properties (Birch, 1979; Koivisto Hursti and Sjödén, 1997) of the food are supposed to be predominant in the decision-making process of children (Nicklaus and Issanchou, 2007). Following, Nicklaus and Issanchou (2007) developed a conceptual framework of children's food choice. The framework (see Figure 2.3) comprises influences such as genetics, sensory perceptions, physiological consequences, experiences, social influences including parents and peers but also symbolic value and nutritional information, which provide factors to consider in the investigation of children's food choices.

However, the model does not reveal in which extent the factors are important to the children. Consequently, the influences on food choice stated by Nicklaus and Issanchou (2007), together with other relevant literature on children's will be summarise present knowledge of children's reasons for accepting and rejecting foods. The next section will describe influences of children's food choices based on various studies, which were conducted concerning food choice, acceptance or rejection.

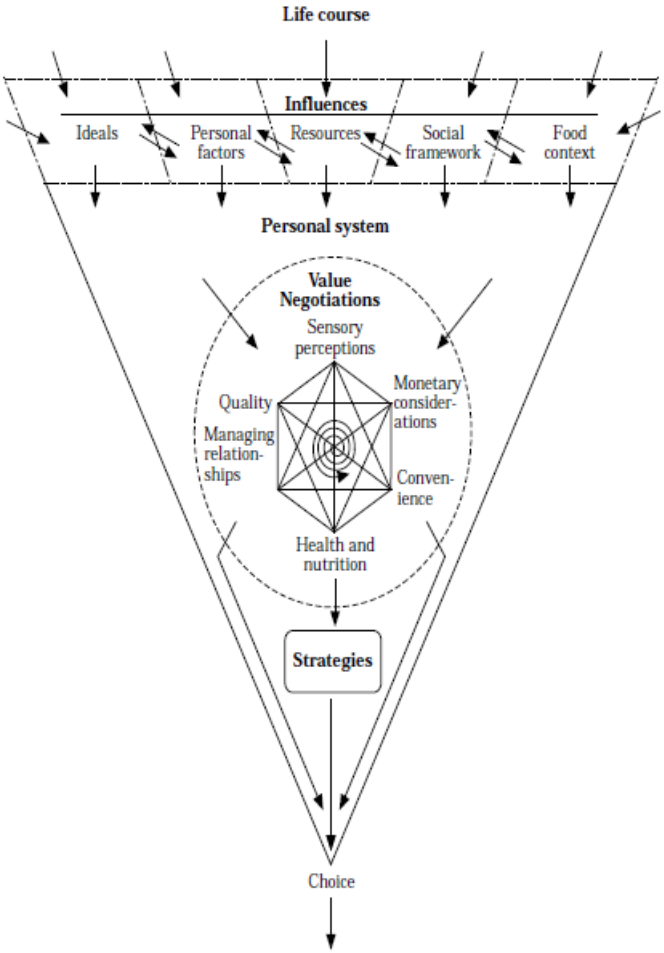

Figure 2.1 The Food Choice Model from Furst et al. (1996)

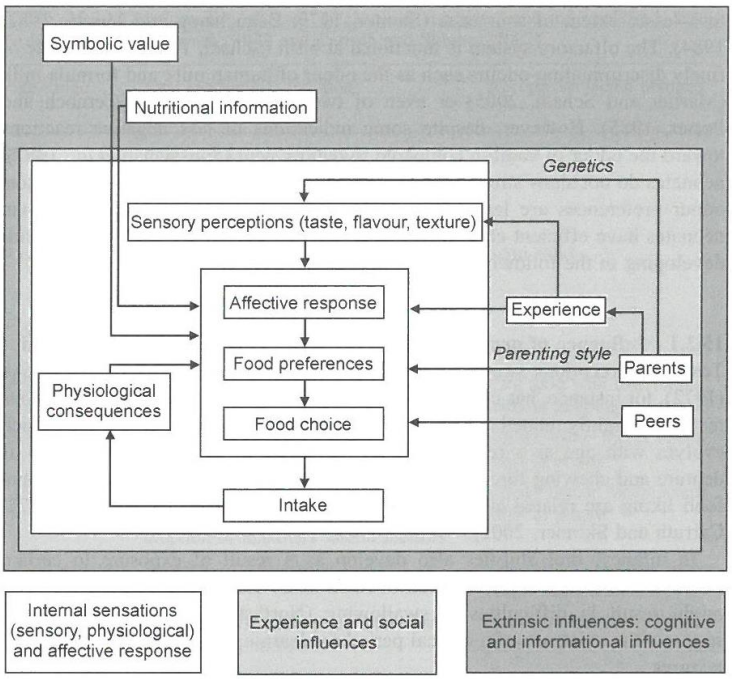

Figure 2.3 Factors Influencing Children's Food Choice from Nicklaus and Issanchou (2007)

2.3 Children's Influences on Food Choice

2.3.1 Biological Factors

Food and water are signalled from a biological drive what is known as hunger and thirst, regulated by mechanisms of the human body (Frewer and Trijp, 2007).

Research suggests that humans are born with certain predispositions to accept or reject basic tastes (Birch, 2016; Dotson et al., 2012; Mennella et al., 2005). Children have innate preferences for sweet (Birch, 2016; Frewer and Trijp, 2007; Ogden, 2010), whereas tastes like bitter (Frewer and Trijp, 2007; Scaglioni et al., 2011) and sour are innately rejected by infants (Birch, 2016; Scaglioni et al., 2011). The taste for saltiness is not present at birth, but appears at about 4 months and is also innately accepted (Birch, 1998). Fat is a further innately preferred taste, which – together with sweet - has energy-dense characteristics (Frewer and Trijp, 2007). These biases are part of the humans' primary survival instinct as they indicate the presence of calories important for survival (Scaglioni et al., 2011). In contrast, bitterness and sourness might reflect entities containing toxic compounds and are therefore more likely to be rejected (Birch, 2016; Frewer and Trijp, 2007). However, the predispositions prove to be a disadvantage in the "modern" world. Our current food environment encompasses a large number of energy-dense food rich in fat and sugar, which at the same time is inexpensive and easy available. The problem arises especially for children as they have an increased acceptance and preference for foods rich in fat and sugar. (Birch, 2016). As genetic predispositions and innate preferences are most likely to be modified by experience with food during children, this influence may not be applicable to children of older age groups.

2.3.2 Sensory Properties

Sensory characteristics of food are part of learning what food to accept and to reject and play a an essential role in food choices throughout life. However, sensory properties like *taste* and *olfaction* can also change with age and due to illnesses. (Bellisle, 2009)

Sensory properties of food are perceived through human senses and include *appearance* of food (i.e. color, size, shape, texture), *tactile attributes* (i.e. temperature, texture and/or viscosity), flavour (taste and odor), *auditory cues* (i.e. chopping, crunching) (Spence and Shankar, 2010) as well as *odor* (i.e. cheesy, fishy) and *taste* (i.e. sweet, sour, bitter) (Bellisle, 2009; Frewer and Trijp, 2007). Research indicated that children's food choices are more influenced by sensory properties of food than those of adults (Drewnowski, 1997). For example, a study by Nicklaus et al. (2005) demonstrated that 2-3-year-old children, which were offered a wide variety of foods, avoided vegetable - probably due to their tough *texture*. However, adults are more likely

to consume vegetables even though some vegetables may taste bitter as they may think these vegetables have a beneficial effect on them (Drewnowski, 1997). Several studies investigate sensory properties in children's food acceptance and rejection and compare these to other factors (Koivisto Hursti and Sjödén, 1996; Oellingrath et al., 2013; Pollard et al., 2002) suggesting that sensory properties are of very big importance in children (Frewer and Trijp, 2007; Oellingrath et al., 2013). Hetherington (1996) even argued that *good taste*, *smell* and *appearance* are the requirement that a food is eaten. In a study by Koivisto Hursti and Sjödén (1996), who examined children's reasons for liking and disliking food, found that *taste* was the most frequent factor for liking but also for disliking food. The results are controversial to the findings of Werthmann et al. (2015), who indicated that the *texture* of food and not *taste* was the most important factor for food acceptance. Clark (1998) concluded that sensory characteristics of a food including *taste*, *texture* and *appearance* are important factors in food choice, but noted that many other factors may be contributing in why a food is chosen (i.e. due to pleasure).

To sum up, recent studies suggest that sensory properties, especially *taste*, *smell*, *texture* and *appearance*, are common reasons for children's acceptance and rejection of food (Hetherington, 1996; Koivisto Hursti and Sjödén, 1996, 1997; Nicklaus et al., 2005; Werthmann et al., 2015). However, studies do not seem to be in accordance which factors within sensory properties are most influencing. Furthermore, the majority of the mentioned studies investigated included sensory properties, but more studies are needed comparing sensory properties to other factors to establish how important the influence of sensory properties actually are in children's food choice. Furthermore, it has to be researched, if sensory properties are equally important when accepting and rejecting food. Several studies rely on parent's opinions about their children's food choice and do not directly reflect children's reasons for accepting and rejecting food (Koivisto Hursti and Sjödén, 1996, 1997; Werthmann et al., 2015). Furthermore, many studies investigate infants or very young children (Brown and Harris, 2012; Nehring et al., 2015; Wardle et al., 2003), but studies investigating children of older age seem to be rare.

2.3.3 Food Exposure

Flavour learning already commences in the amnion, where the fetus is exposed to flavour compounds in the amniotic fluid, which directly reflect the flavours of food and beverages consumed by the mother (Köster and Mojet, 2006; Mennella et al., 2001). Furthermore, flavours from the mother's diet are transmitted to the infant through breastmilk (Köster and Mojet, 2006; Mennella et al., 2001; Nicklaus, 2008) exposing the child to a variety of flavours, which offers

the infant the opportunity to become acquainted to a lot of new flavour experiences (Blissett and Fogel, 2013; Mennella et al., 2001; Nicklaus, 2008). Previous exposure (before a child is introduced to solid foods) to certain flavour compounds was shown to increase the acceptance of foods containing these flavours (Mennella et al., 2001). However, children's food choice is modified through learning and different experiences with food a child is exposed to (Wardle et al., 2003) and therefore the influence of flavour exposure through the amnion and breastmilk may only be of minor importance. In contrast, food exposure during childhood is of greater influence as the child learns what food to like (Pliner, 1982; Wardle et al., 2003). Mere exposure of a food item leads to an increase of its familiarity (Maslow, 1937; Zajonc, 1968), which consequently increases its preference (Zajonc, 1968). Studies have shown that mere exposure is an essential influence of children's food preferences (Birch, 1979; Wardle et al., 2003) and that frequent exposure to food can increase its acceptance (Schindler et al., 2013).

Additionally, mere exposure of food can reduce neophobia (Birch, 1998; Dovey et al., 2008), which means the rejection of unfamiliar food. This is explained by the evolutionarily beneficial survival mechanism to avoid toxic substances of unknown food (Dovey et al., 2008; Taylor et al., 2015). Children have to learn to accept new foods (Birch, 1998), which are edible to provide them with an sufficient amount of macro- and micronutrients (Nicklaus, 2008). The subsequent acceptance of unfamiliar food is also known as "learned safety" (Birch, 1998). Neophobia may therefore be responsible for several rejections of food in children. Neophobia has been shown to be positively correlated with age (Dovey et al., 2008; Siegrist et al., 2013) and reaches its peak in the age of 2 to 6 (Dovey et al., 2008). Consequently, neophobia may only play a minor role in school-age children and may not be of relevance for this study. However, the influence of food exposure on children's acceptance and rejection may be difficult to measure directly in children.

2.3.4 Familiarity

Children's food preferences are largely influenced by the familiarity of a food (Birch, 1979; Drewnowski et al., 2012). A food becomes familiar through its frequent exposure (Maslow, 1937; Zajonc, 1968), which may primarily occur in home settings what kind of food parents provide to their children (Koivisto Hursti and Sjödén, 1997; Meiselman and MacFie, 1996). Following, children may be more likely to accept food, which they are used to from eating at home, but reject foods, which have never been served at home (Wardle et al., 2003). A study by Martins and Pliner (2005) showed the fact that a food is unfamiliar leads to a higher chance that this food is rejected compared to a familiar food, which could be explained by neophobia, which was explained in the earlier section (Dovey et al., 2008). However, familiar food can be

rejected as well, which may underlie other reasons for rejection (Koivisto Hursti and Sjödén, 1996). Food exposure was shown to increase the familiarity of a food (see section 2.3.3) and thereby is more likely to be accepted (Zajonc, 1968). Following, familiarity of a food seems to play a role in children's food choice, which could lead either to the acceptance or to rejection of food. However, as some evidence showed that familiarity does only play a minor role if a food is accepted or rejected (Steptoe et al., 1995), it is necessary to investigate if it is a reason for children to accept or reject food.

2.3.5 Social Influences

Children acquire food preferences with learning, which encompasses different contexts. In this context learning refers to "social learning", which can be interpreted as a transmission of behaviour, where people's behaviour is formed by the observation of another people's behaviour (Ogden, 2010). As described earlier in the framework from Nicklaus and Issanchou (2007), children are affected by various social influences, which include parents, peers and friends (Birch and Davison, 2001; Nicklaus and Issanchou, 2007). Parents as caregivers are the main influence as children's rely on their parent's resources and provide food, but also act as role models. With increasing age, children spend less time with their parents and more time with peers and friends (Houldcroft et al., 2014). This is explained due to school attendance and secondly because other children act as a social source and important advice givers (Houldcroft et al., 2014). Especially preschool and school-aged children are affected as they spend a considerable time together with peers and friends (Houldcroft et al., 2014). Parental, peer and friend influences are described in the next sections.

2.3.5.1 Parents

Parents have an essential role as caregivers and have responsibility for the children's sustenance. During children grow up, they are dependent by their parent's resources and therefore mainly influenced by their parental behaviour. (Birch, 2016) Children's habits and preferences are indirectly influenced through the food purchase and serving in the household (Ogden, 2010). What food is available at home and what food the children are exposed to plays an important role (Scaglioni et al., 2011). Additionally, there is strong evidence that children's food behaviour is influenced by their parent's food behaviour as well as by the food environment, which parents create at home (Scaglioni et al., 2011). Especially, parent's feeding practices are central to social learning (Ogden, 2010) and one of the key influences when it comes to the development of children's food choice (Birch, 2016). The feeding practices do not only involve what kind of food is fed, but as well how, when, why and how much (Birch, 2016).

Children commonly see their parents as role models, which can lead to unconscious imitations of their parent's behaviour including food behaviour (Birch, 2016). For instance, negative emotions of parents or other role models (i.e. disgust) over a food can be correlated with a negative impact on children (Rozin and Vollmecke, 1986). Furthermore, children's eating behaviour is also affected by their parent's social, educational cultural and economic background (Douglas, 1998), but can have negative impacts on children's eating behaviour (Birch, 2016; Scaglioni et al., 2011). Examples are food as used reward, rewarding food and restriction of food. According to Köster and Mojet (2006), children showed a decreased liking for a certain food, if parents promised rewards when the child eats the food (Köster and Mojet, 2006). In contrast, food used as a reward can increase the preference of this food (Birch et al., 1980).

2.3.5.2 Peers and Friends

Especially for children attending preschool and school, peers and friends are a central influence to children's attitudes and behaviours as other children act as a social source and important advice givers (Houldcroft et al., 2014). The change of human behaviour due to the presence of other humans compared when alone is defined as *social facilitation* (Houldcroft et al., 2014). Supportive evidence shows that children's food behaviour is strongly affected by specific social influence (Birch, 2016) including peers and friends (Birch, 1980; Houldcroft et al., 2014), but also fictional heroes (Ogden, 2010) and adults (Addessi et al., 2005). However, a study by Hendy (2002) could not find any effects that peer models influence other children's food acceptance.

In conclusion, children's food acceptance and rejection seems to be affected by social influences including mainly parents, peers and friends (Birch, 2016, 1980; Contento et al., 1993; Galloway et al., 2005; Houldcroft et al., 2014). However, other studies could not demonstrate an effect on children's food intake (Finnerty et al., 2010; Hendy, 2002) and therefore further research is required in which extent social influences influence children's food choice.

2.3.6 Culture

Food behaviour is closely related to culture and comprises influences such as geography, economical factors, food availability and accessibility as well as tradition (Lafraire et al., 2015). Pollard et al. (2002) even argued that cultures and tradition built the foundations on what human's decide to eat. Following, these cultural influences are a contributor in humans' food consumption patterns (Meiselman and MacFie, 1996; Pollard et al., 2002). In many cultures,

the quote "*You are what you eat*" by Rozin (1990) reflects an individual's identification by means of its culture, making the consumed food to a part of self-identity (Rozin, 1990). Although there exists a wide range of potentially edible foods, people belonging to a specific cultural group eat only a few (Meiselman and MacFie, 1996) Cultures define ideational factors of food including what food is regarded as appropriate or not (Meiselman and MacFie, 1996). For instance, some cultures consider insects as edible as others do not (Fallon and Rozin, 1983) Following culture influences children directly: i.e. Americans regard coffee and spicy foods as not appropriate for children (Meiselman and MacFie, 1996). Every culture possesses particular rules of cuisine about the appropriateness of food (Meiselman and MacFie, 1996), following what parents provide as food may reflect food of a specific culture. Ahrens (2015) stated that food culture influences children's sensory perception during childhood. However, it has to be noted that there is an individual variation of individuals within a culture in the foods that are accepted or rejected. (Koivisto Hursti, 1999)

Additionally, religion can be regarded as a part of culture in its wider sense. Cultural values often contain particular religious beliefs (Fien, 2010), which strongly influence the culture of a community. Religious beliefs supply moral codes (Fien, 2010) of what food may be allowed or forbidden to eat (Norman, 2012) leading to (mostly) rejection of particular food.

Culture and religion can influence children's acceptance and rejection (Meiselman and MacFie, 1996). Culture may be an influence of acceptance and rejection, while religion mostly deals with food rejections. However, in which extent children regard culture and religion as important in food choice culture seems to be unclear and therefore it is interesting to investigate, if culture is a reason for children to accept or reject food.

2.3.7 Anticipated Consequences

The ability to understand external information differs considerable with age (Nicklaus and Issanchou, 2007). For young children, sensory qualities may be of biggest importance of food choice, but as children grow cognitive abilities greatly develop, which have a big influence how children understand nutritional value and information of food (Nicklaus and Issanchou, 2007) and therefore the importance of information about food may more relevant to preadolescents (Engell et al., 1998). A study by Engell et al. (1998) indicated that fat content information about fat content may influence preadolescent's food preference and intake. Following, the factor health has to be considered in the investigation of children's reason for food choice in preadolescent children. Health beliefs about a food can lead either to its acceptance, if a food is considered "healthy" or to its rejection, if it is considered "unhealthy".

2.3.8 Physiological Consequences

Physiological consequences were shown to have an impact on children's eating behaviour (Ogden, 2010; Rozin and Vollmecke, 1986). Physiological consequences of ingestions can result in a negative experience leading to nausea or stomach ache i.e. after the ingestion of food, which turned bad or due to allergic reactions (Ogden, 2010; Rozin and Vollmecke, 1986). Consequently, it is more likely that a food is rejected, if the child experienced a negative consequence with a food. However, a physiological consequence can also lead to a positive experience. For instance, the consumption of a food can lead to a pleasant feeling, which can include the feeling of satiation, but it can as well be understood in a social context i.e. when a food is believed to be beneficial. (Rozin and Vollmecke, 1986). Following, the experience of specific physiological consequences can lead to the acceptance or rejection of particular foods and may therefore be a reason to be considered in children's food choice.

2.4 Differences between Food Items

It has to be considered that different reasons may be responsible in the acceptance or rejection of specific food (Fallon and Rozin, 1983; Koivisto Hursti and Sjödén, 1996). There may be a difference between food categories but also within food categories. A study by Martins and Pliner (2005) demonstrated a difference between people's reasons of the acceptance or rejection between animal and nonanimal foods. While animal foods were accepted due to beliefs about anticipated consequences of ingesting them and beliefs about the sensory-affective properties of the food, nonanimal foods were accepted due to sensory-affective properties and joy elicited by the thought of consuming them. However, it has to be considered that these reasons refer to familiar foods, but unfamiliar both of animal and nonanimal origin were rejected due to disgust feelings, but accepted due to interest evoked at the thought of consuming them. (Martins and Pliner, 2005). To conclude, when investigating children's reasons concerning food choice, one has to consider that there may be a difference in reasons when accepting and rejecting food.

2.5 Differences between Genders

It has been discussed whether gender differences exist in relation to children's selection of food. Gender differences were found in regard to food preferences as it was shown that boys preferred meat, fish and poultry food over girls (Caine-Bish and Scheule, 2009), however no gender differences were found in regard to food rejection (Dovey et al., 2008; Nordin et al., 2004). As studies investigating gender differences concerning children's food choice are scarce and the results of present studies seem to be contrasting, it is necessary to investigate, if children have different reasons for accepting or rejecting food.

3 METHODS

For answering the aim of the study to investigate children's reason for accepting and rejecting food, different steps were involved:

- Literature search and semi-structured interviews with children to identify reasons for accepting and rejecting food
- Categorisation of reasons for food acceptance and rejection
- Development of a quantitative questionnaire and selection of relevant food items
- Execution of a pilot study
- Adjustment of the questionnaire and taste kit
- Execution of a main study
- Data analysis of the results from the main study

The literature search was conducted for finding studies investigating children's reasons for accepting or rejecting food. The reasons were used as an inspiration for key topics in the semi-structured interviews. The semi-structured interviews were executed to detect reasons for food acceptance and rejection and to find relevant food items for use in the pilot and main study. The resulting reasons from the literature search and the interviews were categorised, selected and finally used for the quantitative questionnaire. The questionnaire served as the main tool for data collection in the main study. Prior to the main study, a pilot test was conducted to check the feasibility of the applied methods. Results from the pilot study led to adjustments including the procedure of the study as well as the applicability of the questionnaire and the taste kit. The method, results and categorisation of reasons from the literature search (APPENDIX I: Literature Research) and interviews (APPENDIX IIa-g: Interviews)are attached in the appendix as they only provided reasons used in the questionnaire. The following sections will describe the development of the questionnaire, execution of the pilot study and main study.

3.1 Development of Questionnaire

To investigate children's reasons for accepting and rejecting food, a quantitative multi-response questionnaire was developed, which served as the main tool for data collection in the pilot and main study. The questionnaire involved a set number of reasons for food acceptance and rejection, which resulted from the previously conducted literature search (described in APPENDIX I: Literature Research) and interviews (described in APPENDIX IIa-g: Interviews). The reasons for the questionnaire were selected due to various inclusion and

exclusion criteria set by the author described in each section in the Appendices mentioned above. Additionally, children were asked how familiar each food item was as familiarity of food was shown to be a considerable influence in children's food choice (Dovey et al., 2008; Heath et al., 2011; Koivisto Hursti and Sjödén, 1996; Pliner and Melo, 1997).

3.1.1 Structure

The questionnaire was arranged in the following order and was used for each food item:

- Part 1: Familiarity
- Part 2: Reasons for Food Acceptance or Rejection

The front page of the questionnaire included information about name, class, age and gender.
As the study was conducted in Danish, the questionnaire was required to be translated into Danish by a native speaker, who was recruited and employed for the study. This was necessary to ensure that the meaning of the formulations remained the same. Additionally, each part of the questionnaire was formulated in terms that children can understand. The following sections will clarify the operationalisation for each part of the questionnaire including familiarity and reasons for acceptance and rejection.

3.1.2 Operationalisation

3.1.2.1 Part 1: Familiarity

In Part 1 of the questionnaire, children were asked how familiar each food item was. Children had the option either to select, if they know the food and have tried it before ("*I know it and I have tried it before*"), if they know the food, but did not try it before ("*I know it, but I have never tried it*") or if they do not know the food ("*I don't know it*").

3.1.2.2 Part 2: Reasons for Food Acceptance and Rejection of the Food Items

In Part 2 of the questionnaire, children had the option to choose, if they want to try (accept) or not to try (reject) the food item by asking, if they want to try the food *("Do you want to try the food?"*). The response option for accepting the food was "YES – Why?" and the children were asked to give reasons for their decision. If the children did not want to try the food, the response option was "NO – Why?" and the children were asked to state their reasons as well. The children were allowed to state multiple reasons for food acceptance and rejection. Additionally, children were able to give their own reasons in an open-ended response. The questionnaire was originally developed in English, but translated into Danish for the pilot and main study by a native speaker. Some reasons for acceptance and rejection led to discrepancies in translation

from English to Danish and therefore the wording had to be adjusted accordingly. Additionally, children's vocabulary may be limited, which was taken into consideration.

Reasons for Acceptance

The questionnaire included 11 reasons such as *good taste, good smell, like texture, like appearance, health, familiarity, special occasions, curiosity, culture, social influence* and *other reasons.* The reason *good taste* (Reason 1) was operationalised to "It tastes good" and *good smell* (Reason 2) to "It smells good". The translation into Danish did not cause any language discrepancies. "It" replaces the food item for all stated reasons. Texture (Reason 3) was operationalised to "I like the texture", but for the questionnaire, it was translated to "I like the consistency". Children may understand the term consistency better than texture. However, the term *Like texture* (=Like of texture) is used as an abbreviation throughout the thesis. *Like of appearance* was operationalised to "It looks good" and abbreviated as *Like appearance* (Reason 4) throughout the thesis. Reason 5, *healthy*, refers to that a food is considered as being healthy and was operationalised to "It is healthy". *Familiar* (Reason 6) refers to familiar food and was operationalised to "I am used to eat it". *Special occasions* (Reason 7) refers to special occasions where children might associate the food with good experiences, atmospheres, feelings etc. on specific events, which include i.e. Birthday and Christmas dinners. This was operationalised to "I usually eat it on special occasions", but the term "*special occasions*" (Reason 7) was exchanged to "*special days*" as children may have problem to understand that term and was phrased to "I usually eat it on special days (Birthday, Christmas…)". *Curiosity* (Reason 8) was operationalised to "I am curious" and did not lead to translation discrepancies. *Culture* (Reason 9) refers to good associations of the food with the child's culture. It is assumed that the majority of the children are Danish, but the reason was widened to the child's own culture as well, which resulted in "It is typical Danish/from my culture". *Social influence* (Reason 10) refers to the influence of other people (like parents, peers, teacher etc.), which can trigger a child to accept the food item. This was operationalised to "Others want me to eat it". *Other reasons* (Reason 11) was an open-end response where children could state additional reasons for accepting the food items.

Reasons for Food Rejection

The questionnaire included 11 reasons for rejection such as *bad taste, bad smell, dislike texture* and *dislike appearance, unhealthy, disgust, unfamiliarity, bad experiences, inappropriateness, culture/religion* and *other reasons*. *Bad taste* (Reason 1) was operationalised to "It doesn't taste

good", *bad smell* (Reason 2) to "It doesn't smell good". Similarly to acceptance, the dislike of texture (Reason 3) was exchanged with dislike of consistency and resulted in "I don't like the consistency". However, the term *dislike texture* was used throughout the thesis. *Dislike of appearance* (Reason 4) refers to a dislike of the look of the food and was operationalised to "It doesn't look good". *Unhealthy* (Reason 5) refers to that the children think the food may be unhealthy for them and cause a bad consequence, which was operationalised to "It is unhealthy". *Disgust* (Reason 6) refers to food rejection due to ideational or sensory-affective reasons (Rozin and Vollmecke, 1986), which was operationalised to "I am disgusted by it". *Unfamiliar* (Reason 7) refers to rejection of the food because it is unfamiliar as the child may never have seen or tried it before and was operationalised to "I am not used to eating it". *Bad experiences* (Reason 8) refers to any bad situation/association the child experienced with the food. This was operationalised to "I had bad experiences with it". The reason *inappropriateness* (Reason 9) led translation discrepancies and may have not be understood by the children and was therefore operationalised to "I don't think it is edible". *Culture/Religion* (Reason 10) was phrased as "I have culture/religious reasons". *Other reasons* (Reason 11) was an open-end response where children could state additional reasons for rejecting the food items.

The developed questionnaire can be found in APPENDIX IIIb: Questionnaire.

This section outlined the development of the questionnaire based on results of children's reasons for accepting and rejecting food from previously conducted interviews and the literature search. Children's comprehensibility of the questionnaire and reasons used in the questionnaire were tested in a pilot study (see section 3.3) to be adjusted for data collection in the main study to investigate children's reasons for accepting food.

3.2 Identification of Relevant Food Items

As the aim of the study was to investigate children's reasons for accepting and rejecting food, it was intended to include familiar as well as unfamiliar food items representing a wide range of food categories such as fruits, vegetables, meat, fish, dairy products. The criteria for the selection of food were set by the author. The foods required to be low in cost and easy to eat. Mainly simple foods were included has dishes are of greater effort to prepare. Apart from cutting the food items into bite-sized pieces, no other preparation should be required. Furthermore, potentially allergenic foods to children were considered, such as products containing nuts, eggs or soy (ACAAI, 2014). Furthermore, food items were selected, which are

easy available in Danish supermarkets. A set of 28 potential food items, where previously included in the interviews to ask children about the familiarity and their likes about these food items. The results of the interviews led to the inclusion and exclusion of several food items (see details in APPENDIX IIg: Revision of Taste Kit), which finally included celery, red cabbage, pickled pumpkin, dried seaweed, physalis, pomegranate, kaviar*, tubed mackerel, pickled herring, shrimps, turkey ham, blue cheese, goat cheese and skyr.

*As the fish eggs did not originate from the sturgeon roe (="caviar"), the fish eggs, which originated from another type of fish were named "kaviar"

3.3 Pilot Study

The previously developed questionnaire (see APPENDIX IIIb: Questionnaire) along with the selected food items (see APPENDIX IIIc: Food Items and Serving Order) were tested in a pilot study to inspect comprehensibility of the food items and the setting of the questionnaire, and consequently then modify these for the main study. The comprehension of the formulations of reasons for acceptance and rejection of the questionnaire and overall assignment of tasks were assessed by observations during the study. Additionally, the response rate (%) was calculated to show, if sufficient children understood the questionnaire. This was calculated by dividing the total number of children, who responded to the questionnaire through the total number of children, who attending the study. The response rate was set to at least 90% for the acquirement of sufficient data for reasons for acceptance and rejection. Then, the number of reasons given for each food item (for either acceptance or rejection) were calculated to show, if the reasons included in the questionnaire were relevant for children. Reasons, which were not stated by the children, were regarded as not relevant and excluded for the main study.

It was fundamental to assess which food items were relevant and how many food items should be involved in the main study. This was operated by data analysis of the results by calculating the percentage of food items, which were accepted and rejected. This was necessary as the main study aimed to include food items, which are likely to be accepted and likely to be rejected to receive enough reasons for both acceptance and rejection. Food items with the highest number of given reasons were included. The familiarity of the food items was calculated as the study intended to include familiar as well as unfamiliar food items. Familiar food was considered as food, which was tried before the study, while unfamiliar food was considered as food, which was not tried before the study. An example food was used for a test run to explain the questionnaire to the children, so they understood the task of the questionnaire. The selected example food was intended to be familiar and accepted to the majority of the children so that

the children did not develop negative feelings (i.e. disgust feelings), which could lead to prejudices about the following food items and thereby impact on the acceptance and rejection of these food items. The author and the assistants observed children, if they understood the given tasks and noted general comprehension problems to improve them for the main study.
The following sections deal with characteristics of study participants, study execution and data collection, data analysis and revisions of the taste kit and questionnaire.

3.3.1 Participants

The children were required to be able to read and write in order to independently respond to the questionnaires. Therefore, the target group was children attending the 4th to 6th grade (9-13 years old) of a public primary school in Copenhagen, Denmark. Due to a limited timeframe and logistics, the pilot and main study were conducted in Copenhagen, Denmark. However, the intention was to involve Danish children with a broad variety of demographic backgrounds.
An information letter about the project was sent to a primary public school in Copenhagen, which subsequently confirmed the participation of a 4th grade including 21 children (6 boys and 15 girls) aged 9 to 10 years. Prior to the study execution, an information letter was sent to the parents (see APPENDIX IVc: Information Letter for), who had to give their consent and state existing food allergies or other reasons for non-participation. In the case where a child had food allergies or was not allowed to eat specific foods due to other reasons, that child was not given that particular food.
The pilot study was conducted on the 25th February 2016, at 12:00 pm, where a timeframe of two hours was set for the execution of the study.

3.3.2 Language

As the pilot and main study were conducted in public schools in Copenhagen, Denmark, the study was executed in Danish to avoid misunderstandings of the questionnaire and communication problems between assistants and the children. Consequently, native speaking assistants were recruited (see APPENDIX IIIa: Recruitment and Information Letter for Study Assistants), which helped with the execution of the study.

3.3.3 Study Execution and Data Collection

The children were seated in their ordinal seating order (in groups of 4-6) in the classroom. The children received a questionnaire, a plate, forks and spoons, a cup of water and a napkin. The children were instructed to be quiet, to raise their hand in the case of questions, to remain seated and not to talk to their peers throughout the study. Discussions about the food items were to be held after the project. Instructions about the process of the study were given and a test run was

conducted by use of an example questionnaire. Cucumber was used as an example food item. The questionnaire was read aloud by the instructor and explained in detail, while the assistants were handing out the example food item. The children were told to fill out the front page, which included name, class, age and gender. Following, the children were told to continue to the next page where they were asked to evaluate the familiarity of the given food item and to state, if they want to try or not try the food item and give reasons for why they decided so.

The children were randomized to two different groups (blue and green) which differed in the serving order of the food items (APPENDIX IIIc: Food Items and Serving Order). This was necessary to avoid that children copy their neighbour's responses. The main questionnaire followed the same process of the example questionnaire and was continued for all food items under the instructions of the instructor. The example of the questionnaire is attached in APPENDIX IIIb: Questionnaire . Children were not allowed to continue to the next page of the questionnaire without being told to do so. One reason was that all the children should finish each food item together, so that all children would progress at the same time.

3.3.4 Results from Pilot Study and Revisions of the Taste Kit

The results from the pilot study including percentage of accepted/rejected food items, response rate, familiarity of the food items and number of responded reasons, which are summarised in APPENDIX IIId: Results of Pilot Study. It was shown that the children comprehended the assignment of tasks and the questionnaire. However, it was demonstrated that the taste kit included too many food items as children's concentration decreased notably after the 9th food item. Subsequently, 14 food items were reduced to 9 food items, which suited one school lesson (~ 50 minutes) and may be easier applicable. The results showed a 95% response rate to the questionnaire for all food items. Most of the food items were accepted, and therefore more reasons for acceptance than rejection were collected. The number of responded reasons for each food item resulted in inclusion and exclusion of the food items. Additional food items, which were expected to lead to increased food rejections, were added to attain more reasons for rejection. The familiarity of the food items did not seem to affect the acceptance or rejection of the food items.

The results showed that cucumber, which was used as an example, was familiar and accepted by 90% of the children and was therefore considered as a suitable example food. The final taste kit consisted of nine food items including pickled pumpkin, kale, dried seaweed, physalis, kaviar, pickled herring, anchovy, blue cheese and deer salami. The inclusion and exclusion

criteria for these food items are shown in APPENDIX IIIe: Inclusion/Exclusion Criteria of Food Items.

Observations from the pilot study showed that the children often had to be reminded to respond in the questionnaire, if they want to try or not try the food item. Subsequently, children were reminded more frequently to respond in the main study. Furthermore, it was observed that some children wanted to spit out some food items and therefore, spitting cups were provided for the main study.

3.3.5 Revisions of Questionnaire

This section deals with revisions of the questionnaire used in the pilot study and follows the same structure, which includes Part 1 (Familiarity) and Part 2 (Reasons for Acceptance and Rejection). Additionally, Part 3 was adjoined to the questionnaire, which was subdivided into Subitem A (Liking) and Subitem B (Willingness to Retry) the food item. Each part will be discussed individually in the lower section, but the data analysis for each part is demonstrated in section 3.5.

Part 1

The first part of the questionnaire (Familiarity) did not seem to cause problems in understanding. The children seemed to be able to distinguish between the various answer options for familiarity. Therefore, this part did not undergo any revisions.

Part 2

In Part 2 (Reasons for Acceptance and Rejection), some formulations of the stated reasons seemed to cause problems in comprehension and were revised accordingly.

In the acceptance section, Reason 10 (“Others want me to eat it”) the term “others” was too unspecific and therefore it was difficult for the children to associate “others” with people in situations related to specific food. As research shows, parents play an essential role in children’s food choice (Fisher et al., 2002; Galloway et al., 2005; Savage et al., 2007). Following, the formulation “Others want me to eat it” was specified to “My parents want me to eat it”.

The remaining response options for acceptance and rejection were not revised in the formulation, but “I think, (Reasons X)” was added prior of each response option to emphasise that it is the children’s own opinion, i.e. “It tastes good” was revised to “I think it tastes good”.

Furthermore, the open-end response option of Reason 11 for both acceptance and rejection was regarded as a discrete part and did not notice this response option. Therefore, Reason 11 was attached to the other response options and enough space was given so the children could give and explain their own reasons for acceptance and rejection.

Part 3

Part 3 was added to evaluate the children's liking and willingness to retry the food items. To respond to this part, it was required that the children previously accepted (tried) the food item. Part 3 was divided into Subitem A (Liking) and Subitem B (Willingness to try again) and was attached on the next page after Part 1 and 2 in the questionnaire.

Subitem A

Children were asked to evaluate the liking of each accepted food item. "Liking" refers to an affective response to food (Nicklaus and Issanchou, 2007) and was operationalized to the question "If you tried, how much did you like the food item".

Subitem B

If children accepted a food item, they were asked to state if they would like to try the food item again. This was operationalized into the question: "Do you want to try it again?" and the response options to select were either "Yes" or "No".

The revised questionnaire is attached in APPENDIX IVe: Questionnaire.

3.4 Main Study

The main study aimed to investigate children's reasons for accepting and rejecting food. The procedure of the main study was approached in a similar way to that of the pilot study (see section 3.3.3). The quantitative questionnaire was revised after conduction of the pilot study and consequently resulted in the following three parts:

- Part 1: Familiarity
- Part 2: Reasons for Acceptance and Rejection
- Part 3:
    - Subitem A: Liking
    - Subitem B: Willingness to Retry

The taste kit (see Figure 3.3) included the food items pickled pumpkin, kale, dried seaweed, physalis, kaviar, pickled herring, anchovy, blue cheese and deer salami.

The main study was conducted in the period of the 08.03.2016 – 06.04.2016 and lasted one hour per class. The project took place during school time between 9 am and 12 am depending on the teachers' time schedule.

3.4.1 Participants

The study area was limited to the capital Copenhagen, Denmark. Children were recruited attending the 4th to 6th grade of primary public schools. Invitation letters were sent to 32 schools in Copenhagen (see APPENDIX IVa: Invitation Letter to), whereof five schools were interested in participating. The invitation letter contained information about the project. The teachers registered 223 children for participation, whereof 205 children (106 girls and 99 boys) participated in the study, which matched the targeted sample size of 100 to 200 children. Altogether 10 classes participated in the study including four 4th grader, five 5th grades, and one 6th grade aged 9-13 years and the participating schools were situated in different districts of Copenhagen, Denmark (see Table 4.2) representing different socio-economic status (SES). The commune Frederiksberg and Østerbro have one of the highest average income per capita compared to the other districts. Amager West has a lower average income per capita and Nørrebro has the lowest average income per capita compared to the other districts. (Juul, 2012; Københavns Kommune, 2015)

An information letter was sent to the parents (see APPENDIX IVc: Information Letter for). The permission of children's attendance and the handling of possible food allergies followed the same procedure of the pilot study (see section 3.3.1).

The main study was conducted in the period of the 8th March to the 6th April 2016.

3.4.2 Study Execution and Data Collection

The execution of the main study followed a similar protocol to the pilot study, which is attached in (APPENDIX IVd: Instructions for Assistants and Study Protocol). Further assistants were recruited, employed and trained for the main study, who helped during the study e.g. preparing and handing out the food and help children, if they had questions. Two main instructors were trained to conduct the study in two classes at the same time. It was important that all instructors and assistants were trained similarly. This was essential that the same procedure was executed in the same way for every class, and thereby reducing bias in the execution of the protocol. In each class, one instructor and two assistants were present. A more detailed description of the

instructor and assistant's allocation of tasks can be found in APPENDIX IVd: Instructions for Assistants and Study Protocol).

The teachers were allowed to be present during the study; however, they were not allowed to help the children answering the questionnaires. At the end of the study, the instructor presented the purpose of the study and explained why it is important to know about children's reasons for accepting and rejecting food and why it is necessary to have a varied diet. The teachers were invited to discuss the study with their classes after the study.

All necessary material was set up in the classrooms before study execution. Each child received a questionnaire (blue or green), a plate, several spoons and forks, a napkin, a water cup and a spitting cup (see Figure 3.1). The food items were cut into bite-sized pieces and distributed into tasting cups (see Figure 3.2).

Figure 3.1 Set-up of the Study Material

Top left: class room set up with necessary material; top right: test questionnaires and main questionnaires (blue and green); bottom left: material including plates, several spoons and forks, napkins, water cups, spitting cups, water containers, tasting cups and trash bags; bottom right: Children responding to the questionnaires.

Figure 3.2 Distribution of bit-sized Food Items into Tasting Cups

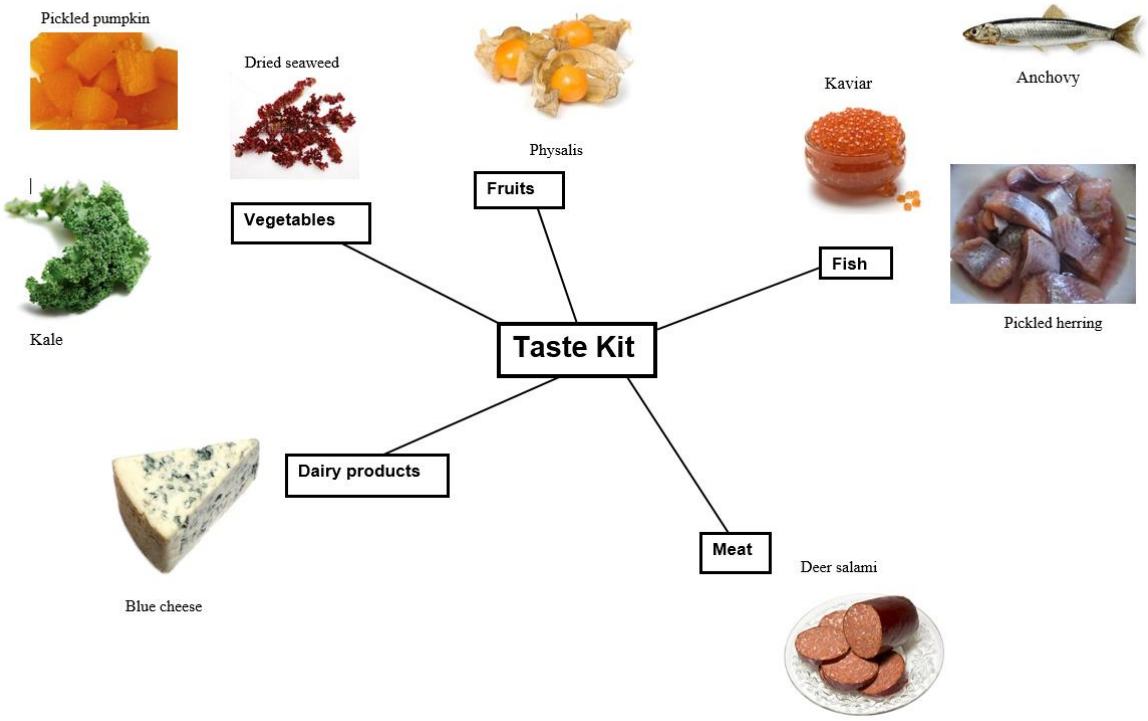

Figure 3.3 Taste Kit

Taste kit including the food items pickled pumpkin, kale, dried seaweed, physalis, kaviar, pickled herring, anchovy, blue cheese and deer salami.

3.5 Data Analysis

Data were analysed according to the aim of the study, which included the investigation of children's reasons for accepting and rejecting food. It was analysed for gender differences in reasons for acceptance and rejection and if some reasons are more important in acceptance than rejection and vice versa. Further, this section will explain the data analysis of liking and willingness to retry the food items. Then the degree of familiarity of the food items and the frequency of children, who accepted and rejected the food items are described in this section.

3.5.1 Reasons for Food Acceptance and Rejection

Descriptive data analysis was used to investigate children's reasons for accepting and rejecting food. Reported reasons for accepting or rejecting food items were expressed as percentage of the total number of reported reasons. The data were analysed divided by gender and illustrated in a spider plot, which enables to show patterns of the most common reasons for acceptance or rejection. Differences between genders were calculated via Chi-Square test. Reasons for acceptance and rejection were calculated separately as the respective reasons for acceptance and rejection were different for some of the reasons. A similar method was used by (Koivisto Hursti and Sjödén, 1996) to show children's reasons for liking and disliking food. However, the method of the study differed as Koivisto Hursti and Sjödén (1996) interviewed six children and the reported reasons were categorised and analysed on the basis of the method described above. In contrast, this study used a quantitative questionnaire with predefined reasons for acceptance and rejection investigating 205 children. The data analysis of reasons used by (Koivisto Hursti and Sjödén, 1996) seems to be an adequate tool for this study as a large number of study participants may give even more precise results.

However, in order to apply this method, it was necessary to check, if the children had different reasons for each of food item. Following the frequencies (%) of stated reasons among all accepted or rejected food items was calculated. This method enabled to compare between food items. Reasons for acceptance and rejection were again calculated separately due to the reason mention above. As it was possible to give more than one response, the data does not total to 100 per cent. Spider plots were generated to provide an overview of the percentage of children, who stated each reason for all food items.

3.5.2 Differences between Factors for Food Acceptance and Rejection

To see differences between factors for acceptance and rejection, similar factors for acceptance and rejection for all food items were compared. These included *taste*, *smell*, *texture*,

appearance, *health*, *familiarity* and *culture/religion*. Percentage of reason for acceptance and rejection of all food items were analysed divided by gender and illustrated in spider plots. A chi-square test was applied for testing differences between factors of acceptance and rejection and differences between genders in reasons for acceptance and rejection.

3.5.3 Open-end Response "*Other Reasons*"

Qualitative data were analysed based on the open-end responses of Reason 11 (*Other reasons*) for food acceptance and rejection. The responses were categorised into reasons for acceptance and rejection determined by the author. Reasons from the open-end response, which were already stated in the questionnaire were excluded from the categorisation and not included in the analysis.

3.5.4 Further Analysis

3.5.4.1 Liking

A 7-point Likert Scale was used to rate the degree to which a respondent agrees or disagrees with a statement (Sullivan and Artino, 2013). In this questionnaire, it served to evaluate children's degree of liking of the accepted food items. This scale is used as a bipolar scaling method, which measures positive as well as negative responses to the statement (Allen and Seaman, 2007). An advantage of this scale is that the results do not just result in a simple yes/ no answers (i.e. Do you like the food? Yes/No) and is therefore more precise. A 7-point Likert Scale was selected as it is more reliable than a 5-point scale (Allen and Seaman, 2007) and may be easier to understand than a 9-point scale for the intended age group of individuals, who are able to read and write and fill in a questionnaire. The use of Likert Scales have risk for central tendency bias, which mean that respondents tend to avoid extreme responses towards one side. tendency towards on side (Gingery, 2009), which has to be considered in the data analysis.
The following anchors were used for each point of the scale: 1=Super bad, 2=Bad, 3=Little bad, 4=Okay, 5=Little good, 6=Good and 7=Super good. The mean liking and standard deviation (SD) were calculated for each food items. The mean was calculated to achieve insight into the central tendency, while the SD was a measure of how far the individual measurements differ from the mean value within a data set. The SD is a good indicator to show how much agreement there is between the participants. A low SD with a small width shows that the participants rated relatively close to each other; in contrast, a high SD with a big width shows that the participants rated the liking of the food items very different (Fowler et al., 1998). A bar chart provided an overview of the mean liking and SD for each food item divided by gender. Differences between genders were statistically analysed via Student's t-test.

3.5.4.2 Willingness to Retry

Descriptive analysis was used to show, how many children want to try the food item again. Frequencies presented in percentage of how many children would like to retry (”YES”) or not retry (“NO”) the food items were calculated among the children who accepted each food item. The data were analysed divided by genders and visualised in a bar chart as the percentage of children, who willing to retry or not willing to retry each food item. A chi-square test was applied for testing differences between genders.

3.5.4.3 Familiarity of the Food Items

Descriptive analysis was used for showing how familiar the food items were to the children. This was conducted by comparing the frequencies (%) of children, who have tried the food item before versus who have not tried the food item before. A bar chart was used to provide an overview of the data.

3.5.4.4 Frequency of Accepted and Rejected Food Items

Descriptive analysis was used to demonstrate the frequency (%) of all accepted and rejected food items in order to see how many children accepted or rejected the food items. This calculation is essential as the number of accepted or rejected food items will lead to either a higher or lower number of reported reasons by children. A low number of accepted or rejected food items could therefore lead to more unreliable results as the reported reasons are shown in percentage and only express a proportion. A bar chart was generated to provide an overview of the data.

For all statistical analysis, a difference was considered significant, if the p-value was $p<0.05$. All analyses were conducted with the statistic program R Version 0.98.1056 – © 2009-2013 RStudio, Inc. Following, the data were visualised in tables, spider and bar charts by use of Microsoft ® Excel ® Version 1.5, © 1985-2003 Adobe Systems Incorporated for Microsoft Office Home and Student 2013.

4 RESULTS

In total, 205 children (106 boys and 99 girls) aged 10-13 years participated in the study and all of the questionnaires were counted eligible. The majority of the children attended the 4th (46%) and 5th (46%) grade, while 7% attended the 6th grade. The mean age was 11.0±0.8 for both girls and boys. The information about study participants is shown in Table 4.1.

Table 4.1 Study Population

		Study Population		
		Total	**Boys**	**Girls**
		N (%) 205 (100)	**N (%)** 99 (48)	**N (%)** 106 (52)
Age	**10**	58 (28)	35 (17)	23 (11)
	11	94 (46)	46 (22)	48 (23)
	12	46 (22)	20 (10)	26 (13)
	13	7 (3)	5 (2)	2 (1)
	Mean±SD	11.0±0.8	11.0±0.8	11.0±0.8
Grade	**4th**	95 (46)	52 (25)	43 (21)
	5th	95 (46	46 (22)	49 (24)
	6th	15 (7)	8 (4)	7 (3)

N(%)=Number and percentage of children attending the study in total, divided by gender, grade and age.

According to Table 4.2, the majority of the children (n=148) attended schools in Frederiksberg and Østerbro (higher SES), while 57 children attended schools in Amager West and Nørrebro (lower SES). The difference in SES could influence children's food choice and consequently influence diet quality. A review from Darmon and Drewnowski (2008) concluded that diet quality follows a socioeconomic gradient. Children from a higher SES might be exposed to a higher diversity of foods, consequently increasing the familiarity of the foods. In contrast, children from a lower SES might have a less diverse diet (Wolfe and Campbell, 1993), therefore some foods from the taste kit might be less familiar compared to children from a higher SES. Studies suggest that unfamiliar foods are more likely to be rejected than familiar foods (Dovey et al., 2008; Koivisto Hursti, 1999; Koivisto and Sjödén, 1996).

Table 4.2 Information about Participating Schools

		Schools	
District	**Grade level**	**Classes**	**Children**
		N	**N**
Amager West	5th	2	31
Nørrebro	5th	1	26
Østerbro	4th	2	51
	5th	1	18
	6th	1	15
Frederiksberg	4th	2	44
	5th	1	20
Total	3	10	205

N=Number of classes/children. The schools were allocated to the different districts of Copenhagen, Denmark.

4.1 Reasons for Acceptance and Rejection

80% of all food item were accepted and 19% of all food items were rejected, while 1% resulted in no response because of exclusion of children due to food allergy. As the food items were not served to the concerned children, the concerned food items were not involved in the data analysis. When analysing the reasons for each food item, it was shown that the frequency of reported reasons followed an approximately analogical pattern for both acceptance and rejection. However, it has to be considered that some minor differences existed between the food items (see APPENDIX IVi: Reasons for Acceptance and Rejection). Consequently, the data analysis explained in section 3.5.1 was applied to detect children's reasons for acceptance and rejection representative for all involved food items.

4.1.1 Reasons for Acceptance

The results for reasons for acceptance for both girls and boys are shown in Table 4.3 and visualised in Figure 4.1. The results showed that all 11 reasons (stated in the questionnaire) for food acceptance were reported by the children, but differed in the number how often they were reported. It was shown that *curiosity* occurred most frequently compared to all other reasons, followed by *good taste*, *like appearance*, *healthy* and *good smell*, *like texture*, *familiar*, *parents*, *culture*, *other reasons and special occasions* for both boys and girls, with the exception that good taste was most reported in boys and good taste was the second most reported reason. According to Figure 4.1 it appears that the reason curiosity that *curiosity*, *good taste*, *like appearance*, *healthy* and *good smell* were most determinant to accept food. *Special occasions*, *culture*, *parents*, *familiar* and *other reasons* were stated much less compared to the other reasons, which is similar for boys and girls.

By ranking the most occuring reasons for acceptance the following order resulted (the most stated reasons start on the left side, with the least stated reasons on the right side):
*Curiosity** > *Good taste** > *Like appearance* > *Health* > *Good smell* > *Like texture* > *Familiarity* > *Parents* > *Culture* > *Other reasons* > *Special occasions*

* For boys *good taste* is proportionally the most mentioned reason, followed by *good taste*. The order of the other reasons remains the same for both boys and girls.

It was shown that a difference in gender existed for boys stating *good smell* ($p<0.0002$), *like texture* ($p<0.0044$) and *healthy* ($p<0.0249$) more frequently than girls, whereas girls stated *curiosity* ($p<1.42e-13$) and *other reasons* ($p<1.17e-08$) more frequently. There was no significant difference detected between genders for *good taste*, *like appearance*, *familiar*, *special occasions*, *culture* and *parents*.

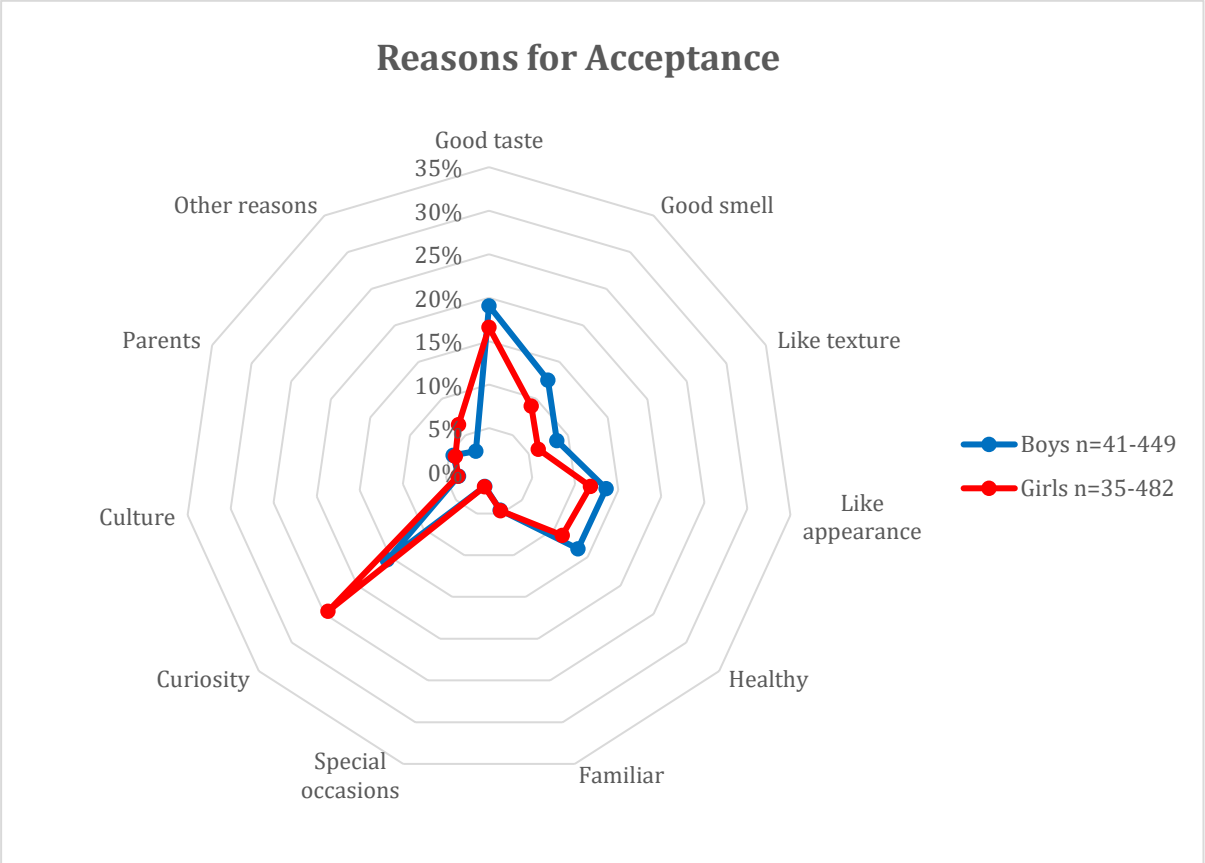

Figure 4.1 Reasons for Acceptance divided by Gender

The number of reasons for acceptance are expressed as percentages of the total number of stated reasons and divided by gender; n=number of stated reasons for acceptance for all food items; boys: n=41-449, girls: n=35-482.

Other reasons for acceptance were part of an open-ended response category and led to several different responses. The results are presented in section 4.1.4.

4.1.2 Reasons for Rejection

The results for reasons for rejection for both girls and boys are shown in Table 4.4 and visualised in Figure 4.2. The results showed that all 11 reasons (stated in the questionnaire) for food rejection were reported by the children, but differed in the number how often they were reported. It was shown that *sensory properties* such as *bad taste bad smell*, *dislike appearance*, *dislike texture* and *unfamiliarity* were proportionally stated most frequently compared to the other reasons and this was shown in the similarly for boys and girls. The least stated reason for compared to all other reasons for rejection was *culture/religion*, followed by *unhealthy*, *other reasons* an

By ranking the most occuring reasons for rejection the following order resulted (the most stated reasons start on the left side, with the least stated reasons on the right side):
Bad taste > Bad smell > Dislike appearance > Dislike texture > Unfamiliarity > Disgust > Inappropriateness > Bad consequences > Other reasons > Unhealthy > Culture/Religion

The ranking of reasons from the most frequent to the least frequent resulted to be the same for both boys and girls.

No significant difference in reasons for rejection were found between genders, except for *like texture* ($p<0.0412$), which was more often reported by girls.

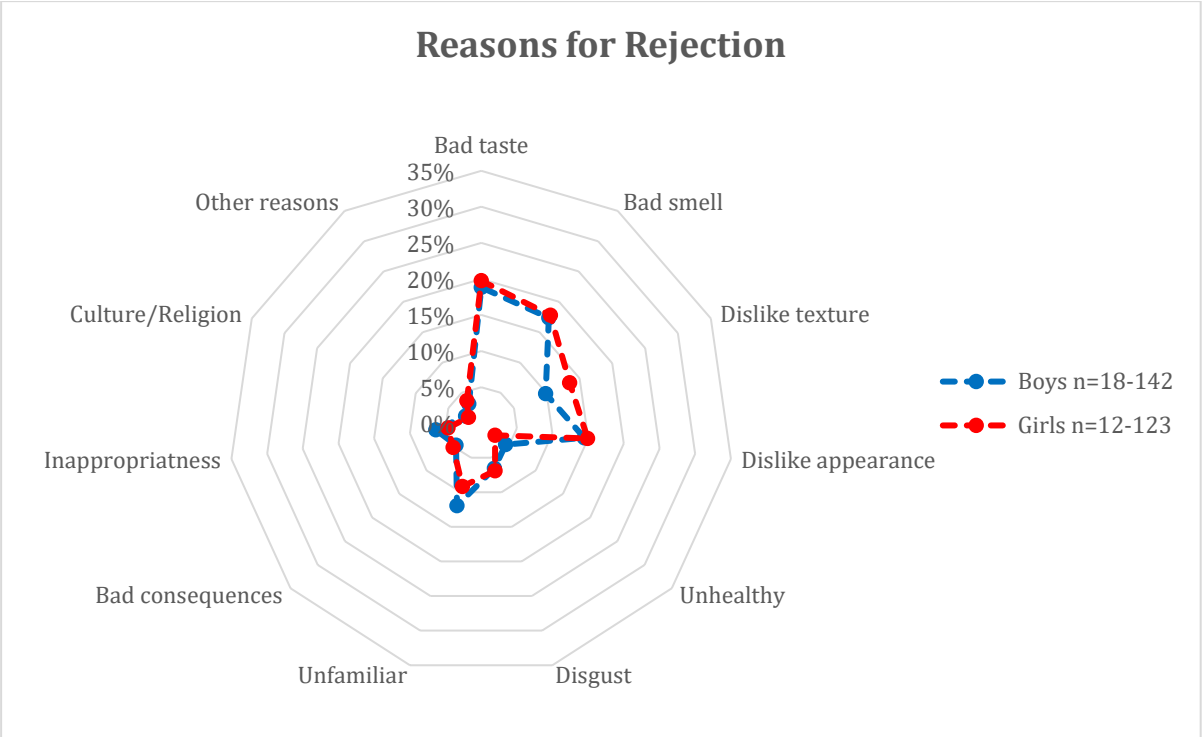

Figure 4.2 Reasons for Rejection divided by Gender

The number of reasons for rejection are expressed as percentages of the total number of stated reasons and divided by gender; n=number of stated reasons for rejection; boys: n=18-142, girls: n=12-123; n=number of a stated reason (rejection) for all food items

Other reasons for rejection was an open-ended response category and led to several different responses. The results are presented in the section 4.1.4.

4.1.3 Comparison of Reasons for Acceptance and Rejection

The data for reasons for acceptance originate from Table 4.3 and for rejection from Table 4.4. Similar reasons for acceptance and rejection included *taste*, *smell*, *texture*, *appearance*, *health*, *familiarity* and *culture/religion*, which were visualised in Figure 4.3.

In both boys and girls, the factors *smell* (boys: $p<0.0010$, girls: $p<1.52e-09$) and *familiarity* (boys: $p<1.21e-12$, girls: $p<4.34e-05$) were more important in food rejection than acceptance, whereas *health* (boys: $p<1.54e-11$, girls: $p<1.32e-10$) was found to be more important in food acceptance. Additionally, the results for girls showed that *texture* ($p<1.03e-08$) and *appearance* ($p<0.0454$) were more important in rejection than acceptance. There was no significant difference between reasons of acceptance and rejection in *taste* and *culture/religion* neither for boys nor for girls. In summary, the factors *smell*, *health* and *familiarity* were shown to be of more importance when it comes to food rejection; in contrast, *health* was more important in food acceptance irrespective of gender. Furthermore, *texture* and *appearance* were also more important in food rejection of girls.

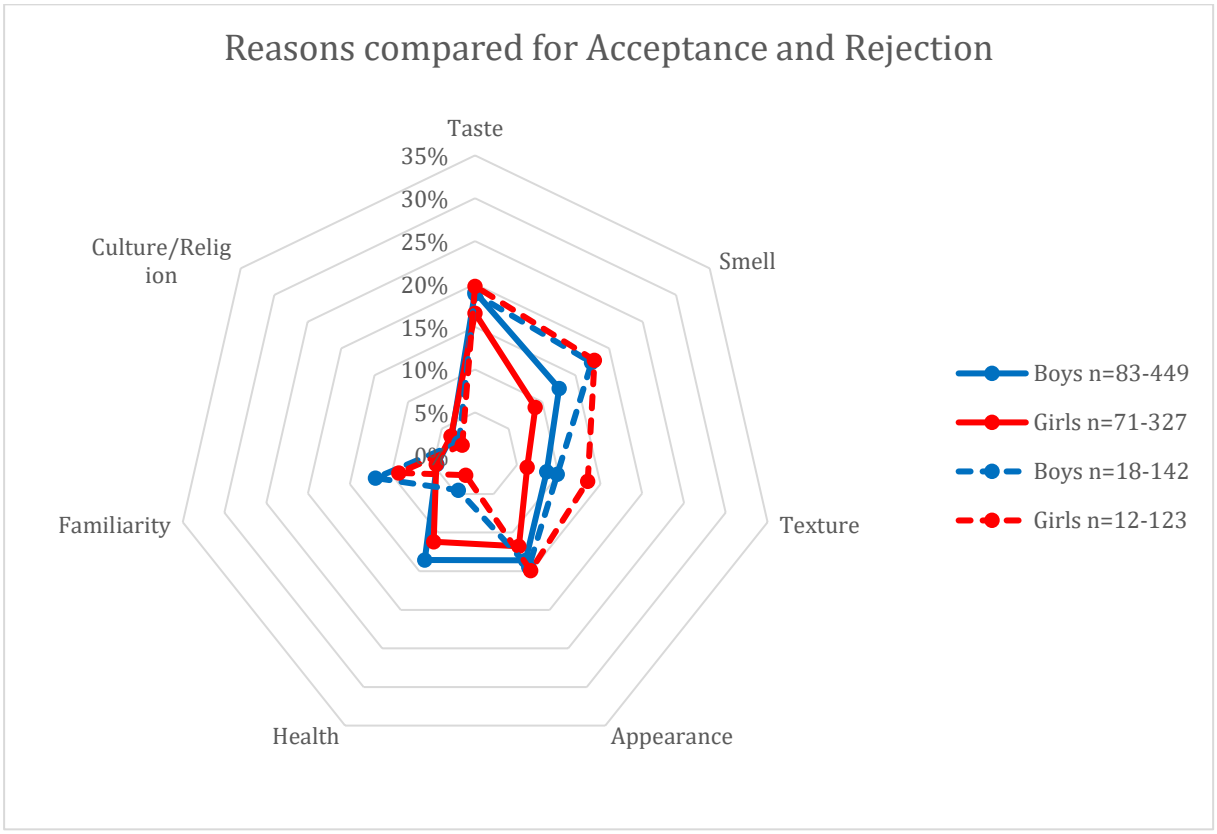

Figure 4.3 Comparison of Factors for Acceptance and Rejection

The number of reasons for acceptance and rejection are expressed as percentages of the total number of stated reasons and divided by gender; n=total number of stated reasons for acceptance or rejection; boys (accept): n=83-449, girls (accept): n=71-327; boys (reject): n=18-142, girls (reject) n=12-123.

Table 4.3 Reasons for Accepting the Food Items

Reasons for Acceptance	Food Items																			
	Pickled pumpkin		**Kale**		**Dried seaweed**		**Physalis**		**Kaviar**		**Pickled herring**		**Anchovy**		**Blue cheese**		**Deer salami**		**All food items**	
	Boys N=81	Girls N=80	Boys N=101	Girls N=95	Boys N=90	Girls N=92	Boys N=95	Girls N=94	Boys N=81	Girls N=87	Boys N=73	Girls N=70	Boys N=67	Girls N=53	Boys N=63	Girls N=70	Boys N=95	Girls N=89	Boys N=746	Girls N=730
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Good taste	21	17	18	16	20	15	23	21	19	17	18	13	16	11	15	8	19	19	19	17
Good smell	8	8	10	8	12	6	17	14	9	4	14	7	10	6	13	5	15	13	13	9
Like texture	7	4	9	7	9	6	8	8	10	4	8	3	5	4	10	5	9	9	9	6
Like appearance	16	13	13	11	15	10	15	17	15	11	11	8	10	7	10	2	14	15	14	12
Healthy	17	11	18	19	16	14	13	10	14	12	12	8	15	11	8	5	8	7	14	11
Familiar	1	1	6	7	2	1	4	6	5	4	3	3	2	2	4	4	9	7	5	5
Special occasions	0	1	2	1	0	1	1	1	1	3	2	2	2	4	4	3	3	2	2	2
Curiosity	23	34	12	19	17	33	12	16	16	28	17	34	24	33	21	38	10	15	15	24
Culture	3	3	3	3	3	3	2	2	2	3	6	6	6	4	4	7	5	4	4	4
Parents	3	2	7	6	3	3	2	2	3	6	4	5	5	4	4	4	6	5	5	4
Other reasons	2	7	1	3	2	6	3	3	6	8	3	11	5	14	4	18	3	4	3	6
Total no. of stated reasons	(229)	(183)	(381)	(285)	(262)	(202)	(324)	(367)	(215)	(207)	(202)	(144)	(153)	(123)	(156)	(123)	(482)	(336)	(2354)	(1970)

The table shows reasons for accepting the food items (as percentage of the total number of reported reasons) as reported by children; N= Number of children, who accepted the food item

Table 4.4 Reasons for Rejecting the Food Items

Reasons for Rejection	Food Items																			
	Pickled pumpkin		**Kale**		**Dried seaweed**		**Physalis**		**Kaviar**		**Pickled herring**		**Anchovy**		**Blue cheese**		**Deer salami**		**All food items**	
	Boys N=24	Girls N=17	Boys N=4	Girls N=4	Boys N=16	Girls N=6	Boys N=11	Girls N=5	Boys N=25	Girls N=11	Boys N=32	Girls N=29	Boys N=38	Girls N=45	Boys N=43	Girls N=27	Boys N=10	Girls N=9	Boys N=203	Girls N=153
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Bad taste	25	22	11	18	23	28	21	25	19	23	20	19	18	19	16	19	6	15	19	20
Bad smell	18	22	22	14	16	17	21	17	16	18	22	17	15	18	16	20	31	12	17	18
Dislike texture	13	19	11	18	9	6	11	8	8	11	9	14	10	13	10	13	6	12	10	13
Dislike appearance	10	13	11	14	18	33	14	8	14	16	17	15	14	15	15	16	19	6	14	15
Unhealthy	6	2	11	5	5	0	4	0	5	0	2	3	4	2	5	3	6	6	5	3
Disgust	4	2	0	5	4	0	4	8	7	7	3	8	10	8	9	9	0	3	6	7
Unfamiliar	10	9	0	9	12	0	11	25	10	7	13	10	12	10	13	8	13	6	12	9
Bad consequences	3	4	0	9	2	6	4	0	6	7	4	7	5	3	6	5	0	9	5	5
Inappropriateness	7	4	22	5	7	11	7	8	8	7	5	5	6	5	6	4	0	3	6	5
Culture/Religion	2	0	11	5	4	0	4	0	3	2	0	2	2	1	2	1	13	12	2	2
Other reasons	1	4	0	0	2	0	0	0	5	2	6	2	4	5	2	3	6	15	3	4
Total no. of stated reasons	(89)	(54)	(9)	(22)	(57)	(18)	(28)	(12)	(88)	(44)	(106)	(133)	(151)	(175)	(210)	(132)	(16)	(33)	(754)	(623)

The table shows reasons for accepting the food items (as percentage of the total number of reported reasons) as reported by children; N= Number of children, who accepted the food item

4.1.4 Results from Open-end Response Option "*Other Reasons*"

Results from open-ended response option "other reasons" Repeated reasons, which were already stated in the questionnaire (i.e. *taste, smell, disgust*) were excluded from the qualitative data analysis. All results from *other reasons* can be found in APPENDIX IVj: Open-end Response "Other Reasons". The following reasons resulted for food acceptance: ***grandparents*** (pickled pumpkin: "*My grandmother told me to taste and I said no.*", pickled herring: "*I sometimes get it at my grandmother's and grandfather's place*"), ***good association with other food*** (kale: "*It looks like salad*", pickled herring: "*I thought it's salmon*", deer salami: "*Professionel classic sausage*", "*This looks like "Spegepølse" and I really like that*", "*I know something similar*"), ***liking*** (i.e. dried seaweed: "*Love it*", kaviar: "*I love it*", anchovy "*I like pickled fish*", deer salami: "*Love it*", *It's really good*"), ***challenge*** (kaviar: "*I am brave*", pickled herring: "*CHALLENGE!!!*", "*I am brave and try to taste everything*", anchovy: "*I try my luck*", "*I'm tough*", blue cheese: "*I challenge myself*"), ***social pressure*** (dried seaweed: "*I don't want to be a pussy.*"), ***good experience in childhood*** (physalis: "*When I was little I liked it so I think I also do so now.*", ***ideals*** (kaviar: "*My teacher just said that she liked it as well.*"), ***price/value*** (kaviar: "*It is expensive*"). Additional reasons for rejection were ***processing of the food*** (pickled pumpkin: "*I don't like pickled things*"), ***dislike*** (blue cheese: "*I have tasted it before but do not like it*", pickled herring: "*I hate herring*", "*I am not that fond of fish*", kaviar: "*I have tried it before*") and ***fear*** (anchovy: "*I'm afraid of it*"). A summary of the other reasons for acceptance and rejection are shown in Table 4.5.

Table 4.5 Categorisation of "Other Reasons"

Other Reasons	
Acceptance	**Rejection**
Grandparents	*Processing of food*
Good association with other food	*Dislike*
Liking	*Fear*
Challenge	
Good experience in childhood	
Ideals	
Price/Value	

4.2 Liking

Figure 4.4 show the mean and SD of liking of the food items divided by gender. All calculations for liking are shown in APPENDIX IVk: Liking. The results showed that some food items were more liked than others. The most liked food item was deer salami, followed by physalis, kale, pickled herring, pickled pumpkin, dried seaweed, kaviar, blue cheese and anchovy for both girls and boys. The mean for liking and SD for each food item resulted in: pickled pumpkin (boys: 3.29±2.0; girls: 2.48±1.6), kale (boys: 4.35±1.8; girls: 4.19±1.9), dried seaweed (boys: 3.18±1.6; girls: 2.41±1.5), physalis (boys: 5.07±1.7; girls: 5.00±1.7), kaviar (boys: 3.57±1.8; girls: 2.64±1.7), pickled herring (boys: 3.65±2.2; girls: 2.64±2.0), anchovy (boys: 2.14±1.4; girls: 1.68±1.1), blue cheese (boys: 2.78±2.0; girls: 2.23±1.4) and deer salami (boys: 5.99±1.6; girls: 5.65±1.5). The lowest means for liking were shown for anchovy both for boys (2.14±1.4) and girl (1.68±1.1) and the highest means were shown for deer salami both for boys (5.99±1.6) and girls (5.65±1.5). Notably, the results for liking resulted in large SDs indicating that the values can spread far from the mean, so children's responses for liking a food item were very polarized. Boys tended to like all food items more, however, a significant difference between gender was only shown for pickled pumpkin ($p< 0.0038$), dried seaweed ($p < 0.0011$), kaviar ($p < 0.0007$), pickled herring ($p < 0.0037$) and anchovy ($p < 0.0465$). All results for differences between genders in the liking of food can be found in APPENDIX IVk: Liking.

4.3 Willingness to Retry

Figure 4.5 provides an overview of children's willingness to retry the food items again. The range of the percentage of children, who want to try the food items again resulted in 16-88%. It seems that the majority of the children want to try deer salami, physalis and kale again, which is also in accordance with the highest mean liking of these food items. However, no statistical test was conducted to test a possible relationship between liking and willingness to retry the food items. Only a few children (~ one fourth) want to try the remaining food items again, which included pickled herring, kaviar, pickled pumpkin, dried seaweed, blue cheese and anchovy. A significant different difference between gender in willingness to retry was only found for blue cheese ($p<0.0100$).

The results for children, who either wanted or not wanted to try the food items again do not total up to 100 % as some children could not decide. Instead of "Yes" or "No", children commented with "Maybe" on the questionnaire. However, these were not included in the presentation of the results.

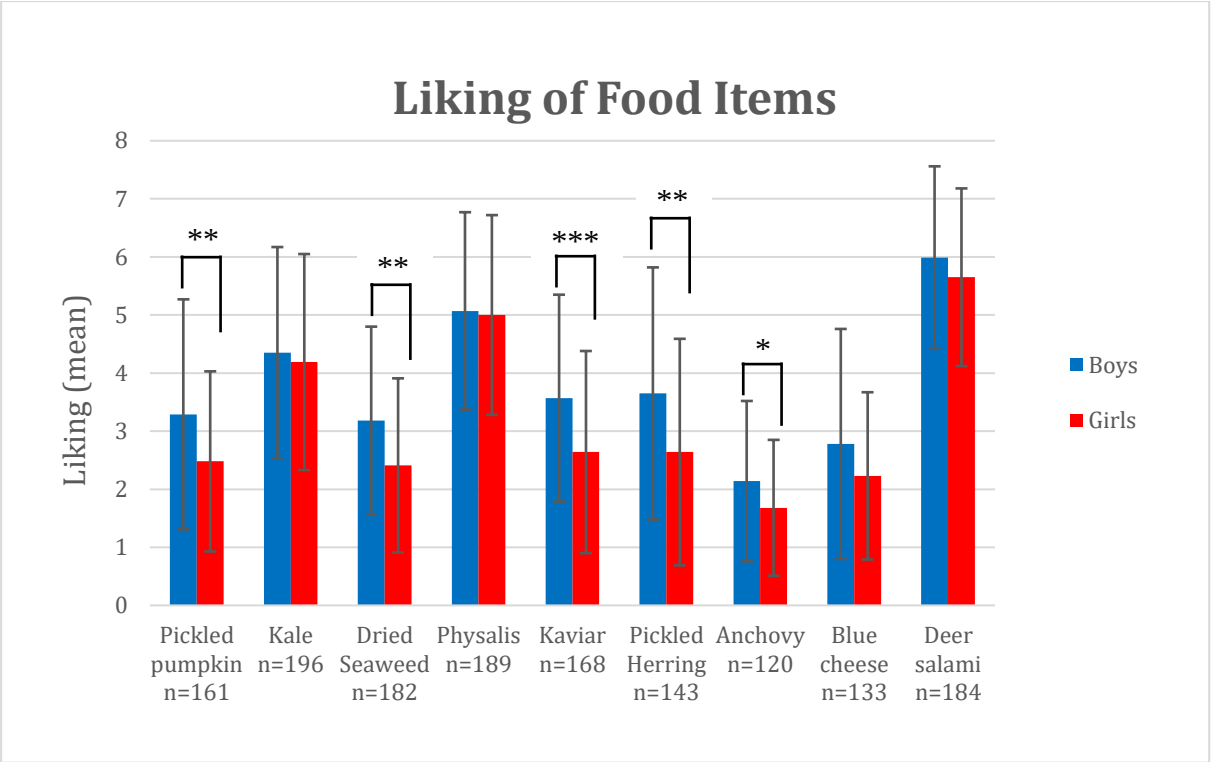

Figure 4.4 Liking of Food Items

Liking of the food items calculated as mean with SD divided by gender. T-test was used for testing gender differences, level of significance: *= p<0.05, **=p<0.01, ***= p<0.001; The y-axis ranges from 0-8 as the calculation of the SD resulted in lower values than 1 and higher values than 7.

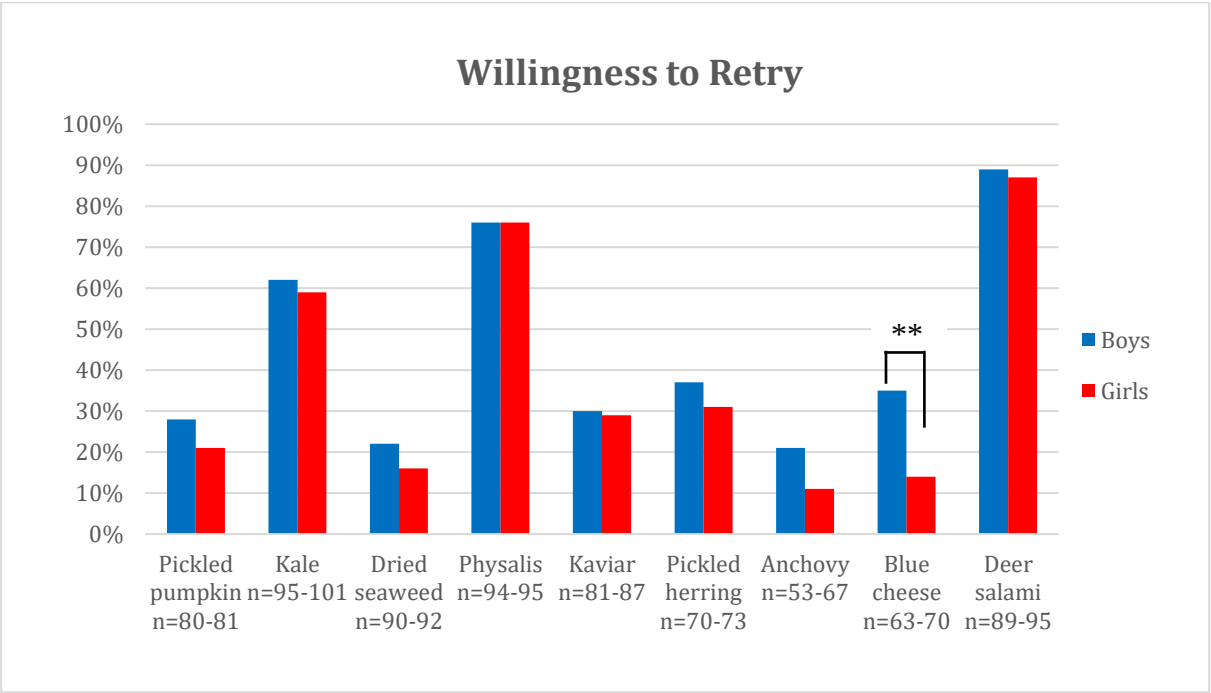

Figure 4.5 Willingness to Retry

Blue=boys, red= girls; N=number of children (boys and girls), who accepted the food items; level of significance: *= p<0.05, **=p<0.01, ***= p<0.001.

4.4 Summary of Results

- Acceptance: The majority (80%) of the food items were accepted. It was shown that *curiosity* was stated most frequently for the majority of the food items, followed by sensory properties such as *good taste*, *good smell* and *like appearance*. *Special occasions*, *culture* and *parents* were stated much less and therefore may only play a minor role in children's food acceptance. Boys were different compared to girls in the reasons *good smell*, *like texture* and *healthy*, which were stated more by boys compared to girls indicating that these reasons may be more important to boys. *Curiosity* and *other reasons* were more frequent in girls compared to boys. *Other reasons* stated by the children resulted in *Grandparents*, *Good association with other food*, *Liking*, *Challenge*, *Good experience in childhood*, *Ideals and Price/Value.*
- Rejection: The minority (19%) of the food items was rejected. Most of the food items were rejected due to *bad taste*, *bad smell*, *dislike appearance*, *dislike texture* and *unfamiliarity*. When comparing reasons for all food items between genders, a significant difference was found for the reason *dislike texture*, which seemed to be more important in the rejection of girls. *Other reasons* for rejection resulted in *Processing of food*, *Dislike and Fear.*
- Comparison of Reasons for Acceptance and Rejection: The factors *smell*, *health* and *familiarity* were shown to be of more importance when it comes to food rejection; in contrast, *health* was more important in food acceptance irrespective of gender. Furthermore, results indicated that *texture* and *appearance* are more important in food rejection of girls compared to boys.
- Liking: The most liked food item was deer salami, followed by physalis, kale, pickled herring, pickled pumpkin, dried seaweed, kaviar, blue cheese and anchovy for both girls and boys. Boys showed higher means for liking for most of the food items; however, a significant gender difference in the mean liking could only be shown for pickled pumpkin, dried seaweed, kaviar, pickled herring and anchovy.
- Willingness to Retry: Deer salami, physalis and kale resulted showed the highest willingness to retry, which seem to be in accordance with the highest means for liking for these food items. The remaining food items showed a rather low willingness to retry. A significant difference between genders could only be demonstrated for blue cheese, where boys were more willing to try compared to girls.

6 DISCUSSION

6.1 Reasons for Food Acceptance

The following sections discuss children's reasons for acceptance as stated in the order of the questionnaire.

6.1.1 Positive Sensory Properties

Good taste was the second most frequent reason for children accepting food, which is in accordance with a study by Koivisto and Sjödén (1996), who investigated reasons for children's likes and dislikes. They found that children stated *good taste* as the most frequent reason for liking food (Koivisto and Sjödén, 1996), which matches the findings of Kourouniotis et al. (2016), where *taste* was rated as being a very or extremely important factor in food choice by 82% of participants. Another study found that *texture* rather than *taste* was an important factor in food acceptance (Werthmann et al., 2015). In this study, *appearance* was the third most common reason for children's food acceptance, so it may play an important role in food acceptance. However, Werthmann et al. (2015) found that food intake was not affected by changes in colour (*appearance*) in food acceptance.

A study by Oellingrath et al. (2013) investigated the importance of parent's motives for everyday food choices and the relationship between the motives of parental food choice and eating patterns of 12- to 13-year-old children. The study was based on a Food Choice Questionnaire completed by parents. The most important parental motive for food choice was "*sensory appeal*", which also supports the results of this study, as *sensory properties* was one of the children's most frequently stated reasons. However, it has to be considered that the study by Oellingrath et al. (2013) relied on parent's responses and may therefore not necessarily reflect children's food choices directly.

Hetherington (1996) pointed out that *good taste*, *smell* and *appearance* are the basic requirements of a food and indicators of whether it is eaten or not. This is in accordance with Pollard et al. (2002), who stated that *taste*, *smell*, *texture* and *appearance* play an important role in whether a person decides to consume an item or not. A recent study by Murimi et al. (2016) included an interview with adolescents about their reasons for choosing food. The results showed that adolescents chose food due to *taste*, *smell* and *appearance*, of which *taste* and *smell* were the gatekeepers for food selection. Pollard et al. (2002) also added the *sensory quality* of a food as an important criterion for food acceptance. According to a pan-European survey examining people's attitudes to food, nutrition and health, *quality* was the most

frequently mentionedand *taste* occurred within the first three most mentioned reasons (Institute of European Food Studies, 1996).

Other studies have found that sensory properties are one of the most influential factors determining eating behaviour (Drewnowski et al., 2012; Murimi et al., 2016; Nago et al., 2012; Stevenson et al., 2007; Werthmann et al., 2015). According to Drewnowski et al., (2012), sensory properties lead to sensory pleasure i.e. from tasting sweet substances, which in turn activates pleasure-generating brain circuitry. Sensory pleasure could explain why children prefer sweet food items, as shown by Birch in the late 70ies (Birch, 1979).

It should finally be mentioned that tactile and auditory properties were not included in the study although these senses have been shown to play a role in food acceptance (Meiselman and MacFie, 1996).

6.1.2 Health

In Oellingrath and colleagues' study, health was the second most important factor in food choice after sensory appeal. *Health* also seemed to play an important role in food acceptance compared to the other reasons in this study. *Health* may play a bigger role in adults as adults may be more concerned about *health* issues compared to children. The children who participated in the current study were between 10 and 13 years old, which is an age where children may become more aware of the relationship between *health* and nutrition. Nutrition education in school may also increase children's knowledge about the nutritional importance of food, so *health* may become a more important influence when choosing food. However, some children may have regarded the questionnaire as a test and thought they were expected to know what food is healthy and what is not, which might explain why some of them ticked *health* as an important reason for choosing food.

6.1.3 Familiarity

Familiarity seemed to play only a minor role in food acceptance, which is in accordance with the results from Steptoe et al. (1995), who found that *familiarity* were selected less strongly when choosing what to eat (Steptoe et al., 1995). Steptoe et al. (1995) used adults for their study, but it seems that *familiarity* is also valued less importantly by children. However, a study by Birch (1979) showed that children's preference judgments are influenced largely by *familiarity*, and that food preferences have a big impact on food selection (Birch, 1979). This was further supported by (Drewnowski et al. (2012), who found that children base many of their food choices on *familiarity*. Other studies have shown that familiar foods are more likely to be accepted than unfamiliar foods (Martins and Pliner, 2005), the reason being that we have an

innate aversion to novel food which may potentially be toxic. However, also familiar foods are sometimes rejected (Koivisto and Sjödén, 1996) for other reasons. Mere exposure increases the *familiarity* and acceptance of unfamiliar food (Zajonc, 1968), so food which is familiar to the children may also increase the acceptance. A study by Schindler et al. (2013) showed that exposure of fruits and vegetables increased their acceptance. Children may not be aware of this effect, which may explain why *familiarity* was chosen so infrequently.

6.1.4 Special Occasions

Special occasions was the reason mentioned least frequently. The reason *special occasions* may reflect an exceptional eating situation, which does not occur on a regular basis, so the children may not eat the food very often. As this reason resulted from the interviews, it might only have been a reasons for the interviewed children, but might not be transferable to other children. Furthermore, the selection of the food items may have led to a low number of reported reasons for *special occasions* as these food items may not remind the children of a special occasion (like Christmas, Birthdays etc.).

6.1.5 Curiosity

Curiosity was the most frequent reason for children's food acceptance. Although there is no existing definition, some scientists relate *curiosity* to a natural drive such as hunger or thirst. Children are curious from birth and more curious than adults (Jirout and Klahr, 2012). During development, children generate cognitive schemas, which lead to new opportunities for surprising experiences (Jirout and Klahr, 2012). As most of the food items were unfamiliar, the children may have developed an interest in trying something new and unknown as a result of their natural drive to discover and experience. Similar results were shown in a study by Martins and Pliner (2005), which indicated that unfamiliar foods from animal and non-animal origin were accepted due to interest evoked at the thought of consuming them. The term "interest" may be equated to *curiosity* used in the current study as both terms describe inquisitive human behaviour. Furthermore, the study was conducted in adults and may therefore show a conformity of children's and adults' reasons for accepting unfamiliar food.

A study by Holsten et al (2012) investigated children's food choices in the home with particular attention to environmental influences. Results from interviews described children's experiences of trying novel food and concluded that children's food acceptance or rejection was determined by a mix of *hesitancy* and *curiosity* (Holsten et al., 2012).

6.1.6 Culture

Culture did not seem to be important in most of the children's reasons for accepting food in the current study. Although several studies identify *culture* as one of the major influences affecting food choice (Ahrens, 2015; Flight et al., 2003; Pollard et al., 2002), children may not be aware of its influence. Children may be indirectly influenced by *culture* due to their parent's origin, the country they are living in and what they perceive from their environment. According to Thomson (1989), social and cultural factors play an important role in the selection of foods and neither nutritional value nor sensory features of a food are reliable predictors of actual food acceptance and consumption This contrasts with the results of this study where *sensory properties* seemed to be one of the major reasons for food acceptance. However, cultural influences may be difficult to assess or not accurately measurable as there are various cultural differences between individuals based on culture-specific classifications and rules about what food is appropriate or not. Kurt Lewin once said "*people like what they eat rather than eat what they like*" (Thomson, 1989). The quote can be interpreted in the way that people' food choice is determined by foods they were exposed to in their native environment and *culture* (Thomson, 1989).

6.1.7 Parents

Parents was one of the least frequently stated reasons for acceptance. However, various studies indicate that parents are one of the main influences on children's food choice (Contento et al., 1993; Fisher et al., 2002; Galloway et al., 2005). However, children may not be aware of parent's influence, which may explain the low frequencies for this factor.

6.1.8 Other Reasons

Other reasons for acceptance included *grandparents*, *good association with other food*, *liking*, *challenge*, *good experience in childhood*, *ideals* and *price/value* of food. However, these reasons were only stated by a few children and so it is doubtful whether they can be applied to the majority of the children.

6.1.9 Gender Differences in Food Acceptance

When comparing the frequencies of children's reasons between genders, it became clear that *good smell*, *like texture* and *healthy* were stated more frequently by boys compared to girls, indicating that these reasons may be more important to boys when choosing food. However, a study by Luckett and Seo (2015) showed that females were more focused on *texture*. A study by Kourouniotis et al. (2016) showed that females considered *taste* more important than males when choosing food, which is consistent with a study by Glanz et al. (1998). The current study

showed a higher frequency for *good taste* stated by boys, but a significant difference in gender could not be shown. In the current study, a significant difference was demonstrated for *curiosity*, girls choosing the reason *curiosity* more frequently. This suggests that girls are more curious when choosing food. However, no other study has identified children's *curiosity* in connection with food acceptance, so more research is needed regarding this reason. A study by Caine-Bish and Scheule (2009) demonstrated that *familiar* foods had greater preference in boys than girls. In the current study, a higher frequency for *familiar* in boys could be observed; however, no significant difference between genders could be shown.

6.2 Reasons for Food Rejection

The following sections discuss children's reasons for rejection as stated in the order of the questionnaire.

6.2.1 Negative sensory properties

The three most frequently stated reasons for food rejection were within *sensory properties* such as *taste*, *smell* and *appearance*, but also *texture* seemed to be more important compared to the other reasons, highlighting the importance of *sensory properties* in children's food rejection.

Bad *taste* was the most frequent reason for children rejecting food, which conforms to previously conducted studies (Fallon and Rozin, 1983; Koivisto Hursti and Sjödén, 1996). However, in the study by Fallon and Rozin (1983) the factor *distaste* included the two senses *taste* and *smell*. An advantage of the current study is that *sensory properties* were subdivided into *taste*, *smell*, *texture* and *appearance*, making it possible to detect differences in the importance of various human senses. The following order of the frequencies of *sensory properties* of the current study resulted: *taste* > *smell* > *appearance* > *texture*. As mentioned earlier in the section "S*ensory properties*" in food acceptance, the study from Koivisto Hursti and Sjödén (1996) investigated children's reasons for liking and disliking food. The most frequent reasons for disliking food were *distaste*, which is in accordance with this study. However, in a study by Werthmann et al. (2015), *texture* but not *taste* and *appearance* seemed to determine children's food rejection. An explanation for the different results could be that the study used children aged 32-48 months and food *texture* is more important in the rejection of a food in this young age group compared to older children (Frewer and Trijp, 2007). According to the study of Thybo et al. (2004), children's attention to *texture* could play a more important role compared to adults'. 6- to 11-year-old children were offered different varieties of apples and based on preference mapping, it could be shown that the liking of apples was influenced

by their *texture* (Thybo et al., 2004). Especially, the skin roughness of the apples seemed to be a criterion for rejection (Kühn and Thybo, 2001), which might also explain the rejection of kale in the current study. Kale has a rough and curly-leaved structure and had the highest frequencies of reasons for *texture* compared to the remaining food items. The study by Baxter et al. (2000) showed that 8- to 10-year-old children' food choice is influenced by the *texture* when showing pictures of different vegetables. In the same study, it was also demonstrated that colour contributed to the rejection of green vegetables, which might explain the high frequency for *appearance* in the rejection of kale in the current study. Some children may have associated the dark-green colour and leafy *appearance* with bitter vegetables (Gibson et al., 1998); furthermore, green colours in plant foods are also hypothesised to suggest that a vegetable is not ripe (Maga, 1974). Although *texture* was mentioned least frequent reason among *sensory properties*, , but research has shown that textural perceptions are a strong influence in childhood (Frewer and Trijp, 2007; Szczesniak and Kahn, 1971). In the current study, girls seemed to give more responses for food *texture* (see Figure 4.3), which was supported by Luckett and Seo, (2015), where female subjects stated more reasons for *texture* when it comes to food rejection. *Sensory qualities* are already determined before birth and may be of bigger importance in children compared to adults, where cognitive, economic or even practical influences may become more important in adults' food choice (Frewer and Trijp, 2007). Interestingly, a study by Luckett and Seo (2015) found that *texture*- and flavour-related responses become less frequent with increasing age. In contrast, the factor "*health and nutrition*" gained more importance with increasing age.

6.2.2 Unhealthy

The reason *unhealthy* was the third least stated reason. As explained previously in section 6.1.2, children may not be aware of influences like nutritional value of food, or what consequences the ingestion of food have. As stated above children's major influences for rejection are *sensory properties*. However, with increasing age until adulthood, the knowledge about what food is healthy and what is not increases and consequently may increase in importance. This was indicated in Steptoe and colleagues' (1995) study, showing that the factor *health* was one of the most important factors in adults when choosing what to eat. Additionally, in the current study the food items where served in bite-sized portions, which may not be regarded to be unhealthy as if the children would have had to eat a whole meal.

6.2.3 Disgust

Disgust seemed only to play a minor role in children's food rejection, which stands in contrast with the results from Fallon and co-workers (1984), who found that *disgust* is one of the four main reasons (beside *distaste*, *danger* and *inappropriateness*) for food rejection in children but also in adults. When looking at the food items, the highest frequencies for *disgust* were stated for anchovy and blue cheese, which suggests that *disgust* may be closely linked with the bad *appearance* and "fishy" *smell* of the anchovy and the fact that blue cheese contains mould combined with the intense *smell* of the cheese. Some researchers even suggested that *disgust* may have developed from *distaste* (Rozin et al., 1999; Toronchuk and Ellis, 2007). A study by Brown and Harris (2012) tested whether disliked foods can act as contaminants to liked foods in infants aged 18-26 months. Data showed that children's food acceptance was influenced by the liked food touching a disliked food. The results suggest that *disgust* may be a possible influence of food acceptance in childhood (Brown and Harris, 2012). When trying novel food from both animal and non-animal origin, food rejection may result from beliefs about the disgusting properties of these foods and about the thought to consume them (Martins and Pliner, 2005). In the current study, *disgust* was highest for blue cheese and foods originating from fish (anchovy, kaviar and pickled herring), which could suggests that children have bigger disgust feelings towards cheese and fish products.

6.2.4 Unfamiliarity

The *familiarity* of food was shown to play the next most important role after *sensory properties*. These results are in accordance with the study by Drewnowski et al. (2012) demonstrating that *taste* and *familiarity* influence children's food choice by a considerable degree. Furthermore, some studies have shown a link between the rejection of unfamiliar food (neophobia) and dislike for food (Skinner et al., 2002). As most of the food items from the taste kit were shown to be rather unfamiliar, some of the children may show small sign of neophobic characteristics. The exposure to various food at home may be different from child to child and therefore some children might be more familiar with particular food types than others. However, research has shown that repeated exposure to a variety of foods decreases neophobic responses (Meiselman and MacFie, 1996; Nicklaus, 2016, 2008) and consequently increases food acceptance.

6.2.5 Bad Consequences

Bad consequences seemed to play a minor role in children's reasons for food rejection. An explanation could be that the food would have had to be tried before so that a negative experience with the food could occur. However, the *familiarity* of most of the food items was

very low and many children did not try the food items before, which can explain the low frequencies for bad consequences. However, Zajonc (1986) said that a negative consequence can already occur with the first encounter of a novel food, which does not necessarily mean that the food has to be tried before. Consequently, the absence of a negative consequence with the first encounter means the avoidance reaction will be weaker upon the second encounter (Zajonc, 1968). Experiencing negative and positive consequences is an important part of learning about food and is also called flavour-consequence learning (Yeomans, 2007).

6.2.6 Inappropriateness

Inappropriateness of food, what we regard as edible or not, is subject to remarkable variability across cultures (Thomson, 1989). *Inappropriateness* did not seem to play a big part of food rejection in this study. This stands in contrast with Fallon and coworkers (1983, 1984; Rozin & Fallon, 1980), who stated *inappropriateness* as one of the main reasons for food rejection in children and adults besides *distaste*, *danger* and *disgust*. An explanation could the selection of the food items from the taste kit. Although most of the food items were unfamiliar, the foods may not have been "exotic" enough to regard the foods as inedible. Additionally, age could be a factor as only the oldest children in Fallon and co-workers' study (1984) showed rejection due to *disgust* and *inappropriateness*. This was explained by the fact that as children get older they develop the ability to know what the food is or where it comes from and may also be an influence in this study.

6.2.7 Culture/Religion

Culture/religion was one of the least mentioned reasons for rejection. As stated in the influences of *culture* in food acceptance, children may be influenced by *culture* indirectly and may not be aware of the cultural influences. Therefore, it might not be appropriate to involve *culture* in the questionnaire. However, *religion* may be of bigger importance to reject food. As some religions follow strict dietary guidelines and restrictions, people, who belong to a specific religion may reject prohibited food (i.e. Islam – meat must be halal, no pork; Judaism – kosher). However, the taste kit did not include products including pork meat, as the intention was to make the taste kit as inclusive for as many children as possible. According to the results, most of the children attended schools in an area of Copenhagen with a higher SES and lower number of immigrants from Eastern-European countries. Therefore, the variety of religions may be rather low, which might also be an explanation for the low frequency of the reasons culture/religion.

6.2.8 Other Reasons

Other reasons were only stated by a few children, which resulted in *processing of food*, *dislike* and *fear*. However, it has to be considered that these reasons were only stated by very few children and it might therefore be questioned in which extend these reasons may be applicable to other children.

6.2.9 Gender Differences in Food Rejection

Girls were shown to reject more food items than boys did, which is in accordance with the study by Nordin et al. (2004), where food rejection was more common in women. Additionally, the study by Nordin et al. (2004) demonstrated that women are more *disgust* sensitive than men are. However, no gender difference of the reasons *disgust* could be shown in this study. A gender difference could only be shown for *dislike texture*, where girls stated *dislike texture* more often compared to boys, which is similar to a study by Luckett and Seo (2015), where female participants were more likely to give responses for texture. The study by Nordin et al. (2004) could not confirm a difference for any sensory attributes between men and women.

6.3 Liking

Descriptive analysis showed that the most liked food item was deer salami, followed by physalis, kale, pickled herring, pickled pumpkin, dried seaweed, kaviar, blue cheese and anchovy for both boys and girls (see Figure 4.4). The current study showed that boys numbered the highest in liking for most of the food items, which was significant for kaviar, dried seaweed, pickled herring, pickled pumpkin and anchovy. A higher liking in boys was also shown in a study by Frank and van der Klaauw (1994), who examined college-aged students and investigated individual differences in general response patterns or attitudes to foods. According to their findings, boys tended to have slightly higher numbers of likes, while females tended to have more dislikes (Frank and van der Klaauw, 1994).

Interestingly, boys liked the fish products kaviar, pickled herring and anchovy more than girls, which is consistent with the study by Caine-Bish and Scheule (2009), where boys preferred the fish foods over girls. The same study showed that boys had a bigger preference for meat (Caine-Bish and Scheule, 2009). In fact, the current study showed that boys have a higher mean for liking for the meat product (deer salami), but no significant difference was demonstrated.

A review from Eertmans et al. (2001) concluded that the current evidence supports that liking plays an important role in food choice (Eertmans et al., 2001). However, it has to be considered that some of the children were trying the food items for the first time and therefore they might

have known beforehand whether they would like the food items or not. However, some children may judge the food before they have even tried it (Eertmans et al., 2001) (i.e. due to *beliefs*, *smell* or *appearance*), meaning that information-based expectations can affect the degree of liking, which can result in both high and low liking (Eertmans et al., 2001).

Food items with the highest results for liking (deer salami, physalis and kale) were shown to have the highest percentage of children, who want to try the food items again (willingness to retry). This is in accordance with Eertmans et al. (2001), who stated that positive experiences with a food can increase the liking of a food (Eertmans et al., 2001). Therefore, a high liking of a food can also lead to a higher willingness to retry the food.

Important to mention is that the liking of food items resulted in very large SDs (see Figure 4.4) indicating that the variation among children's degree of liking is very polarised.

6.4 Willingness to Retry

The willingness to retry was highest for the food items deer salami, physalis and kale, which seems to be related to their high results in liking. The remaining food items showed a rather low inclination to be retried, but also a low result in liking. However, no statistical test was conducted to demonstrate a relation between these two factors.

Interestingly, pickled pumpkin, which is characterised by a very sweet taste, resulted in a rather low mean liking and low willingness to try again compared to the other food items. This stands in contrast with Drewnowksi et al. (2012), who stated that children have an innate preference and increased liking for sweet foods. However, the preference for sweetness does not remain constant and is modulated through experiences throughout life (Ventura and Mennella, 2011). Additionally, the *familiarity* of pickled pumpkin was the lowest compared to the other food items, which suggests that the low *familiarity* may explain the low mean liking and willingness to retry. However, studies have shown that the liking of a food can be increased through mere exposure (Pliner, 1982; Wardle et al., 2003; Zajonc, 1968). The liking of unfamiliar food can be increased through mere exposure although the food was previously rejected (Wardle et al., 2003), which leads to the assumptions, if the study would be conducted again, also the mean liking of the foods would be modified.

A significant difference between genders could only be shown for blue cheese, where boys were more willing to retry the food items than girls. This suggests that boys and girls may be similar when it comes to retrying food.

6.5 Strengths and Limitations

Although the results of the study showed that children's food acceptance seems to be influenced by *curiosity* and *sensory properties* and food rejections mainly by *sensory properties* and *familiarity*, the results have to be interpreted with caution as some limitations of the study have to be considered: Firstly, the questionnaire contained reasons that are perceived as relevant to food choice. However, these reasons do not necessarily reflect actual dietary selection behaviour of children. Secondly, some of the reasons from the questionnaire may in fact be an important influence of children's food choice, but it has to be critically questioned, if these reasons can be asked directly. Some of the factors (i.e. like influence of *parents*, *culture/religion*) may influence children on an unconscious level as children may not be aware that specific reasons influence their food selection. Consequently, despite some reasons showed a low frequency, they might in fact be of greater importance than it had seemed. In order to ask about what reasons children have for choosing food, it might be useful to revise and exclude some reasons from the questionnaire, which may occur on an unconscious level.

A further limitation of the study is that the results of children's reasons for food selection were only based by use of a questionnaire. The validity of the results would be improved with the conduction of additional studies and other approaches. For instance, in-depth interviews with children and the involvement of parents in the study could lead to more reliable results in order to detect children's reasons for acceptance and rejection. A strength of this study was that 205 children gave their responses for reasons about acceptance and rejection, which is an abundant sample size.

Moreover, it has to be considered that four fifths of all food items were accepted, while one fifth was rejected, which resulted in a larger number of stated reasons for acceptance. The results may be more reliable for food acceptance than rejection as larger sample sizes give more reliable results with greater precision and power (Ref.). However, the acceptance of food did not require to be tasted, which could explain the large number for accepted food items. Seeing as the number of children, who responded to liking almost equalled the number of children, who accepted the food items, this did not seem to be an explanation. For future research it would be interesting to see if children respond to more rejections, if acceptance requires the tasting of food items.

6.6 General Methodology

6.6.1 Questionnaire

The questionnaire evolved to be an appropriate tool to measure children's reasons for accepting or rejecting food. As the questionnaire was based on quantitative measurements, it was possible to include a large number of respondents. Furthermore, the questionnaire is an inexpensive means of data collection of many respondents within little time. Quantitative questionnaires enable the visualization of data to detect specific patterns. However, some limitations of the questionnaire have to be considered in regard to the results. Firstly, it is not possible to receive in-depth information and from quantitative questionnaires and they do not inform about context and meaning behind the response. Furthermore, the available responses for reasons of acceptance and rejection may be leading for the children. Although children could state their own reasons, some might be not interested or "too lazy" to state their own. Secondly, the questionnaire part for reasons of acceptance and rejection contained the possibility to give multiple responses. But some children might have misunderstood that they could cross several options and therefore some data would not be included. Furthermore, it has to be questioned, if the results indicate the most important reasons for food selection when stating more reasons as each child might prioritize the stated reasons differently.

The comprehensibility of the question formulation might also have led to bias of the results. The children were allowed to ask the instructor and assistants for help in the case of misunderstanding, but some children might have been afraid or too shy to ask for help. To my knowledge, there were no problems in understanding the questionnaire. However, for future research the wording of questionnaire items should be tested with the help of a trained pedagogue to phrase the questionnaire in an age-appropriate manner.

The qualitative interviews and the quantitative questionnaires both gave results about children's reasons for acceptance and rejection. However, qualitative and quantitative differ in a number of ways. Firstly, the interviews were less structured providing more flexibility about the topic of interest (Bryman, 2001). This is an advantage as it offers the interviewees to come up with their own topics, which the interview may not have thought of (Bryman, 2001).

The quantitative questionnaire was structured, which does not give much flexibility to the respondent and in-depth understanding is also not given. An advantage is that the reliability and validity of the measurements is maximised (Bryman, 2001). This approach can be used to generalise that the knowledge gained is representative of the population from which the sample was drawn.

6.6.2 Selection and Categorisation of Food Items

The study intended to include a wide selection of different foods as it was not the intention to find reasons for acceptance and rejection for specific foods. Therefore, it was aimed that the taste kit comprises of familiar as well as unfamiliar foods from different food categories. However, most of the food items were unfamiliar to the children. Pickled pumpkin, dried seaweed, blue cheese and anchovy were the most unfamiliar to the children, while kale, physalis, kaviar, pickled herring and deer salami were more equally distributed among the children, who have tried and not tried the food item before, but kale and deer salami were the only food items where this distribution was balanced. The selection of the food items was based on foods used in previous studied and exploration of potential food items available in Denmark. The taste kit resulted in five categories including vegetables (kale, dried seaweed), fruits (pickled pumpkin and physalis), fish (kaviar, pickled herring and anchovy), meat (deer salami) and dairy products (blue cheese). The categorisation of food can be interpreted in several ways and requires knowledge about different food characteristics i.e. processing of the food (i.e. pickled versus fried food). However, the categorisation of the food items included in the study was solely based on to which type of raw food material the food item originated. Additionally, dishes or food items, which had to be prepared were excluded due to a limited time frame of the study. The taste kit was limited to nine food items because the involvement of more food items seemed be a problem in the pilot study; children lost concentration and interest in responding to the questionnaire, which was avoided by limiting the food items to nine. Consequently, a disadvantage is that less food categories could be included. In future studies, a different way of food categorisation should be considered when selecting the foods and attention has to be paid to which food items are relevant for finding children's reasons for acceptance and rejection.

6.6.3 Serving Order

To avoid that children can copy each other's responses, children were randomized to two different questionnaires, where the serving order was inverted. There was no effect of serving order detected, which reveals that acceptance and rejection of the food items were not influenced by serving order.

6.6.4 Participants

6.6.4.1 Sample size

A target number of 200 participating children were planned for the study to increase the strength of the study results. A total of 205 children participated in the study, which is a relatively large

sample size, thereby increasing the chance of significance and reflecting the population mean with greater accuracy.

6.6.4.2 Age

The study aimed to involve children in the age between 9 and 13. The majority of the children were 10 to 12 years old (198 out of 205 children, 97%), only a few children were 13 years old (7 children, 3%) and no children were 9 years old. Therefore, the results may only be relevant for children aged 10 to 12. The distribution of boys (99) and girls (106) was almost equal, which is an advantage when comparing genders.

6.6.4.3 Generalisability

A strength of the study was that the participating schools were situated in different areas of Copenhagen, representing children from different SES and thereby increasing the generalisability to the general population. However, this holds only for children from the capital Copenhagen and may not be transferable to children from the countryside. A study from Flight et al. (2013) showed that city students had lower neophobic responses compared to rural students. It was concluded that students from the city were significantly more familiar with different foods and more willing to try unfamiliar foods. Furthermore, they were of higher SES and were more exposed to cultural diversity (Flight et al., 2003). Furthermore, as the study was conducted in Denmark, the generalisability of conclusions across populations may be limited. For instance, the most common reasons for acceptance and rejection may only be applicable for the western European culture with small variances in economic and availability.

6.6.5 Study Execution

The study was carried out by an instructor with the help of 2-3 assistants per class. In some cases, the study was conducted in two classes at the same time and therefore two instructors were trained. Although the instructors were prescribed to follow the study protocol, the way of execution and giving instructions to the children may have differed from person to person. Additionally, instructions may be clearer for some children when participating later in the study as the instructors may have improved the way of giving instructions over time. In consideration of these biases, it may be desirable to have only one instructor for the execution of the study.

The study was conducted only once in each class and therefore the results relied on a one-time measurement. Further tests would be desirable, however the results could be biased, if the children would be measured a second time. Children might respond differently to the second questionnaire, as they would already know the procedure. The study aimed to receive as

spontaneous responses as possible, but this would be omitted at the second data collection. Additionally, the time frame of the study did not allow a second run of data collection. Thus, one-time measurement emerged to be the best way to measure spontaneous responses in children.

6.6.5.1 Time of day

The study sought to carry out the study for all participating classes at the same time of the day. Therefore, in the invitation letter for the schools it was mentioned that 10 am would be desirable to ensure that the children had a break before and were not very hungry. However, due to different time plans of the teacher the times when the studies were conducted varied from 8.30 -10.35. The results of the study may have been influenced by the time of execution, but as the studies were all conducted in the forenoon, the variation of the results might be low. A study from Birch et al. (1984) showed that the preference of food is depending on what time of the day it is consumed and that food items are mostly preferred in the morning. Therefore, the most desirable intention would be to perform the study for all schools at the same time of the day, preferably in the morning.

6.6.5.2 Environment, Situation and Context

In order to acquire a sample size as large as possible, public schools seemed to be the best place for recruitment. The execution of the study in schools enabled to collect many data at the same time. This would not have been possible, if every child would have been recruited individually due to management and time limitation of the study. Furthermore, food choices are often biased by the social and physical environment and its various contexts and influences (Story et al., 2008). The situation and context of food consumption can change children's liking or disliking of a food. Booth (1994) encapsulates the importance of socio-affective context by giving the following example:

"*Children are often seen to eat foods out of the home that they adamantly refuse at home. This illustrates the social character of eating. The emotional meaning of a piece of cheese at home...is quite different from the same cheese on a toothpick from a pile from which one's playmates are grabbing handfuls at a friend's birthday party. It would not be surprising if the child even thought the cheese tasted better at the party*." (Booth, 1994, p. 37)

As Booth (1994) summarised, children often seem to eat more foods away from home, which they would refuse at home. This could also explain the high percentage of children, who accepted the food items. If the same food items would have been served at home, the acceptance

would result in a much lower number. It has to be noted that the school environment differs from the home settings considerably. At home the children may be mainly influenced by their parents, as at school, peers and friends may be have an effect on the children's food choice. Houldcroft et al. (2014) and other researchers summarised that peers and friends act as important role models when it comes to food choice (Frazier et al., 2012; Houldcroft et al., 2014). Results from Frazier et al. (2012) demonstrated that children prefer foods, when the food was eaten by a model with positive expressions. Additionally, the food was more preferred when eaten by a child compared to an adult model and when the food was eaten by a child model of the same gender (Frazier et al., 2012) Consequently, the reaction of a peer/friend towards the exposure of a food may affect one child's decision, regarding whether or not they want to try the food. According to the qualitative results, some children mentioned that they felt challenged by trying the foods. This was confirmed by observations during the study: Children encouraged each other to try a food, which they regarded e.g. as disgusting (e.g. anchovy). However, the mutual challenge was only noticed in boys. Moreover, children were allocated to two different groups to avoid children seeing their neighbours' responses. However, in some school the children were sitting in groups, which made it easier for the children to look at their neighbours' responses. Additionally, children's reaction towards a food (i.e. negative facial expression) could have influenced other children. The teacher as a role model could also have influenced children's choice to accept or reject food.

Furthermore, children might have seen the study as a "special" event compared to their usual school classes. Consequently, children could be more curious about trying some foods.

A further limitation/bias of the study was that too many adults/authorities (one instructor, 2-3 assistants and the teacher) were present in the classroom at the same time. When serving the food, the children might have been influenced by the large number of authorities in the room and maybe felt forced to try the foods.

7 CONCLUSIONS

The aim of the study was to investigate children's reasons for accepting and rejecting food. In order to achieve this aim, 10 to 13-year-old Danish primary school children responded to a quantitative multiple-response questionnaire stating reasons for accepting and rejecting selected food items. It was intended to examine differences in genders in reasons for accepting and rejecting food. Furthermore, it was researched, if the acceptance and rejection of food underlies different reasons. Finally, children's liking of the food items and willingness to retry these were investigated. The findings of the current study may concluded as follows:

- In food acceptance, *curiosity*, *good taste*, *good smell* and *like appearance* are the most important reasons for children to choose food, with *curiosity* more important for girls than boys. So far, the reason *curiosity* has not been investigated in other studies, but proved to be the most determinant reason in children's food acceptance. The results for *good taste*, *good smell* and *like appearance* seem to be consistent in most of the part with the findings from other studies, however the current results from the study also show some contraries, which necessitates more research about children's reasons for accepting food.
- In food rejection, sensory properties such as *bad taste*, *bad smell*, *dislike appearance*, *dislike texture* and *unfamiliarity* were the most common reasons. The only difference between genders was shown for the reason *dislike texture*, which is more important to girls. The findings for children's reasons in food rejection conform to the majority of the currently available literature that sensory properties and familiarity are one of the main determinants for children's food rejections.
- When comparing reasons of food acceptance and rejection, *smell* and *familiarity* were demonstrated to be more important in children's food rejection, while *health* was demonstrated to be more important in the acceptance of food, irrespective of gender. *Texture* and *appearance* resulted to be of greater importance in food rejection for girls. So far, the studies comparing children's reasons for accepting and rejecting food are very scarce and therefore more research is needed.
- In overall, boys showed a higher mean liking of the food items than girls, but gender differences were only significant for the food items pickled pumpkin, dried seaweed, caviar, pickled herring and anchovy. Interestingly, boys liked all fish products more compared to girls, which is in accordance with current literature. Furthermore, liking of the food items seems to be related to willingness to retry. However, statistical analyses is needed to prove this relationship.

- Children wanted to retry deer salami, physalis and kale the most, whereas the remaining food items resulted in rather low number of children, who wanted to retry these food items again. Different reasons may be responsible for children's willingness to retry foods. However, no correlation between willingness to retry and reasons for acceptance and rejection were established and therefore needs further investigation.

Overall, the findings from the current study demonstrate that *sensory properties* are considered as an important factor influencing food choice in the sample of children investigated. However, reasons for acceptance and rejection seemed to be of different importance for children. The content of the present discussion of the results shows the complexity of food choice. Many of the factors influence food choice on either a conscious or an unconscious level and some of the factors are more influential than others, but the influences are also different between individuals (Pollard et al., 2002). Children's *curiosity* seems to be the ideal prerequisite to try and finally accept novel food to increase dietary diversity, which is part of a healthy diet. Different education programmes about food including sensory education and food exposure programmes, cooking classes with nutrition education have a potential to activate children to try new foods, increasing the familiarity of the foods and therewith increase their liking to be finally accepted in the children's diet. However, there are various influences on food choice and there are a number of barriers before a food item is accepted into a children's diet or to change a previously rejected food to an accepted. These barriers are i.e. dependent on life stages and vary on the individual or group of people in question. Consequently, more research is needed on how best to increase children's acceptance of healthy foods.

8 PERSPECTIVES

8.1 Future Research

Future research may consider means of developing adequate tools to measure children's reasons for choosing food. In this regard, qualitative approaches should be used to investigate specific reasons that are important in children's acceptance and rejection of food. Quantitative approaches should be used to generalize the results from a larger sample population, which enables generalization, which means to which extent the findings can be inferred to the general population. (Palinkas et al., 2013) The combination of these two research methods may be a good way to examine what determines children's selection of food. Once appropriate tool for measuring reasons for acceptance and rejection is developed, it may also be applicable to other populations (i.e. of other origin or age).

As this study only focused on Danish children from Copenhagen, studies are needed investigating children from different part of Denmark to increase the reliability and to be able to generalize to the majority of Danish children. Furthermore, children from other countries should be examined as well to generalize to as many children as possible. Additionally, the comparison different age groups may be necessary to show similarities or detect differences in different stages of childhood.

Furthermore, this study was conducted only in schools. Following, it would be interesting to research, if children's reasons in food choice change when investigated in other settings (i.e. home).

Lastly, this study used a quantitative-multiple response questionnaire, which was developed within the same study. However, it was not proved for reliability by using statistical approaches (i.e. Cronbach's alpha) to measure the consistency of the questionnaire of the questionnaire (IWH, 2007). Future research should consider these tests for reliable results for children's reasons for acceptance and rejection.

8.2 Clinical Implications

A significant interest of this study was to detect children's reasons for accepting and rejecting food. Multiple levels of influence on children's food acceptance were indicated including *curiosity* and *sensory properties*, which accounted as the most frequently mentioned reasons. In food rejection, *sensory properties* were by far the most frequently mentioned reason, followed by *familiarity*.

The gathered knowledge of this study can be included in children's health promotion. In this section, preliminary suggestions for interventions and future research will be discussed.

The resulting reasons of the study can be of use for future health promotion in children. The results support incorporating education programmes about food to increase acceptability of healthy foods. The programmes should contain different approaches and activities like sensory education programmes, food exposure programmes, cooking classes combined with nutrition education. Schools can be an appropriate target as a large number of children can be reached. The programmes have potential to be implemented in schools classes as part of the curriculum. But also nursery schools, day care centres and the creation of workshops in free time activities may be of interest. "Taste games" may be a good idea to implement in restaurant, worksite cafeteria, but also in the family dining room (Eertmans et al., 2001).

These programmes have the potential to encourage children to try new foods, thereby increasing the familiarity different foods. Consequently, exposure to new foods can increase children's food acceptance and thereby increasing the variety of the diet (Mustonen and Tuorila, 2010). In a recent study from Murimi et al. (2016) adolescents were interviewed about factors that influence their food choices. The aim of the study was to gain knowledge about what factors determine student's food choice of their school menu and what suggestions could improve the meals served in the school cafeteria. Amongst others, taste, food appearance and familiarity were reported to be important to the students (Murimi et al., 2016), which also supports the results of this study. Suggested improvements to promote healthy food choices in schools included the offer of taste testing sessions for new foods and improvement of food presentation by making the food more appealing (Murimi et al., 2016).

The willingness of children to participate in the projects is a requirement for the success of the activities. Therefore, it is necessary to design the projects to be interesting and multifaceted. Children are naturally curious, which was also shown in the results of the study as curiosity was children's most frequently mentioned reasons for accepting food.

The mentioned strategies could have potential to be implemented in different sectors, where children can be targeted; however, it has to be considered that changing children's food variety has not always proven effective. Further research is required to determine if such activities work.

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APPENDICES

APPENDIX I: Literature Research

The literature search was conducted electronically through the databases Web of Science and PubMed, which were accessed via The Royal Danish Library entrance REX. Additionally, Google Scholar was used. The following key words were approached for identification of relevant literature: “food choice”, “dietary choice”, “food selection”, “food acceptance”, “food rejection”, “food preferences”, “food behaviour”, “eating behaviour”, “children”, “liking”, “disliking”, “reasons” and “factors”. All studies were assessed for relevance and references cited in each article were scanned for further relevant research. Language was restricted to English and only articles with full access were included. No restrictions were set in regard to date of publication date and area of investigation. Eligible studies were those investigating reasons and factors in food choice in child-and adulthood. A total of 48 articles satisfied the above criteria, which were reviewed below according to the reasons.

The literature research led to different factors in food choice:
Sensory properties (Drewnowski et al., 2012; Martins and Pliner, 2005; Murimi et al., 2016; Mustonen and Tuorila, 2010; Nago et al., 2012; Nicklaus, 2016; Nicklaus et al., 2004; Stevenson et al., 2007; Werthmann et al., 2015), **taste** (Ahrens, 2015; Clark, 1998; Fallon and Rozin, 1983; Hetherington, 1996; Koivisto and Sjödén, 1996; Kourouniotis et al., 2016; Maga, 1974; Murimi et al., 2016; Nehring et al., 2015; Nicklaus et al., 2004; Park and Cho, 2016; Werthmann et al., 2015) **appearance** (Gibson et al., 1998; Hetherington, 1996; Murimi et al., 2016; Pollard et al., 2002; Werthmann et al., 2015), **texture** (Baxter et al., 2000; Kühn and Thybo, 2001; Luckett and Seo, 2015; Nederkoorn et al., 2015; Pollard et al., 2002; Szczesniak and Kahn, 1971; Thybo et al., 2004), **appearance** (Gibson et al., 1998; Hetherington, 1996; Murimi et al., 2016; Olsen et al., 2012; Pollard et al., 2002), **parents** (Brown and Harris, 2012; Contento et al., 1993; Fisher et al., 2002; Galloway et al., 2005; Koivisto Hursti and Sjödén, 1996; Nicklaus, 2016; Oellingrath et al., 2013; Savage et al., 2007; Scaglioni et al., 2011; van der Horst, 2012), **familiarity** (Caine-Bish and Scheule, 2009; De Moura, 2007; Dovey et al., 2008; Drewnowski et al., 2012; Finistrella et al., 2012; Pliner, 1982; Steptoe et al., 1995; Taylor et al., 2015; Zajonc, 1968), **appropriateness** (Fallon and Rozin, 1983; Rozin and Vollmecke, 1986) and **disgust** (Brown and Harris, 2012; Fallon and Rozin, 1983; Rozin and Vollmecke, 1986), **culture** (Ahrens, 2015; Flight et al., 2003; Nicklaus and Issanchou, 2007; Pollard et al., 2002; Thomson, 1989), **health** (Heidelberger and Smith, 2014; Oellingrath et al., 2013; Pollard et al., 1998; Rozin and Vollmecke, 1986).

APPENDIX IIa-g: Interviews

Semi-structured interviews were conducted to better understand children’s reasons for accepting and rejecting food as a support to the existing literature. Additionally, the interviews were executed to detect reasons for food acceptance and rejection and to find relevant food items for use in the pilot and main study. The resulted reasons were categorised by the author and finally selected due to criteria set by the author to include in the questionnaire for the pilot and main study. The participating children were aged 8-10 years old and attended a Danish

public school in Copenhagen, Denmark. The children were interviewed in English, as the author's mother tongue was not Danish. This was possible as the school in question was multicultural with many bilingual students. Their teacher selected children who were confident English-speakers and invitation letters were sent to the parents who had to consent to their participation. Finally four children - three boys (8-10 years) and one girl (9 years) attending the 4th and 5th grade - volunteered to be interviewed. The children were interviewed individually on different days after school. The interview followed an interview guide (see APPENDIX IIc: Interview Guide) to cover specific topics, but the interviewee was fairly flexible in how to respond (Bryman, 2001). The interview guide was divided into two main parts to receive information about:

- Part A: Reasons for liking and disliking of children's most and least liked food.
- Part B: Familiarity and reasons for liking and disliking food items from a developed taste kit.

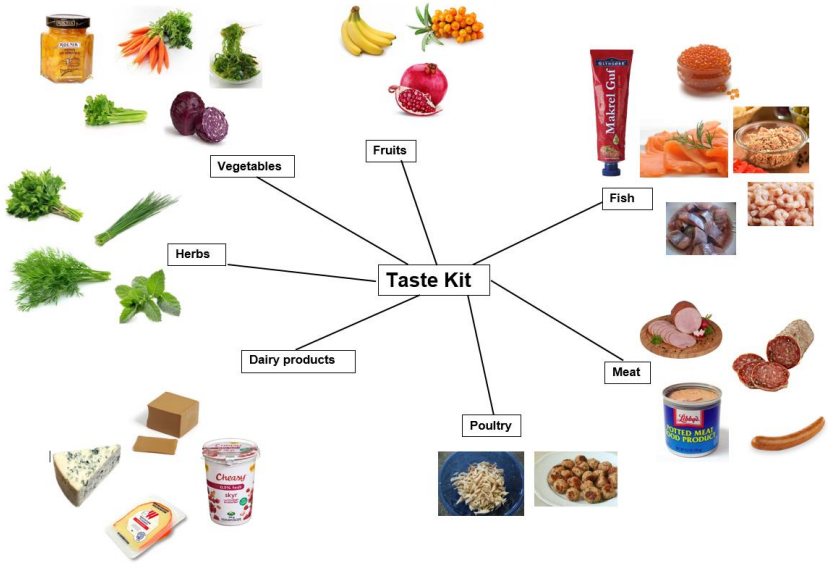
In Part A, children were asked about reasons for liking and disliking food. Therefore, children were asked about their most and least liked food. This was due to the supposition that it is easier for the children to remember their most liked and least liked food. In Part B, children were instructed to look at a copy including 28 photographs of different types of food (see APPENDIX IIa: Identification of Relevant Food Items), where they were asked about the familiarity and reasons for liking and disliking of each food. It is important to mention that reasons for liking, which the children mentioned in the interviews were similarly (for the development of the questionnaire) used as reasons for food acceptance. The same approach was undertaken with children's reasons for disliking food. This was operated as children may not know what to conceive of the term "acceptance" and "rejection".
The interviews took place in a public school in Copenhagen, Denmark, in the time from 14th – 21th February 2016. The interviews lasted approximately 40 min each and the information was recorded with a mobile phone. The recordings were transcribed into text (see APPENDIX V: Transcription of Interviews), and reasons for food liking and disliking were summarised and inductively categorised into reasons for acceptance and rejection (see APPENDIX IIe: Categorisation of Reasons).
Furthermore, as the number of food items from the taste kit with 28 food items was too large to include in the pilot and main study, it was limited to 14 food items. These were limited according to inclusion and exclusion criteria set by the author (see APPENDIX IIg: Revision of Taste Kit). Finally, the 14 selected food items from Part B served as a taste kit for the pilot and main study and the categorised reasons for food acceptance and rejection from Part A and B were used for the development of the questionnaire for the pilot and main study, which is elaborated in the next section.

APPENDIX IIa: Identification of Relevant Food Items

The taste kit for the interviews intended to involve many different foods to cover a wide range of food categories. A total of 28 food items from seven food categories were selected due to various criteria set by the author. In foresight of the pilot and main study, where the children were presented real foods, the food items were selected due to various criteria set by the author:

The food items had to be low in cost and easy available in Copenhagen, Denmark. The food items had to be easy to prepare meaning no use of cooking, boiling, frying etc. The food items had to be easy to cut in bite-size pieces. Foods, which are commonly allergenic to children (i.e. nuts, soy products and eggs) or foods where availability was seasonally restricted or special offers from the supermarkets were excluded from the study. Furthermore, ethnic, cultural and religious backgrounds were considered to ensure that the food items were approachable to all children and therefore products containing pork were excluded.
The following food categories were included for the interviews: vegetables (pickled pumpkin, celery, carrots, red cabbage, seaweed), fruits (bananas, pomegranate, sea buckthorn), fish (tubed mackerel, kaviar, smoked salmon, pickled herring, canned tuna, shrimps), meat (turkey ham, salami from beef), potted meat from pork, sausage from pork), poultry (sliced chicken, chicken meatballs), dairy products (brown cheese, blue cheese, Havarti, skyr), herbs (parsley, dill, chives, mint).

Selection of Food Items for the Interviews:



APPENDIX IIb: Protocol

Firstly, the interviewer introduced herself and informed the child about the purpose and the process of the interview. The child was asked about general information including age and parent's origin. Then, the child was asked to draw its most liked (favourite food) as well as most disliked food on a prepared template and the time was set to around 5 minutes. Consequently, the child was asked reasons for liking and disliking the selected foods:

Part A: Reasons for liking and disliking food

Firstly, children were asked about their favourite food and what the reasons are for liking it ("*What favourite food did you draw here and why is it your favourite food?*"). If the child did not come up with reasons itself, topics included time, frequency and place of consumption ("*How often and what time of the day do you normally eat this food?*"), place and eating environment (*"Where and with who do you normally eat this food?"*) and food preparation

(“*Who prepares the food and how is it prepared?*”). Furthermore, children were asked about other liked foods and their reasons for liking them.

Secondly, children were asked about their least liked food (“*What is your least liked food and why is it your least liked food?*”) and what the reasons are for not liking it (“*What did you not like about the food?*”). Additionally, children were asked if they have tried the food before (“*Have you tried the food before?*”). If the child did not come up with reasons itself, topics included time of consumption (“*When and where did you eat the food?*”), place and eating environment (“*Where did you try it and were other people present when you were trying it?*”), food preparation (“*By who and how was the food prepared?*”) and willingness to try it (again) (“*Would you like to try the food again?*”). If the child, did not try the food it was asked for the reason (“*What was the reason for not trying the food?*”). Furthermore, children were asked about other disliked foods and their reasons for disliking them.

Part B: Taste Kit

Children were instructed to look at a copy including 28 photographs of different types of food. The child had to circle all liked (accepted) food items with green colour, all disliked (rejected) food items with red colour. Unknown food items were not circled. Topics included familiarity, reasons for liking (acceptance) and disliking (rejection) of the food items (“*What foods do you know and what foods have you tried before? Do you like them? If yes, why? If no, why?*”). In the case, children did not know the food they were asked, if they would like to try or not try the food and the reasons for it (“*Are there some foods you would like/not like to try? If yes, which one(s) and why?*”)

The interview was terminated by asking the child about remaining questions and thanking for taking the time.

APPENDIX IIc: Interview Guide

Interview guide			
Theme	**Moderator instruction & time demand**	**Instruction for participants (children) & information**	**Questions**
1) Welcoming	**Ca. 3 min**		
<u>Introduction of myself</u> <u>Background</u> The child is informed the master thesis and the aim of the interview in terms that it can understand. Do not tell the child directly what the study is about because this could influence the outcome of the study. <u>Process of the interview & topics</u> Tell about the process of the topic and how long it will approximately take. Tell that the interview will take approximately 20 minutes including the drawing phase. Tell the child that the interview will be recorded. Ask if it is okay with that and tell that everything it is drawing or talking will be treated as strictly confidential.	Offer something to drink.	I am Julia and I am 22 years old. I am from Austria and I came to Copenhagen last year in summer to study nutrition at the University of Copenhagen. You are here today to help me with my final work (project), which is about liking and disliking of different foods. So what we simply do today is to talk about your own opinion about some foods you like and some you dislike. Now I will explain you about the process of the interview. We start with some very simple questions about yourself and then you get some time to draw two foods on a piece of paper. I will ask you then a few questions about these two foods. No one else will see what you have been drawing or what you are telling me. Everything will be anonymous.	
2) Information about Child	**Ca. 2 min**		
Ask the child about personal question. Age, where it comes from,…etc		Age Parent's origin	How old are you? Are your parents Danish or do they come from another country?

3) Drawing Phase	**Ca. 10 min.**		
<u>Introduction to drawing</u> A piece of paper and pencils are handed out. The child should now draw two food items. One, which is liked very much and one which is totally disliked or has not been even tasted.	(5 min.) Hand out sheet and pencils.	Two boxes are depicted on the paper. In the left box please draw a food you really like – your favourite food for example. It can be an food you like (like an apple). And in the other box on the right please draw a food you really dislike or something you have not even tried because you don't want to taste.	
<u>Drawing period</u> Tell the child that it has 5 minutes from now to draw the two food items and tell that it is allowed to use more time if needed. Tell the child that I am the only person who is going to see this picture and that it does not have to look perfect.	(5 min.) Set the time.	You have 5 minutes from now to draw. Please let me know when you finish or if you need more time. Then you can of course use more time for it. It does not have to look perfect. Are you ready to start? Do you have any questions or is something unclear? So here we go!	
<u>Stop of drawing period</u> As the time is over, the child should finish the two drawings. Ask if the child need more time for completion		The time is over now.	Have you finished or do you need more time to complete your drawing?
<u>Talk about the drawing</u>	Take the paper and have a look at it.	That looks amazing! Thank you very much for that already.	
4) Evaluation of the accepted and rejected food **a) Acceptance of Food**	**Ca. 7 min.**		
<u>Explain left Box (liked food)</u> The child should explain what it has been drawing into the left box (liked food).	*(5 min)*	So we start now to talk about what you draw in the left box – the food you really like.	
<u>Evaluation of the liked food</u> Questions about the food item. These contain questions about the reasons why especially this food is liked (accepted) and what makes it so liked. The child should talk about it itself, but the main question should be covered. Help the child with some prepared questions.		Can you please tell me why you chose especially this food? Why do you like it so much? <u>Topics:</u> Reasons for liking the food	**What** favourite food did you draw here and **why** is it your favourite food? **How often** and **what time of the day** do you normally eat this food?

		Time, frequency and place of consumption Place and eating environment Food preparation (by who and how) Thank you very much for telling me about your favourite food.	**Where** and **with who** do you normally eat this food? **Who** prepares the food and **how** is it prepared ?
<u>*Additional food*</u> *If time, also ask about another liked food and reasons for why it is liked.*	*(2 min.)*		*Can you think about other foods you like? Why do you like them?*
b) Rejection of Food	**Ca. 7 min.**	Now we change to the second drawing you did. The food you disliked.	
<u>Explain the right Box (disliked food)</u> The child should explain what it has been drawing into the right box (disliked food).	(5 min.)	Can you please tell me why you chose especially this food? Why is it you least liked food?	**What** is your least liked food and **why** is it your least liked food? Have you tried the food before?
<u>Evaluation of the disliked food</u> Questions about the food item are asked. These contain questions about the reasons why especially this food is disliked (rejected). The child should talk about it itself, but the main question should be covered. Help the child with some prepared questions.		<u>Topics:</u> Reasons for disliking the food Tried/Not tried the food Time of consumption Place and eating environment Food preparation (by who and how) Willingness to try again Thank you very much for telling me about your least like food.	<u>If tasted:</u> **What** did you not like about the food? **When** did you eat the food? **Where** did you try it and were **other people** present when you were trying it**?** **By who** and **how** was the food prepared? you like to **try** the food **again**? <u>If not tasted:</u> **What** was the reason for not trying the food?
<u>*Additional food*</u> *If time, also ask about another disliked food and reasons for why it is not liked.* <u>Finish the questionnaire</u>	*(2 min.)*		*Can you think about other foods you do not like? Why do you not like them?*
5) Taste Kit	**Ca. 2 min**		
<u>Show the taste kit (paper)</u> The child should have a look on it and tell me, if he/she knows the food items. Then the child is ask,		As the final task, I want you to have a look on this paper! Here you can see many different food items!	What foods do you know and what foods have you tried before? Do you like them? If yes, why? If no, why?

which are likes and which are disliked in order to get an idea, if the food items are relevant for the main study.			Among the foods, you don't know: Are there some foods you would like/not like to try? If yes, which one(s) and why?
5) End of Interview	**Ca. 2 min**		
Thank the child for taking the time.		Thank you very much for taking the time and for being so open to tell about your likes and dislikes. It was really interesting what you told me. You really helped me a lot with that.	
Ask about remaining questions or comments.			Do you have any more questions you would like to ask?
As a big "thank you" the child receives a small present.	Hand over the present.	As a small thank you, I have this small present for you! Thank you very much for participating in the interview.	

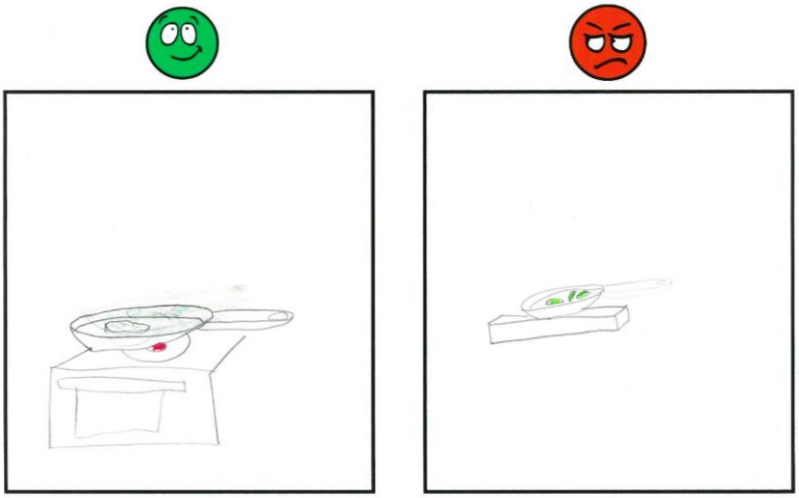
APPENDIX IId: Results from Interviews

Results of children's most liked and most disliked food items (Part A of the interview guide)

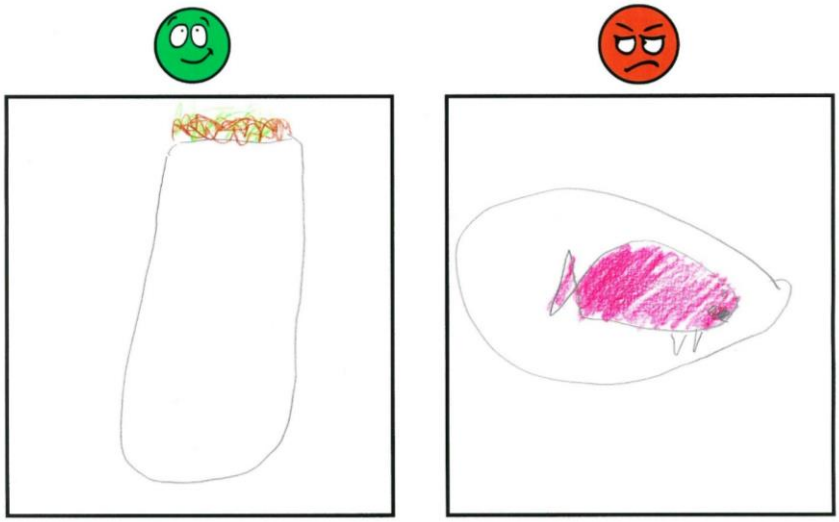
	Most liked food (Acceptance)	**Why? – Reasons**	**Most disliked food (Rejection)**	**Why? – Reasons**
Child 1	Wiener Schnitzel	Crispiness, meat	Roasted apples	Consistency
Child 2	Burrito	Home made from mother, only on special days	Tuna	Don't like the fish taste and smell
Child 3	Spaghetti Carbonara	Taste	Radish	
Child 4	Strawberries, green apples, ham and eggs, salad	Taste, colour, crispiness (texture)	Pizza, cheese, red apples	Smell, colour,

Children's drawings of most liked and most disliked food; right: most liked food; left: most disliked food:

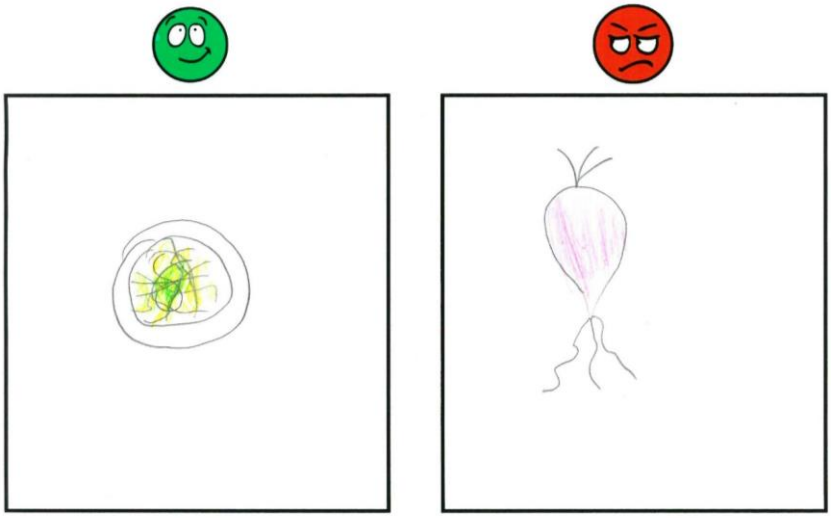
Child 1



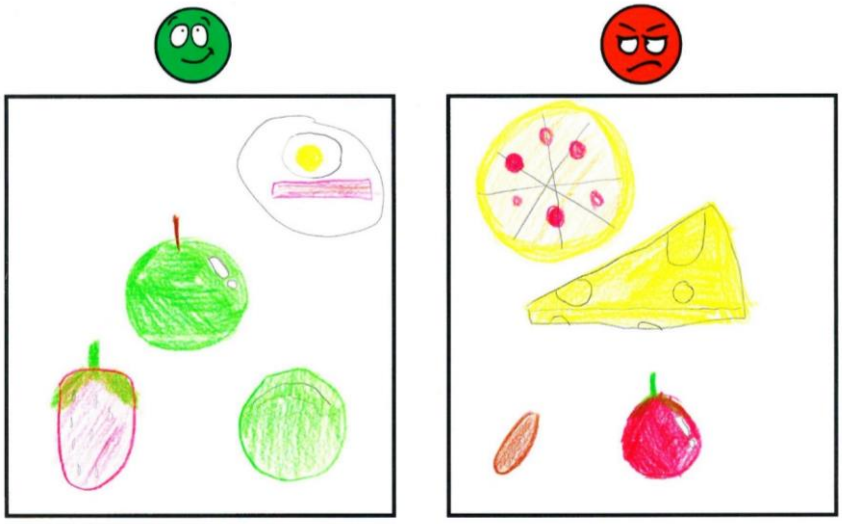
Child 2



Child 3

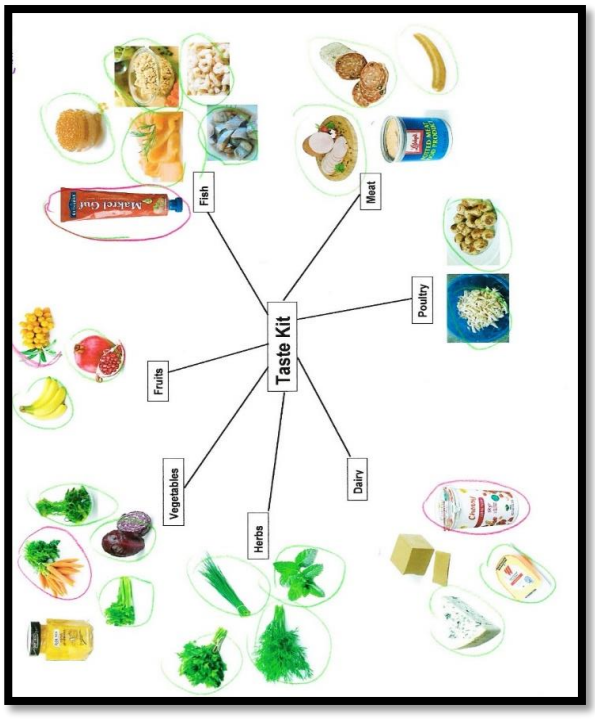


Child 4

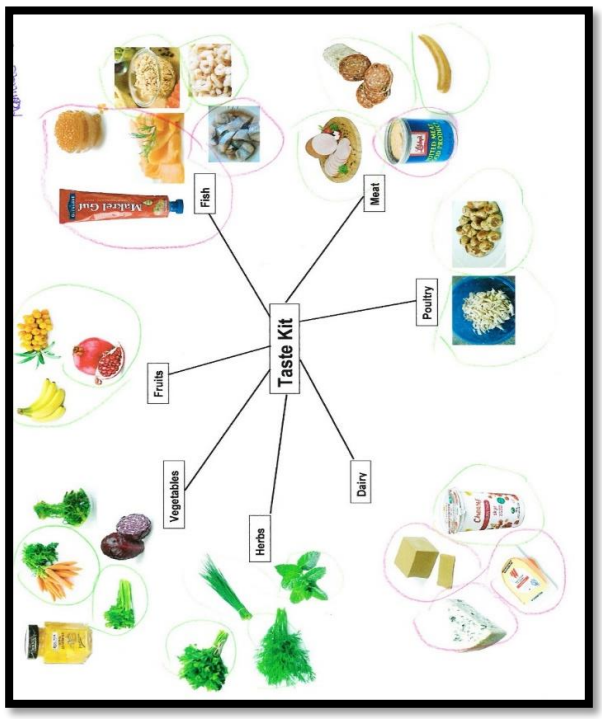


Results of Part B: Children's reasons for accepting and rejecting food

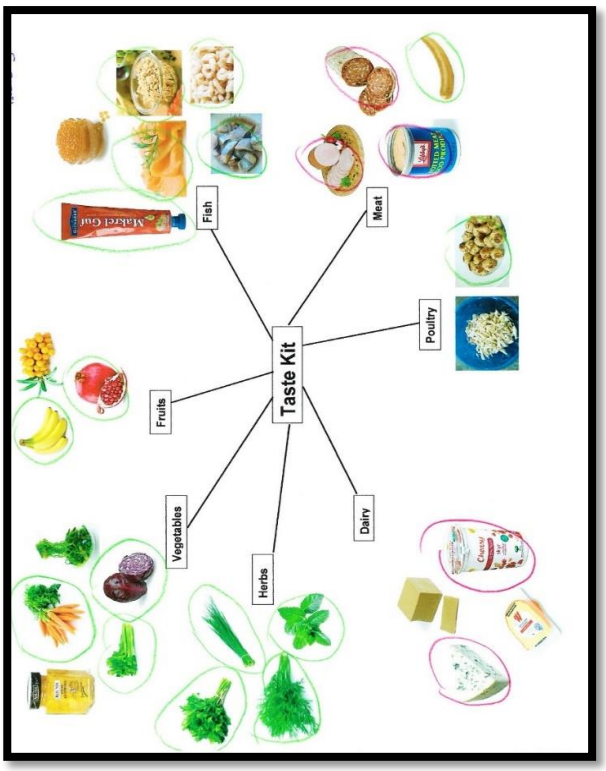
Child 1



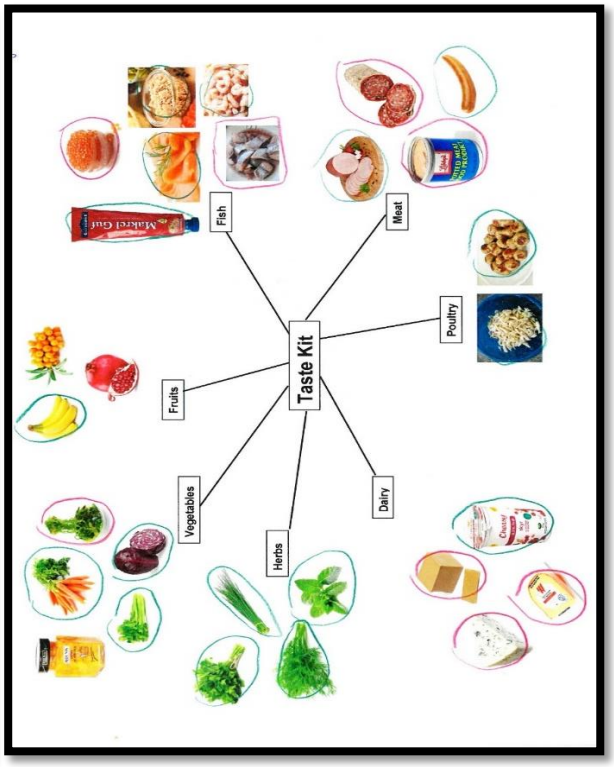
Child 2



Child 3

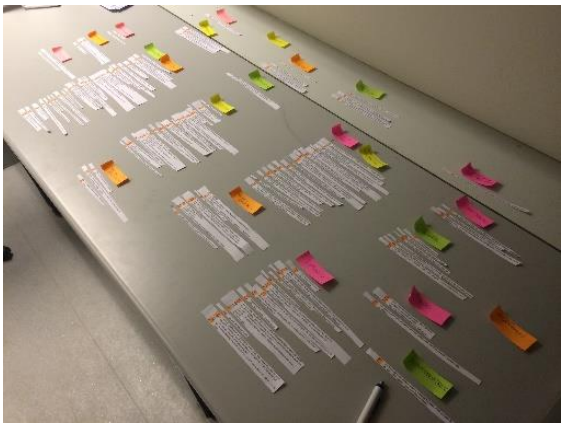


Child 4



APPENDIX IIe: Categorisation of Reasons

Children's reasons for food likes and disliked from the transcribed interviews were summarised and inductively categorised.



In total, eight categories for food acceptance and six categories for food rejection resulted, which are listed below.

Acceptance	Rejection
• Positive sensory properties (good taste, good smell, like of texture, like of appearance) • Convenience • Healthy • Pleasure • Social influence/Parents • Positive associations with other food • Special occasions • Culture	• Negative sensory properties (bad taste, bad smell, dislike of texture, dislike of appearance) • Negative associations with other food • Bad experiences • Danger • Disgust • Inappropriateness

APPENDIX IIf: Strengths and Limitations

A strength of the interviews was that only one child was interviewed at a time, which facilitated in-depth conversations (Palinkas et al., 2013). As the interviews were semi-structured and children were asked similar topics, it was possible to compare the responses according to the topics. However, the interviews were also accompanied by some limitations. As only four children were interviewed, the generalisability has to be criticised. All four children were bilingual and had at least one parent, which was not from Denmark. The children may have different cultural backgrounds and it is therefore questionable, if the results can also be applied to other Danish children. Only one girl was interviewed and therefore it is questioned, if the

results can also be applied to other girls. A further limitation were communication difficulties as English was neither the mother language pf the interviewer nor of the children, which could have led to misunderstandings. Furthermore, the children were aged 9 to 10 and represent a younger age group compared to the main study, where children were aged 10 to 13. Children may have different reasons in food choice due to a difference in development (Frewer and Trijp, 2007). In conclusion, the interviews served in-depth information providing reliable and comparable qualitative data. However, for future research, a bigger sample size and a native speaker might be helpful for results that are more reliable.

APPENDIX IIg: Revision of Taste Kit

Twelve food items were considered eligible for the pilot study, while the remaining 16 food items were excluded due to the following reasons: Too long time for preparation, no availability in Danish supermarket, part of a dish – cannot be served alone, religious reasons (i.e. pork meat). Sea buckthorn seemed to be an interesting food item due to its low familiarity and children' curiosity. However, sea buckthorn was not available in Danish supermarkets and was exchanged to the tropical berry "Physalis" (also known as "ground cherry"), which is similar in the orange colour and sour taste (though slightly sweeter than sea buckthorn). Equivalently, the Norwegian goat cheese was not available in Danish supermarkets and was exchanged with conventional goat cheese.

Inclusion and exclusion criteria of the food items, which were included in the interviews.

Food items	Inclusion	Criteria for Inclusion	Exclusion
Celery	Vegetables usually not liked by children	Texture	
Red cabbage	Vegetables usually not liked by children	Texture	
Pickled pumpkin	Included because the familiarity is very low. No child knows what "pickled pumpkin" is.	Curiosity ("Would like to try it", "I just want to try things"))	
Dried seaweed	Included because familiarity is low; some like it, some not.	Curiosity ("I would like to try it ones"), bad taste ("It tastes like fish"), disgust (disgusted facial expression during the interview)	
Carrots			High familiarity and liking.
Banana			High familiarity and high liking.
Sea buckthorn			Low familiarity, high interest in sea buckthorn, excluded because fresh sea

			buckthorn is not available in Danish supermarkets
Pomegranate	Although high familiarity and high liking, pomegranate can be an interesting products because of its texture (watery and hard kernels)	Texture ("because of the "kernel", "small bits inside and I like it",), taste ("because it is sweet", "a little bit bitter"), interest/curiosity ("would like to try it")	
Canned tuna			High familiarity and high liking among all children.
Smoked salmon			High familiarity and high liking.
Kaviar	Rather low familiarity, among the children who tried kaviar before; one liked it, two did not. Looks like an interesting product with no clear preferences.	Bad taste ("tastes too fishy")	
Tubed mackerel	Some children like it, some do not like it		
Pickled herring	Although high familiarity, some children like it some not, different interesting reasons	Bad taste ("bad sea taste"), bad experience ("Last year for Christmas"), texture ("slimy")	
Shrimps	High familiarity and liking but included because of its specific texture and appearance	Texture and appearance	
Turkey ham	High familiarity, most children like it, but interesting reasons	Culture and beliefs ("I like meat because it's meat", " That ham you buy in Denmark...I just eat it...it is so good!")	
Chicken meatballs			Everyone likes meatballs; takes to much time to prepare; everyone has different notions about the preparation of meatballs.
Cow salami	Some like it, some not → maybe exchange with other animal source (game salami?) because of high familiarity?	Bad taste, parental influence ("don't really like it…maybe because my father is vegetarian"), texture ("bits of "animals" inside"), culture ("because it's meat")	
Sausage			All children like it, good taste and texture, excluded because it is pork meat
Potted meat			Low familiarity and liking; excluded because it is pork meat.
Sliced chicken			Too high familiarity and high liking
Blue cheese	High familiarity, but low liking	Bad smell ("smells very much", "smelly cheese"), bad taste ("too many side tastes")	
Havarti			Low familiarity and low liking; blue cheese more interesting because of appearance (mould structures in the cheese).
Norwegian goat cheese			Very low familiarity, excluded because not

			available in Danish supermarkets. → exchanged with conventional goat cheese
Skyr	High familiarity, moderate liking, easy available	Texture ("like jelly"), health ("it's better for your tummy")	
Parsley			High familiarity and high liking, it is normally part of a dish and therefore not appropriate to serve as a single food.
Mint			Same reason like parsley
Dill			Same reason like parsley
Chive			Same reason like parsley

APPENDIX IIIa-e: Pilot Study

APPENDIX IIIa: Recruitment and Information Letter for Study Assistants

SMAG for LIVET

Hvorfor spiser børn som de gør?

Institut for Fødevarevidenskab søger assistenter til at hjælpe med undersøgelsesprojekt angående kræsenhed og børns spisevaner.

Baggrund for undersøgelsen

Tidligere undersøgelser har vist, at de fleste børn ikke spiser så varieret kost, og de underliggende årsager til dette er oftest uklare. Børns valg af mad er påvirket af mange indbyrdes forbundne faktorer. Den vigtigste drivkraft for at spise er selvfølgelig sult og mæthed, men hvad vi vælger at spise er ikke alene bestemt af fysiologiske eller ernæringsmæssige behov. Der er mange andre faktorer, der påvirker vores valg af fødevarer - for eksempel sensoriske egenskaber af fødevarer, såsom smag, lugt og udseende.
For børn er smagsvurderingen af en fødevare meget central for deres indtagelse af den. Men også kulturelle, sociale, følelsesmæssige faktorer kan spille en vigtig rolle. Yderligere kan motiverne bag spiseadfærd være meget individuelle. Lille variation i kosten være problematisk for barnets sundhed. Det er værdifuldt at få indsigt i hvorfor børn spiser som de gør for at kunne udvikle strategier for en sundere og mere varieret kost for de yngre generationer.

Projektets formål

Undersøgelsen indgår i et speciale som en del af et større projekt, "Smag for livet", hvilket er et projekt støttet af Nordea-fonden, og som har til formål at formidle viden om smag til børn via leg og læring i et videnskabeligt perspektiv samt at udvide forståelsen om accept af spisevaner og afvisning af mad. Vi ønsker at forbedre børns

viden om sund ernæring og vigtigheden af variation i ens kost. Et tredje formål med undersøgelsen er at danne et grundlag af strategier i forbindelse med en sundhedsfremmende læring og tilegnelse af spisevaner.

Med undersøgelsen søges de to følgende spørgsmål besvaret:

- Hvad er årsagerne at børn til at acceptere mad?
- Hvad er årsagerne at børn til at afviser mad?

Forløb af undersøgelsen

Undersøgelsen vil finde sted mellem den 29. februar og 19. marts på hverdage. Det er dog ikke et krav, at I har tid alle dage. Undersøgelsen varer i alt 2 lektioner at udføre og foregår på skolen. Jeg har kun brug for din hjælp nogle få udvalgte dage i 3-4 timer om formiddagen. Datoen tilrettelægges i samarbejde med dig så det passer bedst muligt.

Som det første, får børnene en kort introduktion til projektet. Derefter, får børnene mulighed for at teste 10 forskellige fødevarer, som er tilberedt på forhånd og skåret i mundrette stykker. Alle børnene smager fødevarerne på samme tid og efter hver smagning udfylder de et spørgeskema.

Kravene til dig

- Taler flydende dansk
- Er studerende på KU Science, helst indenfor ernæring
- Har erfaring med børn (dette er dog ikke et krav)

Hvad er dine opgaver?

- Hjælpe med forberede smagssættet
- Give en kort præsentation og introduktion til projektet (på dansk)
- Hjælpe børnene, hvis det er nødvendigt under afprøvning af smagssættet og med at udfylde spørgeskema

Hvad får du ud af at deltage?

- Løn efter universitetets regler om betaling for studentermedhjælpere
- Du bliver en del af projektet "Smag for livet"
- Viden om madvalg hos børn
- God reference til dit CV
- Erfaring

Hvordan deltager du?

Hvis du er interesseret i at deltage, bedes du hurtigst muligt melde tilbage til Julia Sick på en af nedenstående måder for planlægning af det videre forløb. Hvis du har spørgsmål eller ønsker yderligere information om projektet, er du meget velkomne til at kontakte mig.

Kontaktinformation for Julia Sick:
Mobil: 50197675 (Ring venligst mellem 9-21)
E-mail: *xjv377@alumni.ku.dk*.

Vi ser frem til at høre fra dig!

Julia Sick (specialestuderende)
Annemarie Olsen (lektor) og Rikke Hojer Nielsen (Ph.D.stip.)

UNIVERSITY OF COPENHAGEN

APPENDIX IIIb: Questionnaire

The questionnaire was used in the pilot study for each food item, which were merged to one united questionnaire. This questionnaire is shown in the original language (Danish). The food item cucumber (agurk) was used as the example food.

SMAG for LIVET

Spørgeskema om madvarer

Generel information

Navn _____

Klasse _____

Alder _____

Køn ☐ Dreng ☐ Pig

Madvare: Agurk

1 Kendskab til denne madvare

☐ Jeg kender den, og jeg har smagt den før

☐ Jeg kender den, men jeg har aldrig smagt den

☐ Jeg kender den ikke

2 Smagte du på madvaren?

(Afkryds venligst i nedenstående bokse. Du kan sætte kryds i så mange bokse, som passer dig)

☐ **JA – Hvorfor?**

Den smager godt	☐
Den dufter godt	☐
Jeg kan godt lide konsistensen (blødhed, sprødhed,…)	☐
Den ser god ud	☐
Den er sund	☐
Jeg er vant til at spise den	☐
Jeg er vant til at spise den på særlige dage (fødselsdag, jul,…)	☐
Jeg er nysgerrig	☐
Den er typisk dansk/ fra min kultur	☐
Andre forventer, at jeg spiser den	☐

Andre årsager:

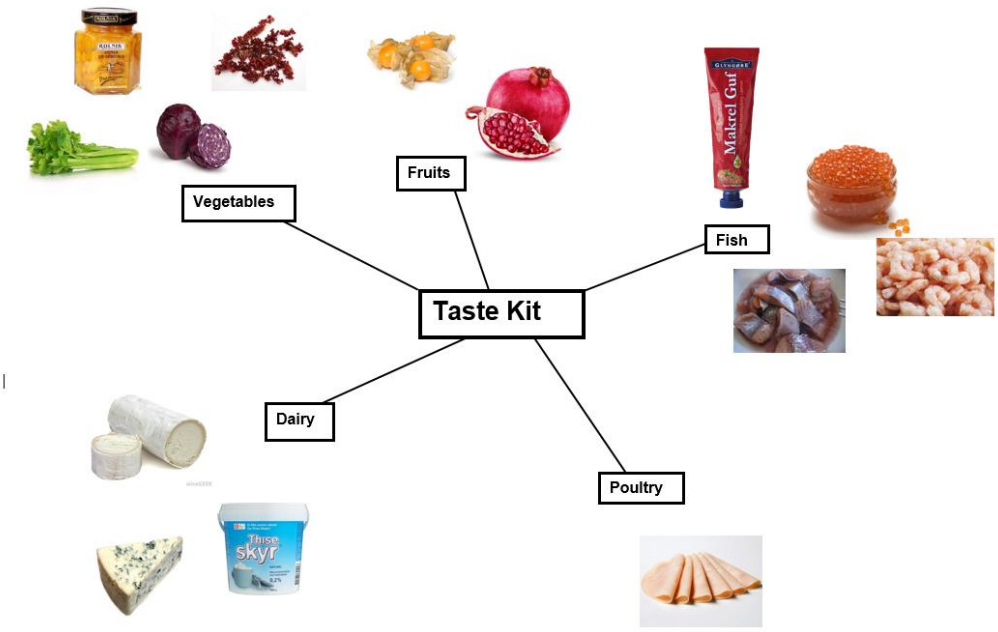
☐ **NEJ – Hvorfor ikke?**

Den smager ikke godt	☐
Den lugter ikke godt	☐
Jeg kan ikke lide konsistensen	☐
Den ser ikke god ud	☐
Den er usund	☐
Jeg væmmes ved den	☐
Jeg er ikke vant til at spise den	☐
Jeg har haft dårlige oplevelser med den	☐
Jeg mener ikke, den er spiselig	☐
Jeg har kulturelle/religiøse årsager	☐

Andre årsager:

APPENDIX IIIc: Food Items and Serving Order

Included food items were: Celery, red cabbage, pickled pumpkin, dried seaweed, physalis, pomegranate, kaviar, tubed mackerel, pickled herring, shrimps, turkey ham, blue cheese, goat cheese and skyr.



Serving order of the food items for the blue and green group of the pilot study; Cucumber was used as an example and has therefore the number 0.

#	Food item	#	Food item
0	Cucumber	0	Cucumber
1	Celery	1	Red cabbage
2	Red cabbage	2	Celery
3	Pickled pumpkin	3	Dried seaweed
4	Dried seaweed	4	Pickled pumkin
5	Physalis	5	Pomegranate
6	Pomegranate	6	Physalis
7	Kaviar	7	Tubed mackerel
8	Tubed mackerel	8	Kaviar
9	Pickled herring	9	Shrimps
10	Shrimps	10	Pickled herring
11	Turkey ham	11	Blue cheese
12	Blue cheese	12	Turkey ham
13	Goat cheese	13	Skyr
14	Skyr	14	Goat cheese

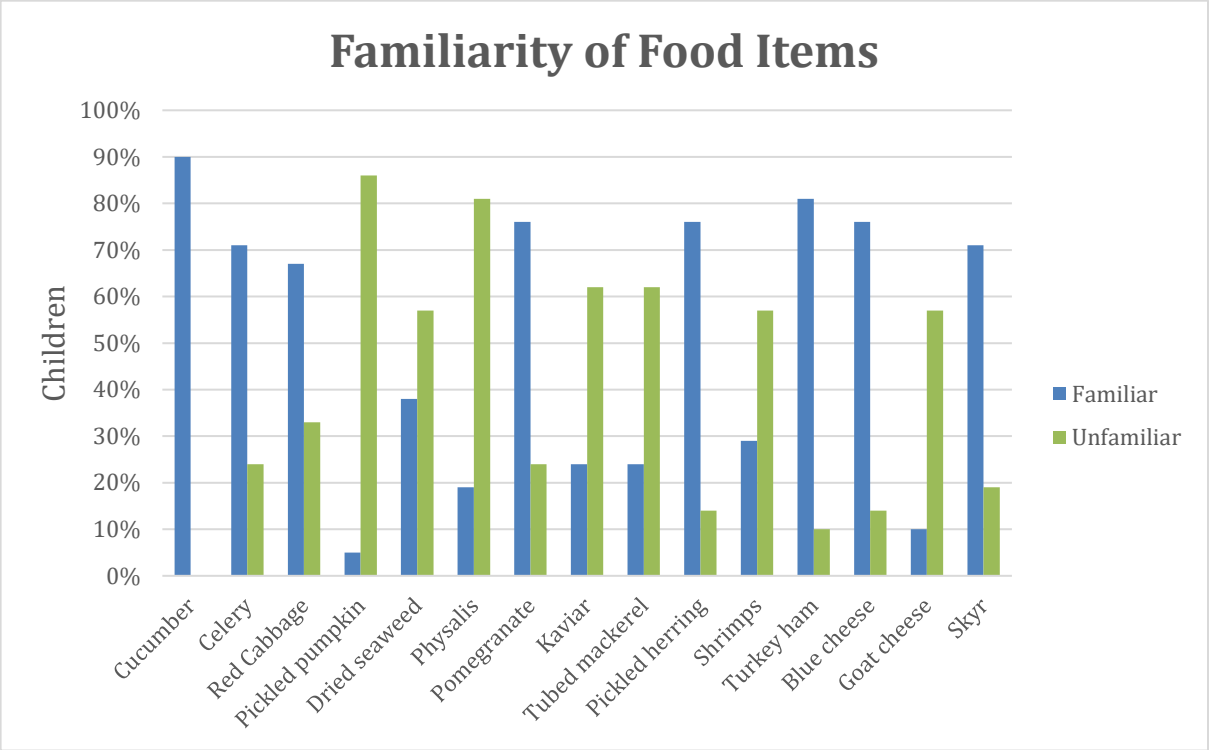
#: Order of food item in which the food items were distributed; Blue= Group1; Green= Group 2

APPENDIX IIId: Results of Pilot Study

Accepted: Children, who accepted food item; Rejected; Children, who rejected food item; Not responded; Children, who did not give a response to acceptance or rejection; Familiar: % of children, who the food item was familiar to; Unfamiliar; % of children, the food item was not familiar to; Familiar&Accepted: % of children, to who the food is familiar and accepted it at the study; Not familiar&Accepted: % of children, to who the food was unfamiliar, but accepted it at the study; Reasons (Acceptance): Number of stated reasons for food acceptance; Reasons (Rejection): Number of stated reasons for food rejection.

Results Pilot study

	Accepted	Rejected	Not responded	Familiar	Unfamiliar	Reasons for Acceptance	Reasons for Rejection
	%	%	%	%	%	#	#
Cucumber	86	5	10	90	0	91	1
Celery	90	10	0	71	24	68	5
Red Cabbage	100	0	0	67	33	83	1
Pickled pumpkin	86	5	10	5	86	35	4
Dried seaweed	86	10	5	38	57	28	9
Physalis	100	0	0	19	81	79	0
Pomegranate	100	0	0	76	24	120	0
Kaviar	76	14	10	24	62	24	14
Tubed mackerel	71	24	5	24	62	52	21
Pickled herring	71	29	0	76	14	25	25
Shrimps	67	29	5	29	57	47	15
Turkey ham	81	10	10	81	10	84	6
Blue cheese	71	19	10	76	14	21	15
Goat cheese	67	19	14	10	57	12	7
Skyr	95	5	0	71	19	64	0



Percentage of familiar and unfamiliar food; N=21 children; blue=Familiar food items, green=unfamiliar food items

APPENDIX IIIe: Inclusion/Exclusion Criteria of Food Items

The conduction of the pilot study led to several exclusion and inclusion criteria of the food items, which are shown in the table below. Additionally, two more food items were added as the study also aims to detect reasons for rejection: Anchovy was included because of the bad appearance of the whole fish. The children might be disgusted by the prevalence of head, fins and giblets. The typical fish smell might also lead to aversion. Furthermore, deer salami was involved. The fact that the salami originates from a deer, which is rather unfamiliar to children might lead to disgust feelings or children might regard deer as not appropriate food. Furthermore, goat cheese was excluded because it was very similar to blue cheese. Red cabbage was excluded because of its high familiarity. Therefore, it was exchanged with kale, which could be also interesting because of its curly-leaved appearance.

Inclusion and exclusion criteria on food items from the pilot study to decide, which food items will be used in the main study.

Inclusion and Exclusion Criteria of Taste Kit

	Inclusion/Exclusion	Inclusion/Exclusion Criteria
Cucumber	Include	Children are familiar with cucumber and is therefore appropriate to use as an example item.
Celery	Exclude	The acceptance and familiarity of this food item are very high, which resulted in a very low number for reasons for rejection; therefore, this food item is excluded.
Red Cabbage	Exclude	Exclude because familiarity was very, which could be responsible for high acceptance. Consequently, children gave almost no reasons for rejection.
Pickled pumpkin	Include	Reasons for trying this item could be interesting item as familiarity is very low, but many children tried it at the study.
Dried seaweed	Include	Reasons for trying and not trying dried seaweed could be interesting as familiarity is moderate, but high acceptance at study.
Physalis	Include	Familiarity of this food item was very low, but many children tried it at the study and gave many reasons for acceptance and it would be interesting, which reasons played a role.
Pomegranate	Exclude	Familiarity of this food item was very high, but food item is excluded because no reasons for rejection were stated.
Kaviar	Include	Children gave reasons for acceptance and rejection. Many children, who did not try kaviar before, tried it at the study; therefore, the reasons could be interesting.
Tubed mackerel	Exclude	Tubed mackerel had a very high familiarity; children stated a moderate amount of reasons for acceptance and rejection. But as the taste kit contains to many products from fish category, it is excluded.
Pickled herring	Include	The familiarity of the item is low familiarity, but many children tried it at the study. Children gave reasons for both acceptance and rejection.
Shrimps	Exclude	The familiarity for this food item very high. As there are too many fish products in the taste kit, this food item is excluded.
Turkey Ham	Exclude	Children gave a good amount of reasons for accepting this item but not for rejecting; additionally the familiarity is very high.
Blue cheese	Include	Included because children stated reasons for acceptance and rejection, low familiarity.
Goat cheese	Exclude	Very similar to blue cheese, but less reasons were stated for acceptance and rejection, therefore the food item is excluded.
Skyr	Exclude	The familiarity and acceptance of this food item is very high, no reasons for rejection were stated and therefore it is excluded.

APPENDIX IVa-l: Main Study

APPENDIX IVa: Invitation Letter to Schools

The following invitation letter was sent by E-mail to qualified schools in Copenhagen.

Invitation til deltagelse i undersøgelse foretaget af Københavns Universitet

Att. (Skolens navn)

Hej,

I inviteres hermed til at deltage i en undersøgelse foretaget af Københavns Universitet.

I forbindelse med projekt "Smag for livet" søger vi skoleklasser (4.-6. klasse) til at teste kræsenhed blandt børn. Samt at finde årsager til, hvorfor nogle fødevarer er ønsket, mens andre ikke er. Undersøgelsen varer en dobbeltlektion og omfatter et spørgeskema samt smagning af en række fødevarer.
Se vedhæftede dokument for detaljer.
Vi håber, at I er interesserede i at deltage, og ser frem til at høre fra jer.

Med Venlig Hilsen,
Julia Sick (specialestuderende),
Annemarie Olsen (lektor) og Rikke Højer Nielsen (Ph.D.stip.)

Julia Sick
Tel.: 50197675
E-Mail.: xjv377@alumni.ku.dk

APPENDIX IVb: Information Letter for Teachers

Til lærere i 4.- 6. klasse

SMAG for LIVET

Hvorfor spiser børn som de gør?

Institut for Fødevarevidenskab søger skoleklasser til undersøgelsesprojekt, angående kræsenhed og børns spisevaner.

I forbindelse med projekt "Smag for livet" søger vi skoleklasser til at teste kræsenhed blandt børn. Samt at finde årsager til, hvorfor nogle fødevarer er ønsket, mens andre ikke er. Til projektet angående børnenes kostvaner søger vi nu 4., 5. og 6. klasser, der kunne tænke sig at deltage. Undersøgelsen varer en lektion og omfatter et spørgeskema samt smagning af en række fødevarer.

Baggrund for undersøgelsen

Tidligere undersøgelser har vist, at de fleste børn har en lav variation i deres kost, og de underliggende årsager til dette er oftest uklare. Madvalg af børn er påvirket af mange indbyrdes forbundne faktorer. Den vigtigste drivkraft for spise er selvfølgelig sult og mæthed, men hvad vi vælger at spise er ikke alene bestemt af fysiologiske eller ernæringsmæssige behov. Der er en masse andre faktorer, der påvirker vores valg af fødevarer - for eksempel sensoriske egenskaber af fødevarer, såsom smag, lugt og udseende.
For børn er smags vurderingen af en fødevare meget central for deres indtagelse af den. Men også kulturelle, sociale, følelsesmæssige faktorer kan spille en vigtig rolle. Yderligere kan motiverne bag spiseadfærd være meget individuel. Dog kan en lav variation i kosten kan det være problematisk for barnets sundhed. Det er værdifuldt at få indsigt i, hvorfor børn spiser ligesom de gør, for at kunne udvikle strategier for en sundere og mere varieret kost for de yngre generationer.

Projektets formål

Undersøgelsen indgår i et speciale, som en del af et større projekt, "Smag for livet", hvilket er et projekt støttet af Nordea-fonden og som har til formål, at formidle viden om smag til børn via leg og læring i et videnskabeligt perspektiv. Samt at udvide forståelsen om accept af spise og afslag. Vi ønsker også at forbedre børns viden om sund ernæring og vigtigheden af variation af ens kost. Et tredje formål med undersøgelsen er at danne et grundlag af strategier i forbindelse med en sundhedsfremmende læring og tilegnelse af spisevaner.

Med undersøgelsen søges følgende konkrete spørgsmål besvaret: Hvad er årsagerne af børn til at acceptere og afvise mad?

Hvem kan deltage?

Vi har til hensigt at finde årsager til mad accept og afvisning hos små og større børn. Til at afprøve dette ønsker vi dog, at fokusere på børn i 4. til og med 6. Klasse. Undersøgelsen kommer i alt til at omfatte 200 børn, og vi vil derfor sætte pris på at få mulighed for at udføre undersøgelsen hos 1-3 klasser på hver skole – gerne fra samme årgang.

Hvad får min klasse ud af at deltage?

Børnene i klassen får mulighed for at prøve og lære om forskellige fødevarekategorier og deres eget fødevarevalg på en sjov og aktiv måde. Desuden ønsker vi at lægge vægt på vigtigheden af en varieret kost ved at introducere eleverne til nye og måske ukendte fødevarer.

Klassen får med projektet også en oplagt mulighed for at diskutere fødevarevalg og sundere livsstil. Vi vil foretrække, at I tager disse diskussioner efter klassens deltagelse, da det ellers kan få børnene til at opføre sig anderledes, end hvad de ellers ville. Det mest optimale vil være, hvis børnene kun får den information, der bliver anført på forældrenes informationsark. Tidligere projekter har nemlig vist, at børn ofte prøver at svare det, de tror, man gerne vil høre i videnskabelige undersøgelser. Derfor giver det et bedre (og mere præcist) resultat, hvis man ikke starter med at lægge fokus på sundhedsrelaterede emner. Klasselærerne vil efterfølgende få feedback på deres klasses resultater og kan eksempelvis bruge dette som oplæg til en senere debat i klassen.

Hvordan, hvor og hvornår foregår undersøgelsen

For at mindske indflydelse af sult og villigheden til at smage nye fødevarer, ønskes undersøgelsen udført midt på formiddagen ved 10-tiden, afhængig af hvornår lektionerne ligger. Undersøgelsen varer i alt en lektion og foregår på skolen. I tilfælde af, at forsøget varer kortere tid, har læreren mulighed for at overtage undervisningen.
Undersøgelsen ønskes at finde sted i marts og april. Datoen for besøg tilrettelægges i samarbejde med jer, så det passer bedst muligt.

Konkret indhold i undersøgelsen og produktinformation

Som det første, får børnene en kort introduktion til projektet. Derefter, får børnene at lov til at teste forskellige fødevarer, som er udarbejdet på forhånd og skåret i let spiselige stykker. Alle børnene prøver fødevarerne på samme tid, og efter hver smagning udfylder de et spørgeskema til.
De produkter, der anvendes er af forskellige fødevarekategorier, herunder forskellige grøntsager, frugter, fisk, kød og mejeriprodukter.
Da nogle af de fødevarerne fisk eller mælk, er det derfor centralt for os, at vide, om nogle elever har allergier eller af religiøse eller andre årsager ikke spise visse fødevarer. For at sikre os, at vi får information herom, har vi udviklet et godkendelsesskema til forældrene i de pågældende klasser der medgår i forsøget, hvor de tilkendegiver, at deres barn må deltage i undersøgelsen, og får mulighed for at informere om eventuelle allergier og lignende.

Hvordan deltager man?

Vi er interesseret i at undersøge smagssættet på hele klassen. Det er selvfølgelig helt frivilligt for det enkelte barn at deltage, og forældrene har mulighed for at tilkendegive, hvis de ikke ønsker, at deres barn deltager. Er der fødevarer barnet ikke ønsker at smage, respekteres dette også til fulde.
Vi har udarbejdet information-blanketter om projektet, som I bedes give børnene med hjem til forældrene, så de ved, hvad projektet går ud på, og kan give deres accept af barnets deltagelse.
Hvis I er interesserede i at deltage, bedes I hurtigst muligt melde tilbage til Julia Sick på en af de nedenstående måder for planlægning af det videre forløb. Hvis I har nogen spørgsmål eller ønsker yderligere information om projektet, er I naturligvis også meget velkomne til at kontakte os.

OBS: Alle data behandles fortroligt og vil kun blive publiceret i anonymiseret form.

Kontaktinformation for Julia Sick:
Mobil: 50197675 (Ring venligst mellem 9-20)
E-mail: *xjv377@alumni.ku.dk*.

Med venlig hilsen,

Julia Sick (specialestuderende)
Annemarie Olsen (lektor) og Rikke Hojer Nielsen (Ph.D.stip.)
APPENDIX XX: Information letter for the parents.

UNIVERSITY OF COPENHAGEN

APPENDIX IVc: Information Letter for Parents

Kære forældre,

Institut for Fødevarevidenskab arbejder med et forskningsprojekt angående kræsenhed og børns spisevaner. Jeres barns klasse har sagt ja til at deltage i en undersøgelse af, hvor villige børn er til at smage forskellige fødevarer. Vi beder om jeres accept af jeres barns deltagelse.

Baggrund for undersøgelsen
Tidligere undersøgelser har vist, at de fleste børn har en lav variation i deres kost, og de underliggende årsager til dette er oftest uklare. Madvalg hos børn er påvirket af mange indbyrdes forbundne faktorer. Den vigtigste drivkraft for at spise er sult, men hvad, vi vælger at spise, er ikke alene bestemt af fysiologiske eller ernæringsmæssige behov. Der er en masse andre faktorer, der påvirker vores valg af fødevarer - for eksempel sensoriske egenskaber af fødevarer, såsom smag, lugt og udseende.
For børn er smagsvurderingen af en fødevare meget central for deres indtagelse af den. Derudover kan også kulturelle, sociale og følelsesmæssige faktorer spille en vigtig rolle. Disse motiver bag spiseadfærd kan være meget individuelle, mens en lav variation i kosten kan være problematisk for barnets sundhed. Det er derfor værdifuldt, at få indsigt i hvorfor børn spiser, som de gør, for at kunne udvikle strategier for en sundere og mere varieret kost for de yngre generationer.

Konkret indhold og projektets formål
Efter en kort introduktion til projektet, får jeres børn lov til at teste forskellige fødevarer.
Undersøgelsen indgår i et kandidatspeciale, som en del af et større projekt, "Smag for livet", hvilket er støttet af Nordea-fonden og har til formål at formidle viden om smag til børn via leg og læring i et videnskabeligt perspektiv. Vi ønsker også at forbedre børns viden om sund mad og vigtigheden af en varieret kost. Læs evt. mere om projektet her: http://www.smagforlivet.dk.

Hvad får mine børn ud af at deltage?
Jeres børn får mulighed for at blive introduceret til forskellige fødevarekategorier og lære om deres eget fødevarevalg på en sjov og aktiv måde. Desuden ønsker vi at fremme en varieret kost hos jeres børn ved at introducere dem til nye og måske ukendte fødevarer.
I tilfælde af at jeres barn har allergi overfor bestemte fødevarer, eller der er andet, der bør tages hensyn til, bedes I meddele dette nederst på blanketten.
Da det vil give de bedste resultater, hvis alle børn deltager, vil vi sætte stor pris på jeres barns deltagelse i ovenstående aktiviteter, men det respekteres selvfølgelig, hvis dit barn ikke ønsker at være med.

I er velkomne til at kontakte mig på e-mail, hvis I har yderligere spørgsmål: xjv377@alumni.ku.dk.

Med venlig hilsen
Julia Sick (specialestuderende)
Annemarie Olsen (lektor) og Rikke Højer Nielsen (Ph.D.stip.)

UNIVERSITY OF COPENHAGEN

Venligst klip denne slip af og aflever til den ansvarlige lærer.

Mit barn ved navn_____ må deltage i projektet om børns villighed til at smage på nye fødevarer.

Dato_____
Underskrift_____

VIGTIGT: Angiv venligst evt. allergier eller andet, der skal tages hensyn til her:

APPENDIX IVd: Instructions for Assistants and Study Protocol

Instructions for Assistants

(Spoken text in original language of the study (Danish)

For each school class, there will be one main instructor and 2-3 assistants available.

- Instructor
  - Leads the project
  - Gives the main instructions including introduction, explaining the questionnaire, example kit and main taste kit, closing of the project
  - Before starting, ask the teacher, if there are any allergies or other reasons why the children cannot eat some food → tell the assistants!!
  - Gives instruction for every food item, has to make children aware to fill out the questionnaires all **at the same time** and try the food **at the same time,..**
  - Remind them
  - Only hand out of food and questionnaires, if there is time, but the assistants are the main responsible for handing out food and questionnaires
  - End: Explain shortly why we are doing this project and why it is important to have a varied diet,..
  - Ask if children have any questions or comments
- Assistant 1
  - Prepare the food items in the right order
  - Hand out to each child: 1 plate, 1 drinking cup and 1 spitting cup, 1 napkin (or place napkins in the middle of the table)
  - Place some spoons and forks (so every child can have around 2-3 on the middle of the table, if they are sitting in groups. If they are sitting in rows, place some forks and spoons). Give them more, if they need during the tastings.
  - Hand out of questionnaires
  - Hand out of food items (Assistant 1 is responsible for team “Blue”)
  - Fill water cups (if necessary, fill up the water cans)
  - Make sure, the children have everything they need
  - Help the children, if there are any questions
- Assistant 2
  - Same tasks like assistant 1
  - But assistant 2 has team “Green”
- (Assistant 3)
  - Only assistant 1+2 are handing out the food, not to confuse the colours
  - Supports assistant 1 and 2 in every task when needed.
  - Hand out to each child: 1 plate, 1 drinking cup and 1 spitting cup, 1 napkin (or place napkins in the middle of the table)
  - Place some spoons and forks (so every child can have around 2-3 on the middle of the table, if they are sitting in groups. If they are sitting in rows, place some forks and spoons). Give them more, if they need during the tastings.
  - Hand out of questionnaires

- Fill up water, napkins,
- Make sure, the children have everything they need
- Help the children, if there are any questions

Study protocol

- Introduction of us and tell children why are we here
  "Hej, vi er (assistent 1), (assistent 2), (assistent 3),.. Vi er studerende fra Københavns Universitet og har glædet os meget til at smage nogle forskellige madvarer sammen med jer i dag. Vi er interesserede i jeres grunde til hvorfor, I vælger enten at smage eller ikke at smage forskellige madvarer...."
- Give a short intro about the procedure and mention that no one is forced to eat something they don't want
  Så hvordan gør vi?
  Først får I en kort introduktion til vores projekt og en forklaring af hvad, vi skal lave i den næste times tid. I kan allerede se, at vi har forberedt en masse forskellige smagsprøver til jer. Måske kender I de fleste af madvarerne, og måske er der nogen af dem, som I aldrig har smagt, eller også er der nogen, I slet ikke kender! Det er vigtigt, at I ved, at ingen er tvunget til at spise noget, man ikke har lyst til".
- Taste kit, groups, questionnaire
- Explain questionnaire in detail

  - Front page: Details about name, gender and class.

"Vi deler nogle forskellige smagsprøver ud til jer. I bliver delt I to grupper, så jeres sidemakker smager på en anden madvare end jer selv. Hver gruppe har en farve (f.eks. blå og grøn).
Efter du har smagt en madvare, udfylder du et lille spørgeskema, som ser ud som følgende:
Forside: Venligst udfyld forsiden med dit navn, klasse, alder og køn."

  - Part 1: Familiarity, Reasons for accepting and rejecting food (If children don't find "their" reason they should mention their own reason in the boxes below.)

"Når du bladrer om på næste side, afkrydser du, om du kender madvaren i forvejen. Der er tre svarmuligheder: 1) Jeg kender denne madvare, og jeg har smagt den før 2) Jeg kender denne madvare, men jeg har aldrig smagt den 3) Jeg kender ikke denne madvare. (mention that they have to fill it out!)
Herefter finder du to afkrydsningsbokse. I den første afkrydser du "JA", hvis du vil gerne smage på madvaren, og herefter begrunder du hvorfor, du vil gerne smage den. Der er mange svarmuligheder. Du kan vælge "Jeg tror den smager godt", "Jeg tror den dufter godt", "Jeg tror jeg kan godt lide konsistensen", "Den ser god ud", "Jeg tror den er sund", "Jeg er vant til at spise den", "Jeg er vant til at spise den på særlige dage som fødselsdage eller jul", "Den er typisk dansk eller jeg forbinder den med min kultur", "Mine forældre forventer, at jeg spiser den". Du kan vælge lige så mange grunde, som passer dig.
Hvis du ikke vil smage på madvaren, sætter du kryds i "NEJ" og begrunder hvorfor, du valgte ikke at smage den. Ligesom ved den første boks har du mange svarmuligheder, og du kan vælge så mange, som du vil. Det kan være "Jeg tror ikke den smager godt", "Jeg tror ikke den lugter godt", "Jeg tror jeg kan ikke lide konsistensen", "Den ser ikke god ud", "Jeg tror den er usund", "Jeg væmmes ved den", "Jeg er ikke vant til at

spise den", "Jeg har haft dårlige oplevelser med den", "Jeg mener ikke, den er spiselig", "Jeg har kulturelle/religiøse årsager".
Hvis du ikke finder din årsag, eller hvis du mangler en grund, skriv den gerne ned ud for "andre årsager" under boksene." (Mention that this is important)

- Part 2: Liking (Subitem A) and Willingness to try again (Subitem B)

Når du har udfyldt denne side, skal du gå til den næste. Nu er du lov til at prøve mad, hvis du ønsker. Hvis du har prøvet det, udfylde, hvor meget du kunne lide det. Og derefter udfylde, hvis du vil prøve det igen.

- Same procedure all the time. 9 food items
  "Når alle er færdige, får du en ny smagsprøve og et nyt spørgeskema. Dette gentages for hver madvare."
- Collection of questionnaires – same procedure all the time. 9 food items
  "Når du har udfyldt spørgeskemaet, indsamler vi det."
- Children are not allowed to go to the next page unless they are told to
- Tell that they get some water
- No right or wrong answers, we are not interested, if you think it is healthy or not.
- Everything will be kept anonymous
  "...Og igen, der er ingen rigtige eller forkerte svar, og vær sød ikke at kigge efter jeres sidemakker, da han/hun alligevel smager på noget andet end dig selv. Det er desuden vigtigt at nævne, at alle jeres svar bliver behandlet anonymt."
- The questionnaire is a secret, don't let your neighbour see what you were writing and don't look at others!!!!!
- Mention that the instructor will lead the children one step by the other.
- If some kids cannot get rid of a taste they did not like, they can ask to get some bread. But don't place it on the table because the children get crazy about it and will eat everything just straight away ;)
- "If you have any questions, we are here to help you,….ask (assistant 1) or (assistant 2)
- Do you have any questions?
  "...Har I nogen spørgsmål? Vi vil meget gerne hjælpe jer, hvis der er noget, I ikke forstår, eller hvis I har problemer med at udfylde spørgeskemaet. Lad os komme i gang!"

- Instructor: Tell the children that this is an example to get familiar with the questionnaire - Make children aware that they all start together!
- Hand out the example questionnaire (cucumber) by assistant 1+2
- Tell them to fill out the first page (name, gender, class,..)
- Hand out a piece of cucumber to each child by assistant 1+2. (Make children aware they are not allowed to try the food until they are told to)
- Tell children to fill out the first page of the questionnaire (familiarity + reasons trying/not trying)
- Tell them to go to Page 2
- Now they can taste, if they want to
- Remind them to fill out how much they liked it, if they would try it again. If they have not tried it, they have to cross that they haven't try it.

(If necessary, mention again that children should not talk to each other, to make it secret to their neighbours, but they are more than welcome to discuss the foods after the tasting)

- Tell the children that now the main taste kit is starting
- Assistants hand out the questionnaires (There are two groups: blue or green → Every second child gets the same colour)
- Tell children they can start to fill out the front page (name, gender,...)
- Meanwhile hand out the first food item (Team Blue: Food item 1; Team Green: Food item 10) → but mention they are not allowed to try it!!
- Tell children to go to Page 1 and fill out
- Tell children to go to Page 2
- Tell children they can try now, if they want to
- Tell them to fill out Page 2 (same procedure like example)
- Make sure children have all finished, but don't wait too long, otherwise they lose concentration. There will always be some who take much longer than others.
- Hand out of next food item (Team Blue: Food item 2; Team Green: Food item 9)
- …..same procedure until all 10 food items are finished.

- Ask, if everyone has finished (instructor)
- Collect the questionnaires (assistant 1, 2 and 3)
- Explain why we were doing this and why it is important to have a varied diet (instructor)
- Ask, if the children have some questions or comments
- Give little present for children and thank them for participating
  "Mange tak fordi I ville deltage i projektet! Vi håber, I havde det ligeså sjovt som os og fik nogle gode oplevelser! Nu vil jeres lærer fortsætte undervisningen…"
- Assistants collect all the plated and cups - there are trash bags for it.

<u>To remember:</u>

- Whenever it becomes too loud → clap into hands or something like that to get attention ;)
- Don't place the taste kit directly in front of the children (they will see it beforehand and start to discuss/argue about it)
- Try to make it as fast as possible and do not wait too long. The children get too loud and start to lose concentration.
- Children should keep their answers secret and should therefore not talk to their neighbours during the whole tasting. They are more than welcome to discuss the foods AFTER the tasting!! Very important to mention!!

APPENDIX IVe: Questionnaire

SMAG for LIVET

Spørgeskema om madvarer

Generel information

Navn _____

Klasse _____

Alder _____

Køn ☐ Dreng ☐ Pige

Madvare: Agurk

1 Kendskab til denne madvare

- ☐ Jeg kender den, og jeg har smagt den før
- ☐ Jeg kender den, men jeg har aldrig smagt den
- ☐ Jeg kender den ikke

2 Vil du smage på madvaren?

(Afkryds venligst i nedenstående bokse. Du kan sætte kryds i så mange bokse, som passer dig)

☐ **JA – Hvorfor?**

Jeg tror, den smager godt.	☐
Jeg synes, den dufter godt.	☐
Jeg tror, jeg kan godt lide konsistensen (blødhed, sprødhed,…).	☐
Jeg synes, den ser god ud.	☐
Jeg tror, den er sund.	☐
Jeg er vant til at spise den.	☐
Jeg plejer at spise den på særlige dage (fødselsdag, jul,…).	☐
Jeg er nysgerrig.	☐
Jeg tror, den er typisk dansk/ fra min kultur.	☐
Mine forældre forventer, at jeg spiser den.	☐
Andre årsager:	☐

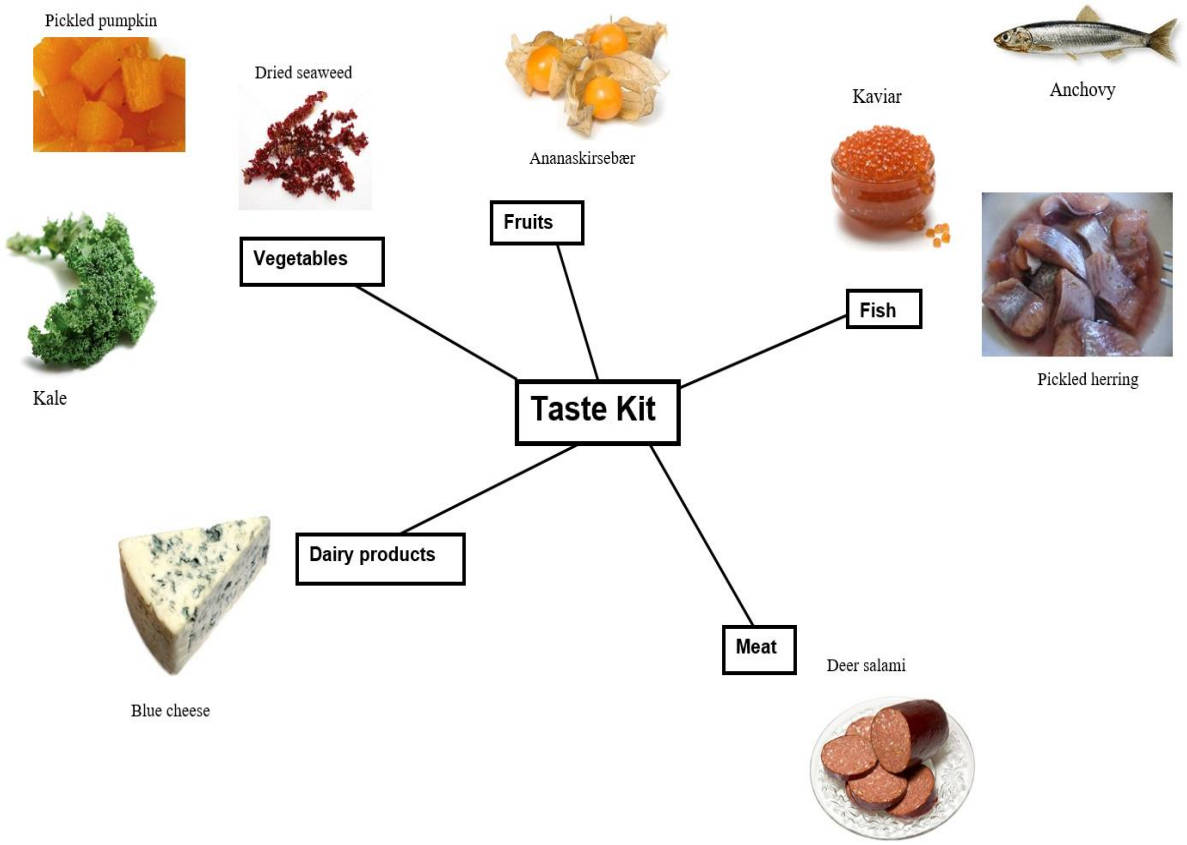
☐ **NEJ – Hvorfor ikke?**

Jeg tror ikke, den smager godt.	☐
Jeg synes ikke, den lugter godt.	☐
Jeg tror ikke, jeg kan lide konsistensen.	☐
Den synes ikke, den ser god ud.	☐
Jeg tror, den er usund.	☐
Jeg væmmes ved den.	☐
Jeg er ikke vant til at spise den.	☐
Jeg har haft dårlige oplevelser med den.	☐
Jeg mener ikke, den er spiselig.	☐
Jeg har kulturelle/religiøse årsager til ikke at synes om den.	☐
Andre årsager:	☐

1

APPENDIX IVf: Taste Kit and Serving Order

Taste Kit including the following 9 food items:



Serving order of the Food Items

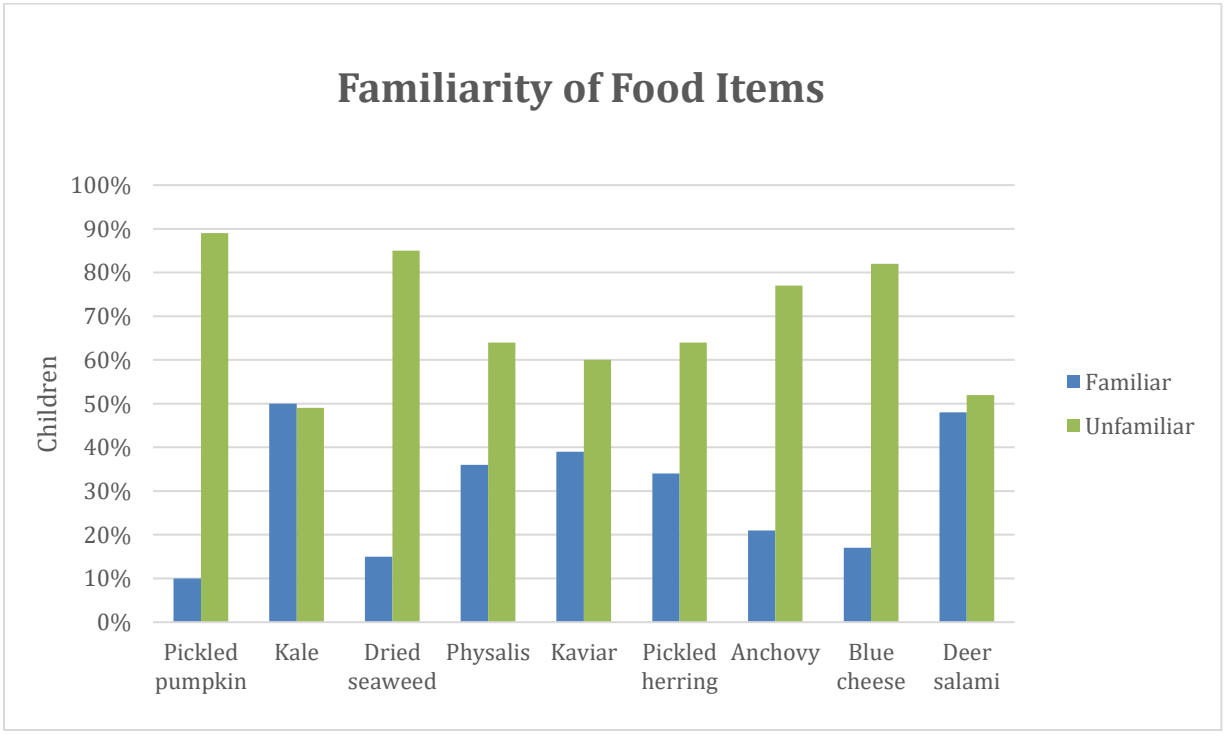
#	Food item	#	Food item
1	Pickled pumpkin	9	Deer salami
2	Kale	8	Blue cheese
3	Dried seaweed	7	Anchovy
4	Physalis	6	Pickled herring
5	Kaviar	5	Kaviar
6	Pickled herring	4	Physalis
7	Anchovy	3	Dried seaweed
8	Blue cheese	2	Kale
9	Deer salami	1	Pickled pumpkin

#: Order of food item in which the food items were distributed; Blue= Group1; Green= Group 2

APPENDIX IVg: Familiarity of Food Items

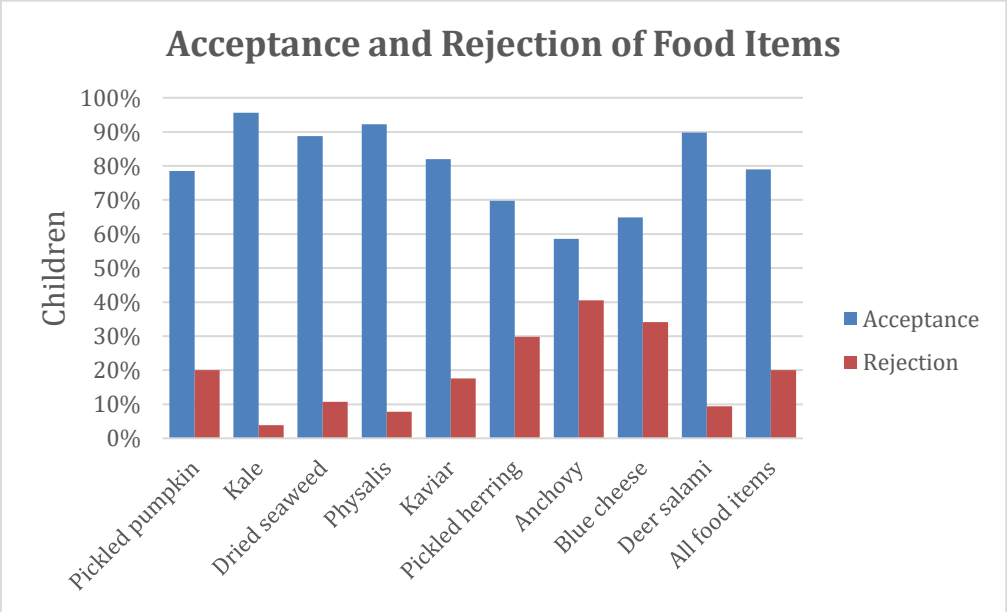
Percentage of children, to who the food item was either familiar or unfamiliar; the table show the results from Part 1 of the questionnaire; note: "Familiar" reflects "I know it and I have tried it before", whereas "Unfamiliar" reflects "I know it, but I have never tried it" and "I don't know it".

	Familiarity of Food Items	
	Familiar (%)	**Unfamiliar (%)**
Pickled pumpkin	10	89
Kale	50	49
Dried seaweed	15	85
Physalis	36	64
Kaviar	39	60
Pickled herring	34	64
Anchovy	21	77
Blue cheese	17	82
Deer salami	48	52



Percentage of children, to who the food item was either familiar or unfamiliar; the table show the results from Part 1 of the questionnaire; note: "Familiar" reflects "I know it and I have tried it before", whereas "Unfamiliar" reflects "I know it, but I have never tried it" and "I don't know it"; 100% correspond to 205 children.

APPENDIX IVh: Percentage of Accepted and Rejected Food Items



Percentage of children, who accepted or rejected the food items; 100% corresponds to the total of n=205 children.

APPENDIX IVi: Reasons for Acceptance and Rejection

A two-tailed chi-square test was applied to test differences between gender in reasons for food acceptance or rejection, but also to test differences between factors for food acceptance and rejection:

Differences between gender in reasons for food acceptance and rejection

X2=Chi-square value; P-value; SL=Significance level: *= p<0.05, **=p<0.01, ***= p<0.001.; p-value significant if < 0.05.

Differences between Gender in Reasons for Food Acceptance or Rejection

Reason Acceptance	X2	P-value	SL	Reasons Rejection	X2	P-value	SL
Good taste	4.4611	0.3468		**Bad taste**	0.1280	0.7205	
Good smell	13.5139	0.0002	***	**Bad smell**	0.0207	0.8856	
Like texture	8.0970	0.0044	**	**Dislike texture**	4.1665	0.0412	*
Like appearance	3.0192	0.0822		**Dislike appearance**	0.0288	0.8653	
Healthy	5.3693	0.0249	*	**Unhealthy**	3.1393	0.0764	
Familiar	0.0031	0.9559		**Disgust**	0.0361	0.8493	
Special occasions	0	1		**Unfamiliar**	2.4943	0.1143	
Curiosity	54.6785	1.42e-13	***	**Bad consequences**	0.0892	0.7652	
Culture	0.0031	0.9556		**Inappropriateness**	1.5818	0.2085	
Parents	0.1401	0.7082		**Culture/Religion**	0.1584	0.6907	
Other reasons	32.5288	1.17e-08	***	**Other reasons**	0.1358	0.7125	

Comparison of factors for food acceptance and rejection for boys, girls and for all children

X2=Chi-square value; P-value; SL=Significance level: *= p<0.05, **=p<0.01, ***= p<0.001; p-value significant if < 0.05.

Differences between Factors for Food Acceptance and Rejection

	Boys			Girls			All children		
	X2	**p-value**	**SL**	**X2**	**p-value**	**SL**	**X2**	**p-value**	**SL**
Taste	0.0087	0.9255		3.0469	0.0810		1.2169	0.27	
Smell	10.9148	0.0010	***	36.5077	1.52e-09	***	42.3098	7.79e-11	***
Texture	0.9263	0.3358		32.7917	1.03e-08	***	20.9576	4.7e-06	***
Appearance	0.2881	0.5914		4.0044	0.0454	*	3.3059	0.0690	
Health	45.4832	1.54e-11	***	41.2738	1.32e-10	***	86.4162	2.2e-16	***
Familiarity	50.4749	1.21e-12	***	16.7165	4.34e-05	***	59.8332	1.03e-14	***
Culture/Religion	2.0067	0.1566		3.7762	0.0520		5.8643	0.0155	*

Difference between Food Items

Acceptance

In this section, the results are described in the order beginning with the food items, which were most accepted to the food items, which were least accepted by the children.

The food items were accepted by the majority of the children ranging from the lowest acceptance for anchovy (n=120) to the highest acceptance for kale (n=196). The most accepted food item was kale (n=196) with *healthy* (64%) stated as the most frequent reason, followed by *good taste* (60%) and *curiosity* (52%). Physalis was accepted by 189 children and the most common reasons were *good taste* (79%), *good smell* (56%) and *like appearance* (59%). The third most accepted food item was deer salami (n=184) and children stated that they would like to try it because of *good taste* (79%), *good smell*s (60%) and because of *like* (of) *appearance* (59%). Seaweed (n=182) appeared to be accepted mainly due to *curiosity* (61%), but also *good taste* (46%) seemed to play a role. 168 children wanted to try kaviar because they were *curious* (54%), closely followed by *good taste* (45%). The acceptance of pickled pumpkin resulted in 161 children with *curiosity* (71%) as the reason stated most frequently, followed by *good taste* (48%), *like appearance* (37%) and *healthy* (37%). Among 143 children, who accepted pickled herring, the most common reason was *curiosity* (59%), followed by *good taste* (38%) and *good smell* (27%). The second least accepted food item was blue cheese (n=133) and reasons for acceptance were *curiosity* (60%) as the most frequent reason and followed by *good taste* (26%) and *other reasons* (22%). The lowest acceptance was shown for anchovy (n=120), but children would like to try it due to *curiosity* (60%), followed by *good taste* (32%) and *healthy* (31%).

Considering the reasons for food acceptance, it was shown that *curiosity* was stated most frequently for the majority of the food items, which included pickled pumpkin (71%), anchovy (68%), dried seaweed (61%), blue cheese (60%), pickled herring (59%), kaviar (54%) and kale

(52%). Furthermore, reasons such as *good taste* (26-79%), *good smell* (17-60%) and *like appearance* (14-59%) were commonly stated for most of the food items. *Special occasions* (1-12%), *culture* (6-18%) and *parents* (7-23%) seemed to play only a minor role in children's acceptance of food. It seems that the food items were more accepted due to *sensory properties* and *curiosity* compared to the other reasons. *Good taste*, *good smell* and *like appearance* resulted to be dominant, particularly for the food items physalis, deer salami and kale.

Rejection

In this section, the results are described in the order beginning with the food items, which were most rejected to the food items, which were least rejected by the children.

The food items were accepted by the minority (19%) of the children ranging from the lowest rejection for kale (n=8) to the highest acceptance for anchovy (n=83). The most rejected food item was anchovy (n=83), followed by blue cheese (n=70) and pickled herring (n=61). For these food items, the most frequent reasons resulted in a consistent ranking order: *bad taste* (73-84%), *bad smell* (65-84%) and *dislike appearance* (57-74%). 41 children did not want try pickled pumpkin, mainly due to *bad taste* (83%), *bad smell* (68%) and *dislike texture* (54%). Kaviar was rejected by 36 children with reasons stated such as *bad taste* (75%), *bad smell* (61%) and *dislike appearance* (53%). 22 children rejected dried seaweed because of *bad taste* (82%), *dislike appearance* (73%) and *bad smell* (55%). 19 children rejected deer salami due to *bad smell* (47%), *bad taste* (32%), *culture/religion* (32%) and *other reasons* (32%). Physalis is the second last rejected food item (n=16) with *bad taste* (56%), *bad smell* (50%) and *unfamiliarity* (38%) stated the most by the children. The least rejected food item was kale (n=8), but the most frequent reasons among the children who rejected it, were *bad taste* (63%), *bad smell* (63%), *dislike texture* (63%) and *dislike appearance* (51%).

The Figure for "Reasons for Rejection" shows that all food items follow a very similar pattern for food rejection with a tendency towards *bad taste*, *bad smell*, *dislike appearance*, *dislike texture* and *unfamiliarity*. Deer salami seems to be slightly different in the reasons for *bad taste*, *culture/religion* and *other reasons* compared to the majority of the food items. Compared to the reasons for food acceptance, where *curiosity* was by far the most stated reason, there is no dominant reason why children would reject the food items. However, a strong tendency towards *sensory properties* (*taste*, *smell*, *appearance* and *texture*) and *unfamiliarity* appears to be relevant in the rejection of food.

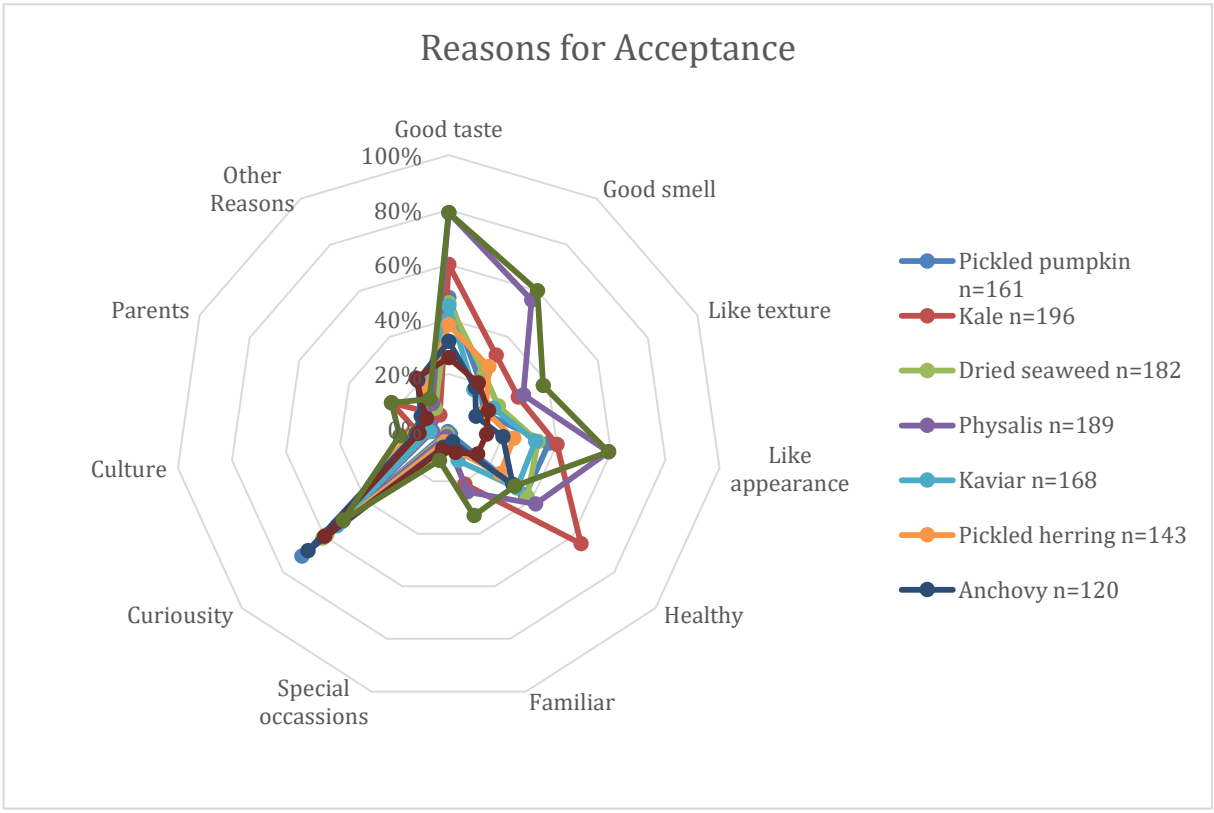


Figure Acceptance: Percentage of Children accepting Food for a specific Reason; n= number of children, who accepted a food item

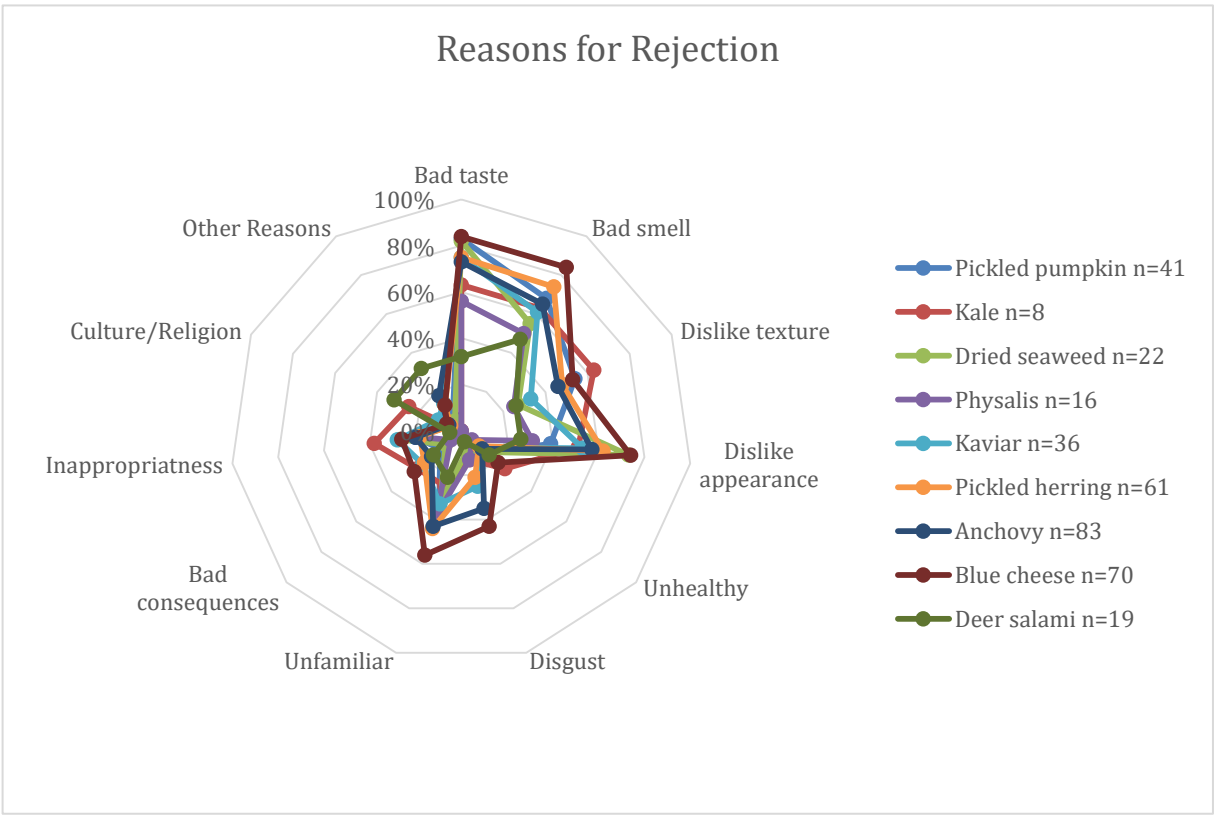


Figure Rejection: Percentage of Children rejecting Food for a specific Reason; n= number of children, who rejected a food item

Table Acceptance: Percentage of Children accepting Food for a specific Reason

Reasons for Acceptance	**Food Items**								
	Pickled pumpkin	**Kale**	**Dried seaweed**	**Physalis**	**Kaviar**	**Pickled herring**	**Anchovy**	**Blue cheese**	**Deer salami**
	N=161	N=196	N=182	N=189	N=168	N=143	N=120	N=133	N=184
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Good taste	48	60	46	79	45	38	32	26	79
Good smell	21	32	24	56	17	27	18	20	60
Like texture	14	28	20	30	18	15	11	16	38
Like appearance	37	40	33	59	32	24	20	14	59
Healthy	37	64	38	42	33	25	31	14	32
Familiar	2	21	5	24	12	8	5	9	33
Special occasions	1	4	2	3	5	5	7	8	12
Curiosity	71	52	61	51	54	59	68	60	51
Culture	7	11	8	6	7	14	12	11	18
Parents	7	23	9	9	11	10	11	9	23
Other reasons	10	6	9	11	17	16	21	22	13

Numbers show the percentage of children, who accepted the food items due to a specific reason; N=Number of children, who accepted the food item

Table Rejection: Percentage of Children rejecting Food for a specific Reason

Reasons for Rejection	**Food Items**								
	Pickled pumpkin	**Kale**	**Dried seaweed**	**Physalis**	**Kaviar**	**Pickled herring**	**Anchovy**	**Blue cheese**	**Deer salami**
	N=41	N=8	N=22	N=16	N=36	N=61	N=83	N=70	N=19
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Bad taste	83	63	82	56	75	75	73	84	32
Bad smell	68	63	55	50	61	74	65	84	47
Dislike texture	54	63	27	25	33	48	46	53	26
Dislike appearance	39	51	73	31	53	62	57	74	26
Unhealthy	15	25	14	6	11	10	12	21	16
Disgust	12	13	9	13	25	21	35	43	5
Unfamiliar	34	25	32	38	33	44	43	56	21
Bad consequences	12	25	9	6	22	21	17	27	16
Inappropriateness	20	38	27	19	28	18	20	26	5
Culture/Religion	5	25	9	6	11	5	6	7	32
Other reasons	7	0	5	0	14	13	18	13	32

Numbers show the percentage of children, who rejected the food items due to a specific reason; N=Number of children, who rejected the food item

APPENDIX IVj: Open-end Response "Other Reasons"

Reasons for Acceptance

Pickled pumpkin

Children stated that they wanted to try pickled pumpkin because of ***curiosity***, which the children expressed as "*I want to try something new*.", "*I want to try*.", "*I really want to try new foods*.", "*I eat it because I have not tasted it before*." and "*I would like to*". Furthermore, some children regarded eating pickled pumpkin as a ***challenge***, which was expressed as "*Because I am tough*." and "*I am brave*.".

Kale

Kale was accepted due to ***appearance*** "*It looks good*." and "*It looks cool*.", ***taste*** "*It does not taste good, but not bad either*", ***curiosity*** "*I just want*.", "*I want to try and I like it*" and "*I want to try something new*". Some children positively ***associated*** kale with salad "*It looks like salad*" and some have tried kale already before and ***liked*** it "*I LOVE KALE*!" and "*I knew that kale is my best friend*". One child stated that it is often served for dinner when the mother is at home "*Each dinner for expanded because the mother is at home*".

Dried seaweed

Curiosity was mentioned frequently in the quantitative results; however, some children stated it also in ***other reasons***: "*Have never tried so now I want to try*", "*It would be fun to taste it because I have never tasted it*.", "*Would like to try*", "*I try*", "*It looks really delicious and I would like to taste (almost) everything <3*", "*I've heard that it is very good*", "*I'll try to taste almost everything*" and "*I just want to taste so I try something new*". One child stated that it want to try seaweed because "*It* ***smells*** *funny*☺" and one child really ***likes*** it "*Love it*". However, one child saw eating trying the seaweed as a ***challenge/social pressure*** "*I don't want to be a pussy*".

Physalis

Some children accepted physalis because they tried it before and ***liked*** it "*I love it*", "*It is good*", "*I know it tastes good*", "*It is good and I know I have eaten them many times before.*", "*I've tasted it before and I liked it and like before I would like to taste (almost) everything*" and "*Love it*". To some children the berry was ***familiar***: "*It is good and I know I have eaten them many times before.*", "*I have tasted it before but I didn't like it.*", "*I've seen it on cakes so ....*" and some were just ***curious***: "*Try something new*" and "*I want to taste everything*". Additionally, physalis was associated with some **good experiences at young age** "*When I was little I liked it so I think I also do so now.*" or ***special places/holidays*** "*I usually eat it in morocco*" and "*I have them in my holiday home*". One child accepted physalis due to its ***appearance*** "*It looks good enough*". For one child ***social pressure*** seemed to play a role "*I don't want to be a wimp!!!*".

Kaviar

Appearance seemed to play a role in trying kaviar "*It looks okay*", "*I thought it looks cool*", but also ***taste***: "*It tastes good*", "*I know it tastes good*" and "*It tastes salty*". For one child it is

familiar "*I knew it*" and some children, who tried kaviar before, ***like*** it "*I love it*", "*It tastes good*" and "*I tasted it before and I love it*". One child mentioned that it eats kaviar for ***dinner*** "*I eat it for dinner*". Several children stated that they are ***curious*** about eating kaviar "*I try*", "*I would like to try for fun*", "*I want to taste something new*" and "*I have not tasted red caviar I think at least*". There was one child, which seemed to be influenced by the ***teachers*** liking towards kaviar "*My teacher just said that she liked it as well*". There was one child, who allocated kaviar to foods, which are ***expensive*** "*It is expensive*" and mentioned this as a reason why accepting the food. One child considered eating kaviar as ***social pressure/challenge***: "*I am brave*".

Pickled herring

One child mentioned to try pickled herring because of its ***appearance*** "*It looks good*", another child ***confused*** pickled herring with salmon "*I thought it's salmon*", while one child tried it before and **liked** it "I really like it and tasted it before". ***Curiosity*** seemed to play one of the most frequently mentioned reasons among the children, who haven't tried pickled herring before: "*I do not like fish but I would like to try*", "*I do not think I like it, but I am curious*.", "*I just want to try*", "*Because I am curious and it's fun to taste something new*", "*I do not like it but I taste it again*.", "*I'll try it*", "*...But I don't think it tastes good*" and "*I know it tastes bad but still I would like to eat it*". One child positively associated eating pickled herring with a ***familiar place*** at the ***grandparent's place***: "*I sometimes get it at my grandmother's and grandfather's place*". A few children regarded eating pickled herring as a ***challenge***: "*Challenge*", "*CHALLENGE!!!*" and "*I am brave and try to taste everything*".

Anchovy

Anchovy was accepted due to ***taste*** "*It tastes goooood*" and ***liking*** of pickled fish "*I like pickled fish*". Several children, who have not tried anchovy before were ***curious*** about trying it: "*I do not think I like it, but I am mega curious*.", "*I want to try something new*", "*Just want to try*", "*I want to try everything but I hate fish*", "*Because I am curious*", "*I want to eat it because it looks a little gross .... I regret that I said YES!*", "*I would like to taste*" and "*I know it's bad but why not taste it*". For a few children trying anchovy was regarded as a ***challenge*:** "*I try my luck*", "*It looks disgusting*", "*I'm tough*" and "*I took the chance*".

Blue cheese

Reasons for accepting blue cheese resulted in ***appearance*** ("*It looks funny*") and ***liking*** ("*It tastes best with bread*", "*I like it when it's not too strong*", "*I love cheese*"). Several children mentioned ***curiosity*** as i.e. "*I would like to try*", "*Because I like to try*", "*For fun*", "*I want to try something new*", "*I just want to try*" and "*I just would like to taste everything*" and some children felt ***challenged***: "*I challenge myself*" and "*Because I am tested*".

Deer salami

The ***appearance*** of deer salami seemed to play a role ("*It looks good*" and "*I think it looks really good*"), but also ***taste*** ("*I know it tastes good*", "*It tastes mega good*", and "*It tastes good*"). Some children tried deer salami before and ***liked*** it ("*Love it*", "*It is good!!!!*", "*It's really good*", "*Nam nam*", "*I love all meat products*", "*It's really good*"), while one child seemed to be

curious: "*I want to taste it because I have not tasted it before.*". Many children associated deer salami with other ***similar*** meat ***products*** ("*Professional classic sausage*", "*This looks like "Spegepølse" and I really like that*", "*It reminds me of a normal sausage*", "*I know something similar*", "*I love all meat products*") and ***parents*** seemed to be an influence: "*My father buys it always*", "*I get it in my lunch box*".

Reasons for Rejection

Pickled pumpkin

One child mentioned that it did not want to try pickled pumpkin because it does ***not like pickled food products*** "*I don't like pickled things*" and one child may have felt a ***disgusted*** "*I cannot convince myself to eat it*"

Kaviar

One child tried kaviar before and may ***not have liked*** it "*I have tried it before*", while another child rejected kaviar because it was ***allergic*** to the food colourants "*I am not allowed to eat colourants.*".

Anchovy

In some cases, anchovy led to rejection because of ***disgust*** feeling "*It is gross*" and dislike: "*I do not like fish*" and "*Have tasted it before and do not like it*". One child was ***afraid*** of eating anchovy: "*I'm afraid of it*".

Blue cheese

Some children rejected blue cheese because they have tried it before and ***did not like it*** ("*I have tasted it but do not like it*", "*I've tasted it before and do not like it*"). One child stated that it was ***disgusted*** by the look of the blue cheese "It looks disgusting" and one rejected blue cheese because it might be ***unfamiliar*** "*I like cheese but maybe not this one*". One child mentioned that it was ***allergic*** to the food product ("*I am allergic*").

Deer salami

In the rejection of deer salami ***religion*** seemed to play a role for some children ("*It is not Halal slaughtered!*", "*I do not think it is Halal*") and one child was ***allergic*** to food colourants so deer salami had to be avoided ("*I cannot tolerate colouring agents*").

There were no *other reasons* mentioned for the food items kale, dried seaweed and physalis.

APPENDIX IVk: Liking

Mean and standard deviation (SD) of liking of all food items; Mean liking showed for all children and divided by gender; N= Number of children, who accepted the food item

Liking	Food Items																	
	Pickled pumpkin		**Kale**		**Dried seaweed**		**Physalis**		**Kaviar**		**Pickled herring**		**Anchovy**		**Blue cheese**		**Deer salami**	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
	N=83	N=82	N=101	N=95	N=90	N=92	N=95	N=94	N=82	N=88	N=72	N=72	N=71	N=53	N=69	N=71	N=96	N=89
Mean ±SD	3.29 ±2.0	2.48 ±1.6	4.35 ±1.8	4,19 ±1.9	3.18 ±1.6	2.41 ±1.5	5.07 ±1.7	5.00 ±1.7	3.57 ±1.8	2.64 ±1.7	3.65 ±2.2	2.64 ±2.0	2.14 ±1.4	1.68 ±1.1	2.78 ±2.0	2.23 ±1.4	5.99 ±1.6	5.65 ±1.5
	Total		Total		Total		Total		Total		Total		Total		Total		Total	
	N=165		N=196		N=182		N=189		N=170		N=144		N=124		N=140		N=185	
Mean ±SD	2.88±1.8		4.27±1.8		2.79±1.6		5.04±1.7		3.09±1.8		3.15±2.1		1.94±1.3		2.50±1.7		5.53±1.6	

Differences between genders were calculated via Student's t-test

Liking Differences between Gender		
	P-value	**SL**
Pickled Pumpkin	0.0038	**
Kale	0.5518	
Dried Seaweed	0.0011	**
Physalis	0.7665	
Kaviar	0.0007	***
Pickled herring	0.0037	**
Anchovy	0.0465	*
Blue cheese	0.0580	
Deer salami	0.1409	

P-value; SL=Significance level: *= p<0.05, **=p<0.01, ***= p<0.001; P-value significant if < 0.05.

APPENDIX IVl: Willingness to Retry

Percentage of children, who want to try the food items again

	Willingness to Retry			
	Boys		**Girls**	
	N	Retry%	N	Retry%
Pickled pumkin	81	28	80	21
Kale	101	62	95	59
Dried seaweed	90	22	92	16
Physalis	95	76	94	76
Kaviar	81	30	87	29
Pickled herring	73	37	70	31
Anchovy	67	21	53	11
Blue cheese	63	35	70	14
Deer salami	95	89	89	87

N= number of boys/girls, who accepted the food items;

Retry%= Percentage of children, who would like to try the food items again

Differences between genders were calculated via two-tailed Chi-square test

Willingness to Retry
Differences between Gender

	X2	P-value	SL
Pickled Pumpkin	0.7510	0.3861	
Kale	0.1190	0.7302	
Dried Seaweed	0.6801	0.4095	
Physalis	0.0000	1.0000	
Kaviar	0.0000	1.0000	
Pickled herring	0.2744	0.6004	
Anchovy	1.3247	0.2498	
Blue cheese	6.6391	0.0100	**
Deer salami	0.1524	0.6962	

X2=Chi-square value; P-value; SL=Significance level: *= p<0.05, **=p<0.01, ***= p<0.001; p-value significant if < 0.05.

APPENDIX V: Transcription of Interviews

The transcribed interview only includes responses to Part A (Most liked and most disliked food) and Part B (Reasons for liking and disliking food items from the taste kit) according to the interview guide. Responses, which did not belong to Part A and B were excluded and replaced with "…"

RE = Respondent
IN = Interviewer

Child 1 (9 years)

<u>Most liked food</u>

…

IN What is the food you like?
RE 1 It is a Wiener Schnitzel.
IN Why do you like it?
RE 1 Yeah. Because it is meat. And also because I also like this thing outside of it.
IN What do you normally eat it with? Just the Wiener Schnitzel? Or do you eat it with something else?
RE 1 Yeah, I eat it with some fish…it is small fish…
IN How do you call them? How do you call them in Danish?
RE 1 "Sill"
IN Ah…okay…and that you like to eat together with the Schnitzel?
RE 1 Yeah and I also eat it with the green beans….with "ærter".
IN Do you eat it also with something else? Do you have a sauce with it?
RE 1 Sometimes with ….not carrots
IN So you don't eat carrots. Why not?
RE 1 Because I am allergic to them….I get scratches from them…and it really hurts in the throat.
IN Are you allergic to something else?

RE 1 I think it is dogs. But I really like dogs.
IN How often do you eat the Wiener Schnitzel?
RE 1 Not so much. Like 1 time a month
IN Is it you mother mum who is preparing it?
RE 1 Yeah my mum…and also my dad and also sometimes my grandma
IN And who is doing the best Schnitzel?
RE 1 My dad!
IN Why? What is the difference between the Schnitzel from your dad and your mum's/grandma's Schnitzel?
RE 1 Because he is a "boy". First, I like my father's, then my grandma's and then my mum's Schnitzel.
IN And you normally eat it at home?
RE 1 Yeah.
IN Have you ever tried to do it yourself or to help your parents/grandma with cooking?
RE 1 Yeah
IN Do you like to cook?
RE 1 Yeah. And I also sometimes do some cakes. My favourite is chocolate cake!
IN When did you eat the Schnitzel the first time? Can you remember?
RE 1 No.

<u>Most disliked food</u>
IN Why don't you like the apples?
RE 1 Because they are scrambled.
IN Is it the consistency? Is it too soft?
RE 1 Yeah it is too soft.
IN And also because it is warm?
RE 1 Yeah.
IN Who was preparing the apples?
RE 1 My mum.
IN And then you tried them? Or you said you don't want to eat them?
RE 1 Well….the first time my dad did it. Then they really wanted to have me to eat them. And I didn't, because I really didn't like it.
IN How many times have you tried it?
RE 1 Two times know. But it is also because the last time I tried it was after a flight and after we came home…it was late night…we had it.
IN Ah because it was very quick to do?
RE 1 Yeah.
IN But do you like normal apples?
RE 1 Yeah.
IN Was it only at home you were eating it?
RE 1 Yeah.
IN Is there something else you don't like to eat?
RE 1 No, not really.
….

<u>Taste Kit</u>
…..
IN Do you know everything or is something unclear?
RE 1 Ah no…I know all of them…

IN Yeah. this is shrimps, herring, tuna, smoked salmon, caviar…and do you know that thing?
RE 1 Yeah…mackerel!
IN Yeah, and it is in a tube, right?
RE 1 Yeah…I don't really like it. Not so much.
IN Have you tried it?
RE 1 I never did actually! How does it taste?
It really tastes like a lot of fish!
IN Yeah, yeah it is very dense!...Yeah and this is turkey and ham, salami and potted meat.
RE 1 Oh…I have never eaten potted meat.
IN …Then we have chicken and we have chicken meatballs, skyr…then do you know the brown cheese?
RE 1 Cheddar?
IN No, it is not cheddar, it is a Norwegian cheese actually.
RE 1 Oh…then I don't know it!
IN …and this is something like "Danbo". Do you know that?
RE1 Yeah.
IN You like all herbs? Is your mum cooking them often?
RE 1 Hm yeah.
IN Which one do you like most?
RE 1 The mint! (laughs).
IN How do you eat it?
RE 1 Sometimes we just pick the leaves off and put them over the food.
IN Is it sweet or salty food you put it on?
RE 1 Salty.
IN You don't like the carrots or is it just because you're allergic?
RE 1 Yeah and I have not tried them without that it hurted in my throat.
IN Oh yeah…that is pretty annoying. You never tried that one right? (seabuckthorn)
RE 1 No never tried it.
IN It tastes very sour actually…like…when you taste it, it is like a berry and when you eat one your whole mouth is like (astringent facial expression), but actually you can really make nice dishes out of it….when you mix it with a bit of honey and yeah..that's pretty nice…and the mackerel? You don't like because…
RE 1 …because it's "consed".
IN Is it like..too fishy?
RE 1 Yeah and also because in Denmark…things in Denmark…who like buy them in "doser" then there could be really much mayonnaise on it!
IN So it's also like to fatty and…
RE 1 Yeah..
IN Have tried all the fish before?
RE 1 Yeah.
IN How do you like the caviar for example?
RE 1 Cause you can put them on pancakes! ….and like the small ones and then you put some cream cheese on!
IN Oh nice!
…
IN Why do you like the meat?
RE 1 Because it's meat.
IN Is it like the saltiness or…how would you describe the taste?
RE 1 I don't know..

……

IN And what about the cheese? You don't like skyr? Why not?

RE 1 Because I cannot really remember, it is just a long time ago…uhm..

IN Is it like…because it is too thick? Like thick milk?

RE 1 Yeah.

IN Okay and you like the other cheese?

RE 1 Yeah

IN Which one do you like most?

RE 1 That one! (creamy Havarti)

IN Nice. I think then we are done.

Child 2 (9 years)

…

Most liked food

IN What is the food you like?

RE 2 This is a burrito. Or a "dürüm brød". My mum's homemade.

IN Why do you like the burrito?

RE 2 It tastes good and I like the meat and the salad…. and the cheese is also very good…and the cream. Around there is a "pizza brød".

IN Do you eat it a lot?

RE 2 No it is only at the weekends. Because it takes some time to cook it and make it. And my mum has a long time to cook it on the weekend.

IN Have you only been eating made by your mum?

RE 2 Yeah, only with my mum because my dad doesn't like it.

IN Do you eat it every weekend?

RE 2 No. Just from time to time.

IN Have you also tried it somewhere else?

RE 2 Yeah, also at a restaurant.

IN Did it taste different?

RE 2 Yeah, it tasted different. My mum's is better.

IN Do you also like some other vegetables?

RE 2 I like cucumbers, carrots and some normal salad, tomatoes and potatoes

IN Why do you like potatoes? And how do you eat them normally?

RE 2 I like them cooked. Sometimes my mum fries them. Then they get the crunchiness like French fries…I like them more than normal potatoes.

IN Have you also been to a friends place and eating the burrito?

RE 2 No, just at my mum place.

IN Is your mum cooking something else you really like?

RE 2 Yeah. Curry with chilli. With rice….and in Danish we call it "boller i karry" that is meatballs with curry and rice and onions. The meat is from a pig. She is also doing it herself. Forming the meat.

IN Do you also like to cook?

RE 2 Yes!!

IN So you sometimes help your mum?

RE 2 Ähh.. no!! Sometimes, I like to cook on myself. When I don't like some of my mum's fishes, then I start finding some potatoes, onions and shrimp. And start cooking and try to put some curry on it.

IN Do you have some recipes for it?

RE 2 No, all on my own! Well..not buying things that does my mum.

IN So you also cook for your family?

RE 2 Yeah sometimes. I once cooked spaghetti with meat sauce. Meat with some kind of ketchup….Spaghetti Bolognese!

IN Do you have a brothers and sisters?

RE 2 I have two brothers (24 and 28) and two sisters (26 and 39). But my oldest sister lives in Iceland. Because my mum's family is from Iceland and my father's family is from China.

IN So you also sometimes cook Chinese food?

RE 2 No. My dad's girlfriend…my mum and dad are divorced. My dad's girlfriend doesn't like to cook. I better like my mums. Sometimes when my dad's girlfriend is at work, then my father is cooking.

IN Do you also sometimes cook Icelandic food?

RE 2 No. Icelandic food is just like some kind of…fish. Dried fish or seafood.

IN Do you like this fish?

RE 2 No. Because I don't like the sea taste. But I like river fishes….because they don't have the sea taste.

<u>Most disliked food</u>

…

RE 2 (continued) …and this is fish. I like some kind of fish, but not that one.

IN What kind of fish is it that you don't like?

RE 2 Tuna. I like the tuna you can put on the bread (canned tuna). But it is just fresh tuna I don't like….also not when it is cooked….And I like some kind of salmon. I like it when it is fried salmon.

IN Would you like it if the tuna would be fried?

RE 2 No!

IN Is there some other fish you like?

RE 2 …in the Magasin (shopping center), there is a "fishy restaurant". They have flat fishes, which lie in the sand. That kind of fish I like, because it doesn't have the sea taste. Not that much……..And I like my mums fish. I don't know how she is doing it but she kind of takes the sea taste out of the fish.

IN Have you ever tried raw fish?

RE 2 …hmm yeah sushi. Like salmon on a piece of rice and then we put it in Wasabi and soya sauce.

IN You also like wasabi although it is so very spicy?

RE 2 Yeah it is spicy.

IN So you also like "spicy" a lot?

RE 2 The spicy thing I like the most is jalapenos or chilli. I don't like chilli, but I caaan eat it together with some milk.

IN So you drink the milk to get the spiciness away?

RE 2 Yeah, I like the feeling when it is burning in the mouth…. but I don't know why…..And my dad's girlfriend, she is also doing some spicy things and spicy soup….very much soup. Because my dad is almost old….50 (and something)….and he likes pork soup and chicken soup.

IN So you eat a lot of spicy food at home?

RE 2 Yeah. And my dad also likes the inside of the bones (mark) and he likes to put a straw…put it in the bone and suck it out.

IN You also eat that?

RE 2 No, I think this is ugly because it is from the inside of the bones. There are some strange things….the kind of meat…it is like gel. I cannot even see him doing it. (slurps and laughs)…..my dad also wants me to….eh…I also play piano and I hate practicing – it is really boring. And then my dad says "If you

eat this salmon you don't have to practice". And then I eat it. But it is not the whole salmon. It is just a piece of it.

IN So you just have to try it?

RE 2 Yes...and it was just with the fish.

IN Does this trick work all the time?

RE 2 All the time because I hate practicing. (haha)

Taste Kit

…

RE 2 ….."I like most of them" (looks at taste kit)
…(explanation of the taste kit)

IN Wow! You like all herbs! You like herbs?

RE 2 Yeah!

IN Why do you like them?

RE 2 Because I like the mint taste… some of the, are minty.

IN Because it is fresh?

RE 2 Yeah.

IN And that you like. How do you eat it?

RE 2 Hm usually when my mum do…"Carbonara"….spaghetti carbonara.

IN Ah then she puts some mint in it?

RE 2 Yeah. Then she don't cook it but when the bacon and the white sauce and the pasta is done, then she mix it. First the bacon and then the white sauce and the pasta together and then she pputs the mint in it…and cheese!

IN Sounds delicious! Okay…and you don't know the cabbage. Would you like to try it?

RE 2 Yeah!

IN How do you think it would taste?

RE 2 Like…maybe sweet?

IN Yeah maybe a little sweet…

RE 2 …or red? (laughs)

IN How does red taste?

RE 2 Can I try? (points at red pen and laughs)

IN And the pickled pumpkin?

RE 2 I don't know.

IN You would also like to try?

RE 2 Yeah.

IN Okay nice. Hm…yeah you like pretty much everything right.

RE 2 Mhm.

IN Why do you like the pomegranate for example?

RE 2 …because the "kerner"…the things inside, I like them because they are sweet. My mum puts them in the salad.

IN Ah okay! So you like a lot of sweet?

RE 2 Yeah.

IN Ah okay. So then the fish. There is something you don't like.

RE 2 No I haven't tried

IN But you would also like to try it?

RE 2 Yeah I think I would like it. Because most of the sour things I like. There is a candy from America called "brain blasters".

IN No, I don't know them. How do they taste?

RE 2 I pack it off and they taste really sour. There is a blue that is very sour, red is not so sour but yellow is sour and green is very, very sour. The blue one is for

blueberry, the red one is for watermelon and the yellow is for lemon…and the green is for lime.

IN Which one do you like most?

RE 2 Lime. …because I like sour things. …But I can't eat it, if it is too sour, I get some things on my tongue…

IN Oh is it like a allergy or something?

RE 2 No, it's just some weird, weird bubbles or something…little, little bubbles.

IN Is it from the candy or something else?

RE 2 I don't know, it just happens and then it is really uncomfortable to do like this...and I can see the things pop out….

IN Oh so you have to be careful then, that it isn't too sour. Okay, and about the fish…you tried the mackerel?

RE 2 Yeah I tried that. I tried everything.

IN And why do you don't like the mackerel?

RE 2 Because it has a little sea taste.

IN And the baby fish eggs, you also don't like?

RE 2 No.

IN Because they are also too fishy?

RE 2 Yeah, yeah. But also because…uhm fish is my…I like fishes but they are not cute.

IN They are not cute?

RE 2 No, but I like them as well…my favourite dog is a dog….or no my favourite animal is a dog. I have a dog, called chocolate…we call him chocolat but his name is "peb" because in Iceland, my mum's favourite ice cream is "peb" and that means chocolate and mint....and he looks like a chocolate…..he is like that…maybe this size…and very fat. (laughing)

IN And you like the shrimps…and the tuna…we talked about that, right.

RE 2 Mhm.

IN Have you tried the potted meat?

RE 2 Yeah.

IN And you don't like it?

RE 2 It's like…potted meat…it's like "leverpostej".

IN Ah leverpostej!

RE 2 …yeah and you put it on the bread!...I don't like.

IN You don't like? Why?

RE 2 Because I think it is very ugly! It is a liver!

IN Yeah it is from the liver…and you don't like liver?

RE 2 No!

IN But you like the sausage? Why do you like the sausage?

RE 2 I don't know.

IN It tastes good?

RE 2 Sometimes it is a little bit crispy. I like crispy things.

IN What else is crispy what you like?

RE 2 Potato chips! …And apples!

RE 2 Because when you eat them they make… "pfsiiiich"

IN And the poultry…you like both the chicken meatballs and the…okay why do you like that?

RE 2 Mhm…I like that….this looks like my mums…and my mum puts a lot of things inside, not just normal meat. She puts like…some kind of this in it (points at mint and parsly). And some kind of oil, she has to put some oil…and I like my mum's homemade chicken nuggets...nam nam…

IN They are also very crispy?
RE 2 Yeah!
IN …and about the cheese…you like the skyr?
RE 2 Yeah! I don't like cheese!
IN Why?
RE 2 Because they have that bad smell! And I have tried it once but…then the smell is coming into my mouth and then it says "haaalloo". (laughing)
IN But you've tried it that's nice!

Child 3 (10 years), 4th grade

…

Most liked food

IN Why do you like the pasta? Can you tell me about that?
RE 3 Ahh….well I think it tastes really good, but I think it is mostly the pesto, which also makes it really good. Otherwise it would be really boring…it's just pasta.
IN Okay. And when do you normally eat it?
RE 3 Well I eat it actually a lot. Not too much…I also eat other food as well of course…
RE 3 Compared to how much I eat to other foods…I eat it a lot.
IN How many days a week do you eat it?
RE 3 One….
IN Once a week?
RE 3 Maybe. Maybe less…, but… I have a big variation of what food I eat.
IN So you like a lot of different foods?
RE 3 Yeah. Mhm.
IN And do you normally eat it…like for lunch or dinner?
RE 3 Mostly for dinner.
IN Mhm.
RE 3 But if there is anything left then I'll maybe get it in my pack lunch at school the next day.
IN Ah okay. And who is doing the food? Is it your….
RE 3 Hm. Either my father or my mom.
IN And they do it their selves?
RE 3 Yeah.
IN Also the pesto?
RE 3 Sometimes…
IN Sometimes…
RE 3 Mostly themselves.
IN Do you know what is inside the pesto?
RE 3 Ah….I am not sure…
IN Hmmm…So maybe some greens and some oil..right?
RE 3 Yeah..
IN Nice! And what does it taste like? What do you like about that?
RE 3 Well…eh…I just….I like…well I think it is mostly the pesto that tastes good. And then combined with pasta…it is really…
IN Yeah combined with pasta. Do you also like other pasta with another sauce?
RE 3 As like pasta with another sauce?
IN Yeah. Or is that your very favourite? Where you say like nothing is better?
RE 3 That is my very favourite…but I do like pasta with tomato sauce.
IN Ah okay. That is also nice, yeah. Aand do you also eat it like…outside of home? Or…

RE 3 Sometimes. When other people make it and I am guest.
IN And who is doing the best pesto?
RE 3 Hm…maybe my mum.
IN Your mum? Yeah. Why?
RE 3 It's mostly her that makes it herself. My father does it sometimes but not very common.
IN Mhm okay. And do you also like to cook?
RE 3 Ah normally I just help.
IN You help? Okay.
RE 3 I don't really do it myself.
IN No. What is your task then? What are you doing then for the pasta?
RE 3 Oh…normally what I do..is I either…like…sometime the pasta is too hot and so I maybe help with the vegetables…
IN Ah okay nice. That's cool.

<u>Most disliked food</u>

…
IN And what about the food you don't like so much? Like the…
RE 3 …beetroot!
IN Beetroot, yeah.
RE 3 Why is that?
RE 3 Hm…I just...I think it is too like…it tastes….for me it tastes a little bit weird, but I think it is mostly because I don't like it. Ah…it also tastes…a bit like…it is just coming from the dirt…even though it hasn't.
IN Okay so because it is from the soil?
RE 3 Yeah.
IN Okay that gives you…ah…a weird feeling about it?
RE 3 Yeah. Oh, I don't think it makes a weird feeling. I just don't like…
IN And you don't like the taste?
RE 3 No…
IN And how does it taste for you?
RE 3 For me it doesn't taste good….at all. At once, I did like it…but not anymore. IN When was that?
RE 3 When I was from one to five years old. I did like it
IN And then you eat it a lot of times?
RE 3 Yeah. And then I figured out I don't really like it.
IN Okay and what was the reason for that.
RE 3 Ah I think it's just maybe because I have been grown older and then they start tasting a little bit different.
IN Okay okay..that's interesting actually. And did you eat it raw? Or was it cooked?
RE 3 Ah…it depends….sometimes it's raw, sometimes it's cooked. Mostly cooked.
IN Mostly cooked…and what do you like better?
RE 3 Eh…yeah probably. I didn't really taste it that much when it is raw, but I think I like it more when it is cooked.
IN Okay…
RE 3 Ah few times I have tried it raw.
IN And do you eat just the beetroot or with something else?
RE 3 Ah…sometimes...with something else. That's just maybe… if I get…like… a dish and there is maybe a sauce. And for example gravy. Then I can maybe mix them together. Then it tastes better.

IN Ah then it tastes better? So when you mix it with the gravy then it gets more…
RE 3 Yeah it gets better. But I still don't really like it.
IN You still don't like it…Did someone force you to eat it? Or…
RE 3 No, no. It was just…They just said I should try it again…to try to like it!
IN Yeah.
RE 3 But I don't know…
IN It didn't help that much?
RE 3 No…
IN Okay nice…And when did you try it the first time?
RE 3 The first time I tried beetroot. A long time ago, so I don't really remember….probably….when I was like…I don't know. 3 years old or so. Cause I don't think I eat it or I ate it when I was one year old.
IN Yeah…so it is a really long time ago.
RE 3 Yeah.
IN And the pesto?
RE 3 And the pasta?
RE 3 Probably even after the beetroot or even after the beetroot or probably even before…cause just it's easy to eat.
IN Yeah. And you always like it?
RE 3 Yeah.
IN No issue not to eat it.
RE 3 Yeah.
IN Is there some other food you don't like?
RE 3 Ah…there is…I don't like aubergine.
IN Why not?
RE 3 I just think it is too…like…not tasted it very many times but about 5 times and that…like…where I remember the taste…otherwise it is just so long time ago that I don't remember what it tastes like…
IN No worries.
RE 3 I ate it when I was around 9 years old. So I don't remember how about that taste.
IN Okay.
RE 3 I just think it was too like…kind of just too…this kind of sauce inside..
IN Like in the…
RE 3 Yeah in the aubergine. Like the outer is fine for me, but the inner inside. I just don't like it.
IN Is it too soft?
RE 3 Yeah.
IN Hm...and do you like bitter? Like bitter food?
RE 3 No not really…depends…what it is. Mostly not.
IN So more the sweet?
RE 3 More the sweet…or eh…sour!
IN Sour! You like sour too. What kind of sour food do you eat?
RE 3 So eh…sour is mostly something for sweets!
IN For example? Would you eat a lemon?
RE 3 Ah yeah…lemon!
IN But you wouldn't eat it or?
RE 3 No I just wouldn't!
IN That's maybe too sour, right?
RE 3 Maybe. I just…eh…sometimes I just use the lemon to just get some lemon juice on my food. But I don't use it all on my food. Just a little bit.

IN Okay! That was very nice!

Taste kit

IN So I have another paper for you now here. And there are a lot of different foods. And yeah maybe we just go through it very quickly because maybe you don't know some or…haven't tried them. Do you know what that is?

RE 3 Okay! That was very nice! No I can't see it.

IN That's a pickled pumpkin….actually…that's celery…red cabbage..carrots. This is algae – do you know that?

RE 3 I think I do.

IN It is like…do you know sushi? It is the green thing around it….maybe you haven't tried it yet.

RE 3 I think I have.

IN Okay. Then a banana and a pomegranate…and these are like berries, do you know sea buckthorn?

RE 3 Ah yes, I do.

IN Nice! Then we have a tubed mackerel, smoked salmon, tuna, shrimps, herring….and then this is salami and ham, potted meat. This is a sausage and then here we have like chicken…and chicken meatballs.

RE 3 Yeah. Most meat I actually don't like. Maybe it is because my father is vegetarian.

IN Aah okay.

RE 3 …but I don't know.

IN Okay. But do you eat meat….or…?

RE 3 I do eat meat, but mostly chicken. I don't really like so many other meats.

IN And who is preparing then the chicken? Is it then your dad or your mum?

RE 3 Uhm…my mum because my father is vegetarian. We never really eat meat at his…only if it is like pizza. Then we will also order another pizza. So we can also eat some…

IN Ah okay. This is like skyr.

RE 3 Yeah.

IN And then we have some other cheeses. This is brown cheese. I don't know if you know that.

RE 3 I don't know..

IN It's actually from Norway…and yeah.

RE 3 I know that cheese! It is blue cheese, right? I don't really like it!

IN So now you can like…circle..every food you like and you don't like. So the ones you don't like you have the red colour and the ones you like you have the green one. And the ones you haven't tried or you don't know you just leave it out. Okay…

RE 3 So the ones I don't know, I should just leave them out?

IN Yeah exactly.

RE 3 Okay then I think that's just it.

IN Oh wow. You're so fast! Okay should we start with the…herbs maybe?

RE 3 Yes. Yeah don't…I am looking on the shape of the leaves and...

IN Yeah, so that's dill, you know dill?

RE 3 Oh yeah I do.

IN You know that. Awesome…and wow you like all the herbs!

RE 3 Yeah.

IN That's nice. Why do you like them?

RE 3 I don't know...I just...I don't really eat them…just normally…maybe these...I…
IN The mint?
RE 3 Yeah. I think mint you can maybe eat normally, but just these 3….and mint mostly fits for putting in other food.
IN Okay…so for salads for example?
RE 3 Yeah for example…or just just…like kind of pepper and salt and just… with herbs instead.
IN Oh nice. Okay, and you also like the celery and the carrots…
RE 3 Yeah. Many of these...I think I like this one too, I am just not sure what it is….
IN It is a red cabbage.
RE 3 Oh yeah.
IN Yeah you know that. Like the big..
RE 3 Yeah I know.
IN When do you eat it normally?
RE 3 Uhm…
IN As a salad?
RE 3 The cabbage?
IN Yeah.
RE 3 Mostly as a salad.
IN And it tastes good, right?
RE 3 Yeah it tastes fine. It is not really my favourite but I do like it.
IN So…that one you don't know, right?
RE 3 No..
IN Would you like to try it, the algae?
RE 3 I would like to try it once…
IN So you're not afraid of trying something new?
RE 3 No. Not really.
IN That's good! Then with the pickled pumpkin maybe, right?
RE 3 Yeah. But you tried pumpkin before. So that's maybe like kind of the same. It is just…But I don't really know how it tastes pickled…so
IN Mhhhh…it tastes also sweet…but I think it is more soft…
RE 3 I tasted some pickles but they were just no pumpkins.
IN Ah okay. Then okay…pomegranate…and bananas…
RE 3 I like pomegranate a lot!
IN Yeah? Is it your favourite food, or…?
RE 3 Not my favourite fruit, but I do like it a lot!
IN Why do you like it?
RE 3 I think it's cause of those small bits inside and I like…I also sometimes make juice with it. It is a little bit bitter but then I maybe put maybe saft or another juice in it…to mix it.
IN Ah okay.
RE 3 I also like how…sometimes I take a spoon and then I take one at a time.
IN Ah okay! And then you put them all in your mouth?
RE 3 Yeah. And then it makes this "tzz"
IN Yeah! And the banana? You like?
RE 3 Yeah I like the banana! Everyone likes bananas!
IN Of course yes! (laughs) And you haven't tried the sea buckthorn, right? (Respondent shakes head)
IN And you would also like to try it?
RE 3 Yes…it looks like grapes!

IN Yeah, so how do you think it would taste?
RE 3 I don't know. The only thing is…it could taste like grapes.
IN Yeah…actually it tastes very sour, if you compare it to an orange, which is very sour and which makes this feeling..you know when you eat a lemon.
RE 3 Yeah.
IN Oh…you do like the tubed mackerel?
RE 3 Yeah I do, I really like it. I think it is because of Denmark.
IN Ah okay! So it is very typical?
RE 3 Yeah it is a typical Denmark-thing! It is one of my favourite things for lunch to put on bread!
IN Hm nice! Do you like all fish?
RE 3 Eh…I don't think I have tasted this! What is it?
IN This is like baby fish eggs…they could also be black for example…
RE 3 I don't know…
IN Yeah maybe you haven't tried them..
RE 3 Yeah then I haven't tried them.
IN Would you like to try them?
RE 3 Ah….maybe! But I think I rather taste…these two (referring to pickled pumpkin and sea buckthorn)
IN …ah okay…the pickled pumpkin….And so you like all the other kind of fish? That's nice!
RE 3 Yeah…I don't…most of the meat again, I don't really like.
IN Ah and you don't like the meat because of the taste…or because of the animals?
RE 3 Not because of the animals! Maybe a little bit because of the animals! But..also ah…just…like…I guess I just don't like the taste…
IN That's fine. But you like the sausage?
RE 3 Yeah I do like the sausage.
IN What is the difference then between the sausage and the other meat?
RE 3 I just think that the meat is…uh…like there is too many…uh…you have little bit bits of animals and inside it.
IN Ah okay.
RE 3 If there is meat I most like plain meat. Maybe I become vegetarian.
IN Okay yeah.
RE 3 But I don't know. It's just some meat I nearly can't stop eating! Cause it's so good!
IN Which one is it?
RE 3 Well I like…uh…chicken a lot…I like sausages…I also like…for Christmas I eat…uh well in Denmark you eat duck…and I also like turkey.
IN Ah okay. And that you can eat a lot?
RE 3 Yeah.
IN Yeah nice. Okay and the cheese….you don't like skyr?
RE 3 I don't really like much cheese. Mostly I like red cheese.
IN What is red cheese?
RE 3 Red cheddar.
IN Ah okay. Why do you like the red cheddar?
RE 3 I think it's not too…like… I think the other one have to many…like side tastes. I think it is a little bit more plain.
IN Ah so it doesn't have this like… very cheesy-like-smell?
RE 3 Yeah.

IN And the skyr? This doesn't have this very cheesy smell – like cheese? But still you don't like it?
RE 3 Nah I don't like…how skyr is made and how it stays. I just don't like to think about it. Like it's kind of like eating jelly and I don't like that fact.
IN Ah okay. So it is like too creamy…no ah…nah not really to creamy but to thick…like the consistence?
RE 3 …I was at my grandmothers and she had that smelly cheese and she put it beside my plate…and I was like "nah…uh"
IN And with the blue cheese…it's also…?
RE 3 I think the blue cheese is fine, if you just take a little bit and put it in like soup or pesto. But otherwise…nah uh…not really.
IN Okay that's fine! Nice! I think you helped me a lot with that! A lot of nice information! You really eat a lot of food. That's nice to hear. Yeah I think so we are pretty much done.

…

Child 4 (9 years)

….

Most liked food

IN So should we start with the ones you like? So what have you been drawing?
RE 4 I draw salad, an apple, strawberry and bacon and egg.
IN Oh nice! Why do you like the strawberry?
RE 4 Strawberry…I just think it's soo good! It's a good thing…I just really like to eat!
IN Yeah, is it because it's sweet?
RE 4 Yeah because it's sweet and just my…food.
IN Yeah, yeah. And it also looks nice, right…with the colours?
RE 4 Yeah. (smiles and laughs)
IN And how does it taste for you?
RE 4 It tastes…sweet and just really summer. Taste…Summertaste!
IN Summertaste…oh yeah!
RE 4 Yeah, and then I just like to eat it and then in the summers.
IN Do you eat it as a whole fruit? Or do you cut it? Or do you put something on it?
RE 4 I eat...like a whole fruit and I just take it and take a little bite…because I don't really like the whole.
IN Ah okay yeah…nice! And you also eat it in winter or also in the summer?
RE 4 Just in the summer because you can't really get them in winter time and I don't like these...shops because sometimes they are just rotten and they just put them in the shop to get money and…..iiihhuu (laughing)
IN …and it is also not the season right?
RE 4 Yeah. And then in the summers we find places where we can pick ourselves strawberries…yeah…and then you pay! And you can buy peas and…other fruits.
IN Ah nice, so you can all pick yourself!
RE 4 Yeah. And we do it once in the time of the summer…and sometime we pick from my mum's….mum
IN So she is growing her own fruits?
RE 4 No…it is like a market…we find.
IN Nice! And…so then there is an apple!
RE 4 I think apples are just..tasty and good! And you can get them in two colours!
IN Yeah. And which colour do you like most?

RE 4 Green!

IN Green…is it your favourite colour or…?

RE 4 Yeah...and I just think the green ones are just…prettier than the red ones. It's because sometimes they can be yellow and red and I just think no...that's not a good colour! I Just think the green ones and the yellow…together.

IN Do you also taste the difference between the red and the green one?

RE 4 Yeah. I best like the green ones and the red ones in the taste but in the look then I best like the green ones.

IN Nice! And….

RE 4 …and the salad! I like it because it's just something I eat with much food…and it just tastes good with other things.

IN Ah okay! And how do you eat the salad - with some other vegetables...or?

RE 4 Yeah…sometimes we just put like…eh…some white sauce on the salad and then it tastes so good with the meat and potatoes?

IN Ah okay! And why do you like the salad? Does it taste so much?

RE 4 Yeah it tastes so good! And I just think it tastes just like water…but I like water!

IN So you have the green and the water! (laughing)

RE 4 Yeah! (smiling)

IN And also like…because it tastes so fresh?

RE 4 Yeah….and it's more like crunchy when you eat it.

IN Ah…hm…the crunchiness…yeah I like that too. (laughing) And there we have…

RE 4 …Bacon and eggs!

IN What about that?

RE 4 I just eat it when it's brunch…sometimes we make brunch. Or sometimes we just eat it on our birthdays. Like last year we ate it at my mum's birthday… at summer and we ate it in summer…of my little brother's and my dad's…but we havn't eaten it at my birthday…

IN Ah…oh no

RE 4 There we were preparing for birthday party for my family.

IN So it is just a special food you have sometimes..

RE 4 Yeah!

IN Not everyday..

RE 4 Yeah! …and sometimes at Christmas.

IN Okay and sometimes at Christmas…what do you like about the egg and the bacon?

RE 4 I just think…it's just really good breakfast…and it is much better than cornflakes! I don't like that…

IN Ah you don't like cornflakes that much…

RE 4 No…no I don't like…they're just boring…

IN Okay so they are boring…

RE 4 And why do you like it (bacon and egg)? Because it is salty?

IN Sometimes the end of the egg is crunchy!

IN Ah okay. And also the bacon right – it's also crunchy?

RE 4 Yeah, it is crunchy.

IN And who is doing the bacon and the egg?

RE 4 My mum…my dad is doing the egg and my mum makes the bacon.

IN Ah okay! Why do they divide it?

RE 4 It's because my dad is best to make the eggs…cause my mum just thinks "Oh it's too hard".

IN Ah okay. So your mum is then doing the bacon.
RE 4 Yeah! And then they do just one thing and then it's just much easier and quicker…
IN Yeah...and when they help each other, right?
RE 4 Yeah.
IN So…who is normally cooking at home?
RE 4 Mum!
IN You're mum?
RE 4 Yeah but sometimes my dad because my mum has sometimes like…parties…at her work. And sometimes they are out on a restaurant or something like that…
IN …and then your dad is cooking?
RE 4 Yeah, and makes food.
IN And which food is best? From mum or from dad?
RE 4 Mum! (laughing) Mum is best to make food!
IN Why?
RE 4 Because she just makes it much better than my dad. Because I am just used to my mum's food and not…not to my dad's.
IN What is you're dad doing different then?
RE 4 I just think that my dad makes other…he doesn't make the same taste…the crunchy and things like that...yeah.
IN Ah okay…so you're mum is the best! Nice…

<u>Most disliked food</u>
IN And what about the food you don't like?
RE 4 I don't like cheese…that's the problem…when I got little there were like small cheese and things you can buy and just liked them but now I just think….uah… I don't like them. It's not me!
(laughing)
RE 4 My mum loves cheese! She needs strong cheese, middle cheese and just normal cheese…
IN And you don't like any cheese?
RE 4 No I don't! Me and my dad is just…"please away!" (laughing) No way, no!
IN Is it because it smell, it is so strong or..?
RE 4 Yeah it smells and because I just don't like it. It's just not so soft…
IN Ah because it is too soft?
RE 4 Mhm…nah and it doesn't have my taste. I have my little brother – he likes it too…and my mum's mum!
IN Hm…
RE 4 Cheeeeesee (laughing)….and nuts…I don't like nuts. I just think sometimes they are just too hard and that's on your teeth and sometimes it's just not the taste for me...
IN How do they taste? Is it like…?
RE 4 Like they don't taste..I just think it's not.
IN Is it bitter, or..?
RE 4 Yeah bitter.
IN Okay…so is it like any not or is there a special nut?
RE 4 Any nuts!
IN Okay. What is that thing?
RE 4 It's peperoni pizza! I don't like it! My borther is like "Peeeeperoni pizza!!!" He has it…like…last week I think he had it, the week afer he had it, and the week

after he had it and I think like one of the days. But he didn't have it yesterday…uhh.

IN And you were like "Yessss.."

RE 4 Yess!!

IN And why don't you like the peperoni pizza?

RE 4 I just think, I don't like the peperoni. And if you take it off…there is sometimes still the taste in it and it is like…

IN But normally you like pizza or…?

RE 4 Yeah, but sometimes it's just my mum and dad just put some too much cheese pizza on it.

IN Oh, okay then it's also again too much…

RE 4 Yeah…

IN Are they doing the pizza their selves or sometimes buying it?

RE 4 Yeah, sometimes we buy the pizza and sometimes we just buy in the shops you can get the bottom and then you can just put it yourself on.

IN Ah okay…so you would it the pizza, if you could do it yourself, or also not? If you could choose your own pizza…

RE 4 Hm no...I mean I never really eat pizza, we never really have it. Only when we buy it, because then it's better. But when we make ourselves…I can eat it with some other things.

IN Ah okay. What do you get then?

IN What else do we have there…What is that?

RE 4 A tomato. I don't like it. I just think sometimes it's just blubbly…

IN Bubbly…like to soft or?

RE 4 No "baam!" "Beeenng!" And sometime when you just bite it, it's just… It splashes out and..,"Pfiuhhh!!" Yeah! ….and the taste is just not mine…

IN Okay it's not yours. Why not?

RE 4 I don't know, I just don't like it. It's just too strong and just has that taste…I don't want.

IN Do you have it often at home? And do you have to eat it?

RE 4 Yeah we sometimes grow it in the garden and my mum and dad and brother, they just eat it. But I just say "No, thank you!" I don't want it! (laughing).

IN Is here something else, your parents are sometimes cooking and you don't like?

RE 4 I think the problem is…I think this is funny…I like tomato soup…but I don't like tomatoes!

IN Okay, that's funny!

RE 4 That's pretty funny! THAT'S crazy!

IN Yeah, that's really crazy! Is it because it is cooked, maybe?

RE 4 No, I just think I like tomato soup better!

IN Or maybe because it is seasoned in another way?

RE 4 Ah yeah, I think..

<u>Taste Kit</u>

IN Okay. Then I just have here the last task for you, where I have a lot of different foods and you just circle in green and red the one you like and don't like. And the ones you don't know, you just leave them out! Okay…I'll just explain you what it is. That's pickled pumkin, if you know that?! Then celery. That's a red cabbage, a carrot, that's an algae. Do you know that? This is seaweed.

RE 4 I know.

IN Then bananas, pomegranate…that's sea buckthorn, that's like a berry, if you know that?

RE 4 I know them, but I don't know that (sea buckthorn). Never tried.

IN Then this is a tubed mackerel, smoked salmon, caviar, herring, shrimps, then this is tuna. Then we have the meat. This is potted meat in a can, sausage, salami and ham. An over here..

IN …and this is chicken meatballs, and normal sliced cooked chicken…and here we have some cheese like skyr, this is brown Norwegian cheese….this is Danbo. And then we have different herbs like parsley, chives, mint and dill.

RE 4 Okay.

IN So you just tell me when you finish, right?

RE 4 I think there are lots who like carrots. Carrots are good.

RE 4 Okay!

IN Okay?

RE 4 Yeah! I never tried that, I never tried that and I never tried that!

IN Oh really?

RE 4 Yeah.

IN So where should we start? Let's start with the herbs! Oh wow! You like every herb?!

RE 4 Mhm!

IN Nice!

RE 4 I like that in tea (mint) and that…two in salads - mixed with other things.

IN Ah nice, nice. It has a nice taste right? So you never tried the pickled pumpkin…would you like to try it?

RE 4 Hm…I don't know…I think so because I have tried a pumpkin soup and that's good. And then I just think pumpkin…I just want to try things where there are pumpkins in. I only tried one thing with pumpkin…when you can buy the small pumpkins.

IN The orange, yellowish,…?

RE 4 Yeah.

IN How do you think it would taste?

RE 4 It would taste like….pumpkin soup but just with bits things in it and jus with the taste of pumpkin.

IN Yeah…and you like the celery, too? Why do you like about the celery?

RE 4 Hm...I think it's like with the other things…with salads.

IN And the carrots?

RE 4 I like it! It' just good to eat like…snacks!

IN Because it's also like…?

RE 4 Crunchy...and something like that.

IN And the red cabbage?

RE 4 I like it…sometimes my mum cuts it and she put it…blend it with something. I don't know what it is but something that just makes it taste good.

IN So it is like a salad or,..?

RE 4 It's like a blend salad.

IN Like a sauce or?

RE 4 Yeah sauce! Or sometimes she just cuts it and we have it to…on the side of the food.

IN Okay okay….and you don't like the seaweed?

RE 4 No!

IN Have you tried it before?

RE 4 My friend had like seaweed…dried seaweed with and I tried it and my mouth (makes a disgusted facial expression).

IN How did it taste like?
RE 4 It tasted like fish! Uhm…. like… not water, but water outside!
IN Oh so like old water or something?
RE 4 Yeah, yuck!
IN And you like bananas….
RE 4 Yeah.
IN Because…
RE 4 …they are just like sweet and have the banana taste…just like…And I haven't tried that before!
IN You haven't tried that?
RE 4 No! I just have seen it in my class just other people had it with…like…..uh….I never tried it! How did it taste like? I was like….hm….(thinking)
IN Would you like to taste it?
RE 4 Yeah! There are many from my class who just say "It's just soo good!"
In Yeah I think it's really good…like it's a bit sweet…and a bit like berries…and a little bit sour…and it actually also tastes a bit like an apple…
RE 4 Hm…
IN and there are these seeds inside and you put them in your mouth (bursting sound)…and yeah they are just good (laughing). You should try it one time. And the sea buckthorn…this is a berry and it is actually very sour…like when you eat one then (makes astringent sound)…it is like a citron...like a lemon…but actually it also tastes good…Yeah.…and the fish…oh you also like the tubed mackerel?
RE 4 Yeah.
IN Why do you like it?
RE 4 Eh…I just think it's good.
IN Hm.
RE 4 The fish is good with the tomato soup and then if you put…mayo on it – it's just good….And just a good lunch.
IN Yeah, yeah….and the salmon you also like…why…why that?
RE 4 I just think…it is just something…I just really like…(laughing)
IN So you normally also like fish, right?
RE 4 Some fish, but not all!
IN Which one, you don't like?
RE 4 I…like fish you just like buy fish…any fish and just cut it up, cook it and like…eat it.
IN Okay…and that you don't like?
RE 4 No, no. It just needs something! Something more to it.
IN So you like more the fresh fish like smoked fish…and the tuna…
RE 4 Yeah I like the tuna.
IN But you don't like the caviar?
RE 4 No, I just think…it's just not me…and it's not good because sometimes when you buy like fish and it is cooked – like a chicken nugget and then you get some caviar just in black, it is not…uahh…(disgusted facial expression and sound)…I just said…I am gonna try those and…ueehhh (disgusted facial expression and sound)…(laughing)…Don't like the taste…
IN No…you like the shrimps…nice….and…
RE 4 …I love shrimps!
IN Yeah? Is it your favourite food, or?
RE 4 No…yeah…sometimes we just buy it and then I can just….(eating sound)
IN ….eat everything? (laughing)

RE 4 Yeah, I just eat the whole shrimps! (laughing)
IN …because they are a little bit sweet or?
RE 4 No, I just think like…they just have like more taste. And the fishy good…fish good…myyy fish taste!
IN …ah okay. And you don't like the herring?
RE 4 No.
IN Why not?
RE 4 I just don't like that kind of fish.
IN Is it because…
RE 4 I just had a kind of fish like that last year at New Year's Eve and then we ate it to dinner with my mum and dad and I just think…"I can't eat this!"
IN Oh…(laughing). Is it also because it is a bit "slimy",or..?
RE 4 Yeah…
IN Okay…and within the meat you like normal…
RE 4 …ham, yeah
IN Yeah.
RE 4 That ham that you buy in Denmark…I just…when we get it…I just eat it and I think it's soo good.
IN Yeah…and you don't like salami?
RE 4 No, I don't like salami or peperoni.
IN Oh…is it too spice, or..
RE 4 Yeah…
IN …and also not the potted meat?
RE 4 No.
IN Why not?
RE 4 I just think…potted meat don't taste good…if like…if you eat…it looks like a fish my friend had with for lunch like…in a pot and then she just eat it with a fork and it looked like bad.
IN Okay…and you didn't like how I looked and then…
RE 4 No…so we got like (disgusted facial expression)…"I don't want to look at it!"…ah no…it's not meeee!
IN (laughing)…but you like sausage, right?
RE 4 Cut sausage on the grill…ohhh hmmm (makes excited expression).
IN Oh yeah, that's a nice taste, right…especially in the summer…
RE 4 Hm…
IN …and you like the chicken meatballs?
RE 4 Yeah, I tasted some meatballs and they were like this (points at picture) and I just liked them and it tasted like chicken…you buy them in the shop…there are also more meatballs you can buy…and then I like the chicken cooked….we buy it when we can get it.
IN So you eat a lot of chicken?
RE 4 Yeah, sometimes!....Most on the summer!
IN Most in the summer? Why do you eat it more in summer?
RE 4 Because we have…my dad got a thing in Christmas present at his work and then…it's a thing you use in the summer for the chicken on the grill and then you put it on and then it's…turn it on…and then it turns itself around.
IN Ah nice and then it turn itself!
RE 4 Yeah and then you just sit and wait! (laughing)
IN Wow, yeah that's fancy! And then it also gets a bit crispy outside?
RE 4 Hm..
IN Nice. And you don't like cheese?

RE 4	Cheese…no, no…no no no!
IN	….because it's too strong…and too cheesy..?
RE 4	Yeah!
IN	And you like the skyr, right?
RE 4	Yeah. I got it once because I got sick and my d…what's it called…my doctor he said "You need to eat that!"
IN	Okay…
RE 4	…with some cereals and things like that, so it tastes better….and it's better for your tummy and….and then like after two months we ate it….all four ("bum bum bum").
IN	Oh really?
RE 4	Yeah. We eat it for breakfast.
IN	And you think it's healthy then?
RE 4	Yeah