

**Bringing Up Children in Taiwan: Parents' Beliefs, Concerns
and Coping Strategies Relating to
Preschool Children's Food Acceptance Behaviour**

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ABSTRACT

This study examined the food acceptance behaviour of preschool children in Taiwan from their parents' perspectives. The research explored food preferences and aversions of preschool children and how parents' beliefs, concerns and coping strategies influenced their food acceptance behaviour.

This qualitative study used in-depth interviews to obtain answers to the research questions. This appears to be the first study of its kind in Taiwan. The results of this research were represented in three ways: as themes and sub-themes, as narratives for two families, and as concept maps to show the relationship between themes and preschool children's food acceptance behaviour.

The major findings of this research are firstly, that children showed a wide range of food acceptance behaviours that are established early in life. Secondly, parents had a number of beliefs and concerns about the nature of the food acceptance behaviour of their preschool children. They described many factors that they believe affect their children's eating behaviour including the influence of caregivers, parents themselves, siblings, grandparents, peers, the kindergarten teacher, the kindergarten cook, and the media. Thirdly, parents' rearing styles influence the eating habits of preschool children.

The thesis concludes by pointing to useful directions and recommendations for further research, education and policy around the issue of early childhood food acceptance behaviour.

STATEMENT OF SOURCES

This thesis contains no material published elsewhere or extracted in whole or in part from a thesis by which I have qualified for or been awarded another degree or diploma.

No other person's work has been used without due acknowledgement in the main text of the thesis.

This thesis has not been submitted for the award of any degree or diploma in any other tertiary institution.

All research procedures reported in the thesis received the approval of the relevant Ethics Committee.

Shu-Fang Tsai.....

April, 2006.....

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DEDICATION

This thesis is dedicated to my father Rong-Jun.

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CHAPTER 1

FRAMING THE RESEARCH

Introduction

This thesis explores aspects of the complex issues associated with preschool children's food acceptance behaviour, in a Taiwanese setting. It is well known that preschool children require proper nutrition if they are to develop to be healthy both physically and mentally. It is at this stage (3-4 years old) that much physical and mental development takes place, which lays the groundwork for effective learning later in life (Holden & MacDonald, 2000). This same age range is also the stage at which food acceptance behaviour patterns develop which establish the pattern for nutrition habits, acceptance and aversions later in life.

Personal Background

The motivation for this research came about as a result of my 35 years' experience teaching nutrition in a Junior College in Taiwan, and as a mother of two daughters. As a teacher, I have always told my students that they should eat sufficient vegetables and fruit to maintain a healthy body, but for some reason they are often reluctant to take my advice. It does not seem easy to change the food habits of adolescents. If I ask my students why they do not like eating vegetables or fruit, they tell me that they have never really enjoyed them since their childhood, but they are unable to say why.

In contrast, as a mother I have noticed that my two daughters enjoy a wide range of food, especially green leafy vegetables and fruit - so much so that if I cook a meal without vegetables or fruit, they ask me for them at the next meal. When my children

were young, my friends used to express surprise at the variety of food they would eat. I particularly remember the first time I stir-fried green peppers for my daughters when they were young. My husband and I ate the green peppers, commenting on their sweetness. My children ate the green peppers with much enjoyment, as opposed to refusing them as so many children seem to do. This and other observations suggest that role modelling and a positive atmosphere during mealtimes when children are very young may be important in establishing good food acceptance behaviour. I began to wonder whether my own eating habits and the way I had raised my children had an influence on their eating habits and food acceptance behaviour. As a nutritionist I understood the need for a healthy diet, and I believe that the balanced diet my children received when young has contributed to their good health as young adults. I also believe that my children's good eating habits were established when they were young. These observations as well as my professional work as a nutrition educator have formed the background and impetus to this study, which focuses on exploring the eating habits of young children as reported by their parents, and how these may be shaped and influenced by the adults and other factors in their lives.

When the opportunity to study for a doctoral degree presented itself, I decided not only to examine preschool children's food acceptance behaviour, but also to use it to explore approaches to research from the social sciences, an area new to me. My previous research work has been conducted within a positivist framework in the fields of chemistry and nutrition science. So this study will both widen my research methodology repertoire, and give me insight into the complex but fascinating field of how very young children relate to food. As a result, I believe this study will complement and inform my current work as a nutrition educator.

Importance of Good Nutrition in Preschool Children

There is abundant literature demonstrating the need for healthy nutrition in preschool children. A good diet is necessary for normal physical and intellectual growth and is considered to guard against immediate health problems “such as iron deficiency anemia, obesity, eating disorders, and dental caries; and may prevent long-term health problems such as coronary heart disease, cancer, and stroke” (Center for Disease Control and Prevention CDC, 1996, p. 1). Indeed McPherson and Montgomery (1995) suggest that many chronic adult diseases may begin in childhood, thus illuminating the important link between childhood eating habits and long-term health by at least postponing the onset of these diseases. Koivisto Hursti (1999) and Mannino, Lee, Mitchell, Smiciklas-Wright and Birch (2004) showed that eating patterns are formed in early life, before the age of five. Since parents and other primary caregivers act as the gatekeepers of their children’s eating and the promoters of their health, they are the most important in directly influencing children’s eating habits (Koivisto Hursti, 1999; Nicklas & Johnson, 2004).

Importance of Parents and Other Caregivers in Developing Good Food

Acceptance Behaviour in Preschool Children

How parents and other caregivers influence children’s food acceptance behaviour is complex. For example, the study by Olivera, et al. (1992) confirms what I had observed with my own children; that is, that parents’ own eating habits influence preschool children’s nutrition intake. Birch and Fisher (1998) noted that “Parents shape their children’s eating environments in a variety of ways: through the choice of infant feeding method, by the foods they make available and accessible, by direct

modelling influences, by the extent of media exposure in the home, and by the way they interact with children in the eating context” (p. 8). It follows, then, that parents’ and other caregivers’ own histories, beliefs and knowledge about nutrition and children’s food acceptance behaviour may influence and shape the approaches they take to develop attitudes to food in the children in their care. At the same time, they may not always be educated about what is considered the best nutrition for children, or know how to encourage them to eat healthily. As such, parents and other caregivers may not always be in a position to develop good food acceptance behaviour in the children they care for.

Role of Culture

Parents and children do not exist in a vacuum; rather they live and operate within a socio-cultural context. Mela (1999) points out that culture is perhaps the most obvious influence on food preference and choice, with roots in ritual and belief systems, both religious and secular. Community and family structure is integrated into a range of particular ‘traditional’ and accepted rules of cuisine and cultural appropriateness. This is of particular importance in Taiwan, which is experiencing considerable economic and cultural change through globalisation, resulting in the rapid development over the past few decades of a large industrial and service infrastructure. This has seen a major upheaval in traditional human interactions, and eating patterns in particular. For example, while still only a small part of the Taiwanese diet, mass-produced processed food and ‘fast food’ restaurants are increasingly replacing the traditional diet of fresh and healthy food, and are becoming a popular way to feed families that are time poor but economically affluent. As in other parts of the world, fast food industries have capitalised on this situation by offering low-cost but

generally nutritionally poor meals to be eaten outside the home. While this has considerable appeal to busy parents, it is beginning to impact on the traditional Taiwanese diet in detrimental ways (Hwang & You, 1997; Hope, 2000).

So while Taiwanese parents and other caregivers are faced with the competing demands of providing good nutrition within a rapidly changing social landscape, through lack of adequate education on nutrition and child behaviour, they may not be adequately prepared to make good judgments on how best to encourage good food acceptance behaviour in their charges. To date there is little literature on Taiwanese parents' understanding and beliefs on nutrition and food acceptance behaviour. This study hopes to make a contribution in this area.

Role of Mothers and Other Caregivers

In Taiwan, bringing up children is generally considered to be the role of the mother or her surrogate. Because most mothers in Taiwan work outside the family home, babies and young children are commonly placed with a caregiver from the age of two months to three years. Most children are collected from the caregiver after work, but some parents who are particularly busy place their children with a caregiver 24 hours a day and only bring them home on the weekend.

Caregivers

While some caregivers have a licence to practice, obtained after 72 hours of training in early childcare, many remain unlicensed. Caregivers tend to be mothers of children who are older or grown up, and may be looking after preschoolers and older children at the same time. Babies are given formula milk prepared by the mother. At around

six months old, solid foods are introduced and paid for by the mother. While an experienced and knowledgeable caregiver will provide an appropriate balanced and nutritious diet, others may only provide milk or inappropriate food that the child likes. A caregiver will usually respond to a request from an aware mother, who will discuss her child's diet and insist that certain foods be provided. In my own case, I frequently went to see my daughter when she was with the caregiver, and was satisfied that she was being fed well, as the caregiver was experienced.

Fathers' Role in Child Rearing

In Taiwan, the father is regarded as the main economic breadwinner of the family, although these days both parents tend to work. The role of the father remains a traditional one as the head of the household. Fathers believe that child rearing is the mother's responsibility. They may not even care what their children eat, but they do tend to play with them. Some fathers are not present at mealtimes, as they may work long hours or are away from home for long periods. However, some fathers do always eat at home and play a cooperative role in child rearing. Whether this has any impact on their children's food acceptance is an area of interest in this study.

Role of Grandmothers

Some women still live with their mother after they are married, and the grandmother will often take responsibility for her grandchildren. Most grandmothers love their grandchildren very much, sometimes to the point of over-indulgence. They buy them treats, often against the wishes of the parents. In my experience, grandmothers believe the grandchild should be able to eat anything he or she likes. If the mother protests,

the grandmother will remind her that she had no problem bringing her (the daughter) up, so the daughter should not be concerned.

Kindergartens and Nursery Schools

Taiwanese parents send their children to preschool when they are 3 years old. In Taiwan, there are two institutions for preschool children: kindergarten and nursery school. Responsibility for all preschool care lies with the Department of the Interior. Kindergartens may be government funded or private. Government kindergartens cater only for 4 to 6-year-olds. If private kindergartens want to admit 3-year-olds, they have to apply to the local education department (which is responsible for accrediting kindergartens). Nursery schools on the other hand, admit children from 2 to 6 years, or as young as 2 months if they have a baby care facility. Since 2004, some municipal infant centres only cater to children from 1 to 2-years-old, since it is considered that below the age of one, babies have lower resistance to disease. At this age, using a caregiver or remaining with the family is considered more appropriate. Recently, the government has moved to merge the kindergarten and nursery school sectors and lower the age children may attend kindergarten to three years. Government policy also enables 5-year-olds to attend kindergartens which have been established in primary schools. According to Yang et al. (2002) 96% of children in Taiwan attend a preschool.

In government kindergartens, children general arrive at 8:30 a.m. and leave at 4:30 p.m.. Private kindergartens have a longer day, from 7:30 a.m. until 5:30 p.m., but this costs parents more. Generally, there are no more than 30 children in a class with two teachers. Every kindergarten has a cook to prepare the meals which include morning

and afternoon snacks and lunch, and in some cases, breakfast. Cooks in government kindergartens or nursery schools must have a licence to practice.

Given the high proportion of children attending some sort of preschool, food acceptance behaviour is also very much the province of these institutions. While this study does not primarily focus on preschool institutions, referring to them only when parents mention them, their role in nutrition education cannot be underestimated. This issue is re-visited in Chapter 6.

Purpose and Significance of the Study

The above discussion has pointed to the broad range of early experiences of children growing up in Taiwan. Given the rapid change in eating habits the country is undergoing and current concerns about children's nutrition and health, this study seeks to understand some of these experiences through the voices of parents, with a view to helping them and other caregivers move towards more effective understanding of early childhood food acceptance behaviour.

Specifically, the purpose of the study is to provide insights into Taiwanese parents' beliefs and understandings of preschool children's food acceptance behaviour, and the rearing styles and strategies they adopt to establish them. The findings can be used to provide an informed basis for more effective nutrition education for caregivers of preschool children, as well as to recommend ways in which effective public education programmes about nutrition and food acceptance education might be developed. This research is timely and of considerable significance given the need for young children to develop healthy eating patterns into adulthood in the context of rapid changes in

eating patterns in contemporary Taiwanese society and global concerns about obesity in the young.

Research Setting and Participants

The setting for the study is the southern region of Taiwan, Republic of China. The participants were 23 parents of preschool children who attended one of four private kindergartens in the region.

Research Questions

In the light of the above discussion, the research questions this thesis seeks to answer are:

1. What do Taiwanese parents describe as their preschool children's food preferences and aversions?
2. What are parents' beliefs and concerns relating to their preschool children's food acceptance behaviour?
3. What strategies do parents use to encourage food acceptance behaviour in preschool children?

Theoretical and Methodological Issues

Because this study seeks to understand the ways in which parents think about nutrition and food acceptance behaviour, a qualitative methodology was chosen as most appropriate. Thus the study is located within a non-positivist framework where meaning is constructed within the cultural and social context in which it is generated (Davis, Sumara & Kieran, 1996). Such a perspective is in direct contrast with the

positivist view which argues that there is an objective truth which can be studied scientifically (Crotty, 1998).

Data Collection

A thematic approach to data analysis was used to determine major categories and themes that emerged from the interviews. Data were interpreted as themes, then displayed in three ways: as themes and subthemes, as narratives of two families, and as concept maps to draw together categories and themes.

The data to answer questions 1, 2 and 3 were obtained through the use of in-depth semi-structured interviews based on guide questions. This approach was considered the best method for obtaining the rich, personal perspectives of the parents. Through an interview conducted as a conversation, parents had the opportunity to discuss in depth a range of issues concerning nutrition, food acceptance and management strategies within the broad framework of the interview guide questions.

A Note on Cultural Translation

As noted earlier, Mela (1999) and others stress the importance of cultural context in discussing food acceptance in young children. Much of the literature in this area originates in the United States, Europe and other Western-orientated cultures. The work on parental rearing styles for instance (used in this study to examine parents' strategies for encouraging good eating habits), was developed in the United States. As such, direct translations to the Taiwanese context are not possible or even desirable. The meaning attached to a behaviour for an American family, for example, may be totally different for a Taiwanese family. This issue is discussed further in Chapter 2.

However, as a Taiwanese myself, I am able to act as a cultural ‘go-between’, both examining the literature against my own experience as well as reviewing literature that explicitly discusses this issue.

There are also issues to do with language. The participants in this study are all native Mandarin speakers (as I am), and the interviews were conducted in Mandarin. Issues of translation, idiom, and meaning may well be lost in translation. The reader should bear this in mind when reading the data.

Limitations of the Study

The major limitation of this study is that it is not possible to generalise directly from its findings. The study is non-positivist and set within a particular time and place, so its context is unique and cannot be reproduced to provide the same responses. The responses of the participants are their own views of preschool childhood nutrition and food acceptance behaviour as interpreted by the researcher. In a different place with a different group of parents, responses and interpreted meanings may be quite different. However, in spite of these limitations, I believe there will still be broad issues, directions and themes that may provide a useful background for other researchers in this field. Combined with other literature and research, the findings of this study can point to new directions for early childhood nutrition education as well as public education programs for parents and other caregivers of preschool children.

Overview of the Thesis

In this Chapter, I have introduced the topic of the thesis and provided background to the context and significance of the study. Chapter 2 draws upon a range of literature

that provides background and direction for the study. It begins with a review of the literature pertaining to the importance of preschool childhood nutrition, then moves on to the importance of establishing good food acceptance behaviour and the factors which influence them. It then reviews literature pertaining to parents' beliefs, knowledge and attitudes to preschool childhood nutrition as well as examining parenting styles and strategies they adopt to encourage children to eat and drink. These are linked to cultural considerations in the particular context of Taiwan. The literature review concludes with a survey of some successful preschool nutrition education programs in Taiwan and beyond, and draws together this research to set the scene for the study.

Chapter 3 discusses theoretical perspectives of epistemology that underpin this study, and describes the methodology and method of data collection. It discusses the interview questions, participants in the study and methods of data analysis.

Chapters 4 and 5 present the findings of the research. Chapter 4 outlines the major themes which arise from the research questions pertaining to caregivers' beliefs and knowledge on nutrition and food acceptance in preschool children, and the strategies they use to encourage eating and drinking. Chapter 5 presents the findings in both narrative and concept map forms. A narrative form has been chosen to provide a sense of the lived experience of two of the families in this study. The concept maps demonstrate the complex links and relationships between the themes.

Chapter 6, the final chapter, draws together the findings of the study to answer the first three research questions. It then moves on to a discussion and consider

recommendations from the study for further research, education, and policy development.

CHAPTER 2

LITERATURE REVIEW

Introduction

The purpose in this chapter is to review aspects of the large body of literature that address the major issues related to the research theme “Bringing up children in Taiwan: Parents’ beliefs, concerns and coping strategies relating to preschool children’s food acceptance behaviour”. The chapter begins by describing the importance of preschool children’s nutrition and food acceptance behaviour in early childhood. It explains the importance of establishing good and appropriate lifelong eating habits and a balanced and healthy diet at home and examines the role of parents and other caregivers. Next, the review considers the areas relating to the research questions that concern major socialising influences on patterns of food acceptance, and draws on research data from the key researchers in this field. The review also discusses parents’ beliefs about how children establish their food acceptance behaviour that play a significant role in the development of these behaviours.

The review then examines how caregivers, parents, and other people, as well as the media, including advertising in children’s television programs, influence preschool children’s food acceptance behaviour. Parents’ rearing styles are considered next; then finally, the review presents advice for parents and notes existing successful programs for developing healthy food acceptance behaviour in preschool children.

Definition of Items

The term *food acceptance patterns* is used by Birch, Johnson and Fisher (1995) and Johnson (2002), and they define it as referring to the way food is selected and ‘how much is consumed’ (p. 71). Other researchers use the following terms to define behaviour patterns of children and their eating as follows:

- *food choice behaviour* (Roininen, 2001)
- *eating attitudes and behaviour* (Brown & Ogden, 2004)
- *eating habits* (Taylor, Gallagher & McCullough, 2004)
- *eating behaviours* (Wardle, Guthrie, Sanderson & Rapoport, 2001)
- *food choice* (Hamilton, McIlveen & Strugnell, 2000; Mela, 1999; Pipes & Trahms, 1993)
- *food habits* (Williams, 1993, 1995; Worthington-Roberts & Williams, 1996)
- *food preferences* (Borah-Giddens & Falciglia, 1993; Wardle, Herrera, Cooke & Gibson, 2003)
- *food preferences and consumption patterns* (Birch, 1979b; 1998)
- *food preferences and eating patterns* (Birch, n.d.)
- *dietary behaviours* (Haire-Joshu, Kreuter, Holt & Steger-May, 2004)
- *dietary habits* (Westenhoefer, 2001)
- *dietary patterns* (Contento et al., 1993)
- *food acceptance* (Satter, 1990).

It was decided to use the construct *food acceptance behaviour* in this thesis, as it best reflects the theme of the research. The term, as defined above, includes preschool

children's food preferences and the reason for particular food preferences, as well as defining the way preschool children establish their food acceptance behaviour.

Importance of Good Nutrition in Preschool Children

Brown (2002) argues that the crucial time for learning good nutrition habits is during childhood: "Good nutrition takes on particular importance during the growing years for many reasons." (p.29-2) Clearly preschool children need sufficient energy for growth, and to meet the essential requirements of metabolism and activity (Holden & MacDonald, 2000). As noted in Chapter 1, The US Center for Disease Control and Prevention (CDC, 1996), in their guidelines for school health programs that promote lifelong healthy eating, state that children need to learn to eat healthy food, in order to be healthy:

Healthy eating patterns in childhood and adolescence promote optimal childhood health, growth, and intellectual development; prevent immediate health problems, such as iron deficiency anemia, obesity, eating disorders, and dental caries; and may prevent long-term health problems, such as coronary heart disease, cancer, and stroke (p. 1).

Following the CDC, a number of researchers have also argued that poor diet tends to influence the prevalence of diet-related diseases, such as obesity, hypertension, cardiovascular disease, certain cancers, type II diabetes and osteoporosis (see for example McGinnis, 2003; Nicklas & Johnson, 2004; Whitney, Cataldo, & Rolfes, 1991). Many chronic diseases in adults began in childhood, and, if the eating habits of childhood could be modified, this could postpone or prevent the onset of these diseases. The research shows that it is important to offer a balanced diet program that promotes preschool children's health.

In the affluent developed world (the ‘global North’ which includes Taiwan), overeating and obesity rather than under-eating has become a serious health issue, and relates to eating patterns developed in early childhood (Mannino et al., 2004). Pipes and Trahms (1993) found that a child who eats as much as two meals and snacks before dinnertime is likely to develop obesity. In their US intervention study of 181 non-Hispanic white girls, Mannino et al. (2004) found that girls who consumed more servings of dairy food than average at age five were eating larger portions by age nine. This suggests that eating patterns are formed in early life, before the age of five. It follows that if children establish healthy diets at a young age, this may decrease inadequate intake of food in middle childhood as well as result in a healthier adult.

In the developing world (the ‘global South’), the situation is quite different. Recently the World Health Organization (WHO, 2003) published the “Global strategy for infant and young child feeding program” which revealed disturbing statistics concerning infant health and nutrition:

Malnutrition has been responsible, directly or indirectly for 60% of the 10.9 million deaths annually among children under five. Well over two-thirds of these deaths, which are often associated with inappropriate feeding practices, occur during the first year of life. No more than 35% of infants worldwide are exclusively breastfed during the first four months of life; complementary feeding frequently begins too early or too late, and foods are often nutritionally inadequate and unsafe. Malnourished children who survive are more frequently sick and suffer the life-long consequences of impaired development. Rising incidences of overweight and obesity in children are also a matter of serious concern. Because poor feeding practices are a major threat to social and economic development, they are among the most serious obstacles to attaining and maintaining health that face this age group (p. 5).

Studies on Preschool Children's Food Acceptance Behaviour in Taiwan

Taiwanese research on preschool children's food acceptance behaviour tends to be based on largely quantitative approaches. For example, the results of the latest nutrition survey of preschoolers in Taiwan (Lin, Tzeng & Jen, 1997) indicate that the amount of vitamins A, B₁, B₂ and calcium ingested by 4 to 6-year-old children was under the recommended daily nutrient allowance (RDNA).

Tseng (1998) used a 24-hour dietary recall of 61 preschool children's nutrient intake by the mother, teacher and preschool children themselves. The results were compared with those of trained observers who weighed and recorded all foods eaten by the children. Tseng (1998) found that the 24-hour dietary recall by mothers and teachers was an accurate record of children's daily intake, but the children's own recall was inaccurate. Tseng (1998) suggested that a 24-hour dietary recall could be used to assess preschool children's daily intake. Shen (2001) also used a 24-hour dietary recall to assess 1 to 6-year-old preschool children's nutrient intake in Taiwan in 6 regions. The results showed that the average daily energy intake was 75% of the RDNA, and the consumption of vegetables, fruit and milk was extremely low.

Shen (2001) also found that the nutrient intake of preschool children was positively related to the educational level of mothers or caregivers, thus pointing out the importance of the relationship between nutrition knowledge and the intake of nutrients. Yang (2001) studied 2102 preschool children to examine factors determining their blood lipid levels. This was done by examining the relationship between anthropometry (body mass index – BMI), nutrient intake and serum lipids and fatty acids. Yang's (2001) study was the first in Taiwan to establish the distribution of both

BMI and serum lipids in preschool children and found a significant correlation between preschool children's parents' BMI and serum lipids and those of their children. In another study, Liang (2004) used a self-administered children's dietary behaviour questionnaire with 642 caregivers of preschool children from 16 day care centres to investigate the status and related factors of preschool children's dietary behaviour. Liang (2004) found that the caregivers' educational level and their anxiety about preschool children's food acceptance, as well as preschool children's temperament, were major influences on preschool children's dietary behaviour.

These studies point to the importance of a healthy and balanced diet, and clearly demonstrate the critical nature of the caregiver's knowledge and attitudes. However, in Taiwan no researcher appears to have studied preschool children's food acceptance behaviour using a qualitative approach that allows a deeper understanding of the beliefs, attitudes and knowledge of the caregivers about this highly important stage of a child's development. This thesis attempts to achieve this.

General Food Acceptance Behaviour in Preschool Children

Because of different developmental stages in preschool children, the understanding of their *particular* developing food acceptance behaviour is important to help parents or other caregivers understand the changeable appetites of preschool children. General food acceptance behaviour in preschool children is characterised by a range of factors such as unpredictable appetite, highly variable food preferences and undeveloped chewing and swallowing ability. These are discussed next.

Unpredictable Appetite

Mahan and Arlin (1992) noted that the rate of growth in babies slows considerably after the first 12 months. For preschool children, the actual increments of weight and height are smaller than those in both infancy and adolescence. Weight increases about 2 to 3 kg, and height increases about 6 to 8 cm per year, until pubertal acceleration. Other researchers found that the growth rate of preschool children slowed at ages 2 to 5, and so the young child's appetite declined accordingly (Berk, 1996, 2003; Wardlaw, Hample & Disilvestro, 2004). At the same time there were remarkable changes in both quantity and diversity of foods preferred (Berk, 2003). During their development and growth, preschool children's appetites change and become unpredictable. Some may eat one meal with a hearty appetite and yet may refuse food at the next one (Pipes & Trahms, 1993; Worthington-Roberts & Williams, 1996). Williams (1995) and Roth and Townsend (2003) found that preschool children tend to like a variety of foods and in relatively small portions. Often, preschool children are more interested in playing with food rather than eating it. In addition, any physical or emotional abnormality can affect children's eating habits (Roth & Townsend, 2003). Preschool children who are sick or tired often lack appetite and eat less food (Mahan & Escott-Stump, 1996). Herbert (1997) pointed out that most young children need four to five *nutritional* meals a day, and emphasised that parents should not expect their young children to have the same appetite as they have themselves, nor should they force young children to finish eating all food provided.

A Variety of Food Preferences

Birch (1999) points out that when solid foods are introduced in infancy, food preferences begin to influence food intake, and many children develop seemingly irrational dislike for certain foods (food 'jags'). As with a variable appetite, preschool children characteristically change their food preferences from time to time (Pipes & Trahms, 1993; Roth & Townsend, 2003). They may like a particular food one day and refuse it the next or vice versa (Birch & Marlin, 1982). Some preschool children show a preference for certain shaped food (Borah-Giddens & Falciglia, 1993). For example, if sandwiches, are not shaped to his/her liking, a child may throw them away (Pipes & Trahms, 1993; Worthington-Roberts & Williams, 1996). Others may ask for a special arrangement on the plate. Such behaviour may last a few days, and is frequently followed by another food 'fad' (Williams, 1995). Some preschool children have a very small food range, sometimes eating only one or two food types. However if the child's growth continues normally and he or she maintains good health, Roth and Townsend (2003) consider that it is not necessary for parents to be concerned about food jags and variation in appetite.

Familiarity with Food

A number of researchers note that familiarity with food is a significant factor in explaining which foods children preferred (Birch, 1979a; Pipes & Trahms, 1993; Worthington-Roberts & Williams, 1996). Children's reluctance to accept new and unfamiliar foods is often a problem for parents and caregivers. Birch and Marlin (1982) label this a food 'neophobia', where preschool children strongly reject food with which they are unfamiliar. Birch and Marlin (1982) also noted that the neophobic

food condition was modified by the repeated consumption of new foods. Birch (1999) concluded that “It is at this point in development that the predisposition to respond neophobically to new foods begins to influence food preferences and intake” (p. 49). In other words, two-year old children may show neophobia, but learn to like foods with the repeated exposure (Birch & Marlin, 1982; Birch et al., 1995). When parents plan to introduce a new nutritious food to children, they should supply it repeatedly and encourage children to try to eat it. Letting children get used to the experience of a new food can lower food neophobia.

Further, the study of Lin and Chen (2001) of preschool children’s dietary behaviour found that they have different preferences for the same food at different times and places; for example, they may eat certain food at school but refuse it at home. Rozin, Hammer, Oster, Horowitz and Marmora (1986) note that some children are not particularly discriminatory at all and ‘will put a wide range of items into their mouths’ (p. 148). Rozin et al. (1986) consider that a child develops a conception of food choice that moves from ‘broad to narrow’ (p. 150), and given that the provision of food is most likely to be under the control of the mother, parents are powerful influences and role models in eating.

Texture and Undeveloped Chewing and Swallowing Ability

Popper and Kroll (2003) argue that there are texture differences between children’s and adults’ food preferences. Children like ‘simple, smooth textures’ and even the appearance of food can ‘turn young children off’ (p. 64). Pipes and Trahms (1993) noted that preschool children prefer carbohydrate-rich foods such as cereals and breads, rather than meat and other protein-rich foods, because the former are easier to

chew. They suggested “It may be important to focus parents’ attention on the many softer, easier-to-chew meats and protein-rich foods that children are consuming” (p. 135). Holden and MacDonald (2000) also found that young children may refuse food because of its texture, particularly if it has lumps. This may result in a caregiver avoiding giving textured food at the critical age of 6 to 7 months, and may lead to the child developing poor chewing skills. Holden and MacDonald (2000) see this as a dilemma for caregivers:

Parents are left with the dilemma of offering suitable food textures with probable food refusal, or staying with a familiar food but inappropriate consistency to ensure their children at least eat something. (p. 55)

They suggest that caregivers extend the intake of semi-solid foods in the child’s second year.

Preferences for Colourful and Attractively Presented Food

Research into preschool children’s food choices showed that colour is a major factor in a child’s decision to try a particular food (Walsh, Toma, Tuveson & Sondhi, 1990). Holden and MacDonald (2000) in their study of children’s food preferences pointed out that young children liked small portions of colourful, and attractively presented foods. Rolfes, DeBruyne and Whitney (1998) also noted that colour was a significant factor in children’s food preferences. While preschool children generally tend to prefer colourful foods, they may refuse green and yellow vegetables (Pipes & Trahms, 1993). Walsh et al. (1990) pointed out that the strongest colour preferences of 5-year-old children for M and M’s (a small chocolate sweet of different colours) are red and green, followed by orange and yellow. In their study of children’s food colour

preferences, Carruth, Skinner, Moran III and Coletta (2000) found that the colour “red” was most frequently considered as a positive feature. The range of preferences goes on. Also, preschool children appear to prefer mild flavours and food at room temperature (Pipes & Trahms, 1993; Worthington-Roberts & Williams, 1996).

Factors Influencing Food Acceptance Behaviour of Preschool Children

As Mela (1999) puts it, food rules “relating to appropriateness and context takes place early in life and can undoubtedly be a powerful and lasting force in subsequent food beliefs and acceptance” (p. 514). Most food preferences are learned from previous experiences with food within the context of the child’s social and cultural milieu (Birch, Zimmerman & Hind, 1980; Birch, 1980a, 1998; Johnson, 2002; Mela, 1999, 2000; Ramos & Stein, 2000). These experiences include post-ingestional consequences of eating (Birch, 1998; Ramos & Stein, 2000) and social/environmental influences (Ray & Klesges, 1993; Birch, 1998; Ramos & Stein, 2000). These factors tend to build upon or replace innate preferences that are biological rather than social.

Innate Preferences

Taste has four basic components – sweet, salty, sour and bitter – that are identified through specialised sensory nerves located in the taste buds on the tongue. Studies have shown that some food preferences for these tastes are innate, either present from birth or develop in the first few months of life (Birch et al., 1995). These are a liking for sweetness (Birch & Marlin, 1982; Galst & White, 1976; Liem, Mars & De Graaf, 2004; Liem, 2004; Mela, 2000) and salt, and an aversion for sour and bitter tastes (Mela, 2000). A liking for salty food develops some 4-5 months after birth (Mela,

2000). Some children do enjoy a sour taste however, and Liem and Mennella (2003) have demonstrated that these children tended to like a variety of fruit and lemons more than those who did not like a sour taste. This is the first experimental evidence that a preference for sour food influences children's food preferences.

It was originally thought that these tastes stem from the body's need for nutrients, but while these may be innate, Birch et al. (1995) consider that "from very early in life, even responses to these basic tastes change with the child's repeated experience with food and eating" (p. 72). Indeed Birch (1999) now considers that the notion that "food preferences are unlearned, innate reflections of the body's need for nutrients" is inaccurate (p. 42). She concluded that a number of studies suggested that early experience and the eating environment influence the development of food preferences: "Food preferences are learned via experience with food and eating" (Birch, 1999, p. 42). Mela (2000) agrees, considering that innate preference for foods can be changed by a number of factors. As he points out:

The liking for a particular food or set of foods largely reflects the prevailing cultural environment and personal experiences, which generate variation in the opportunities and likelihood for specific biological predispositions and learning processes to operate with regard to particular foods. (p. 15)

So while, as Birch (1980a) points out, "The sensory capacity of the individual can be expected to influence taste and food preferences" (p. 38), it would appear that environmental factors relating to experience with food are relevant to the formation of food preferences, and are formed by individual characteristics of taste and the socio-cultural contexts within which foods are experienced (Birch, 1980a; Mela, 2000). Popper and Kroll (2003) agree with Birch and Mela, noting that during the

early childhood development stage, children reveal their preferences for food, or ‘food likes and dislikes’ (p. 60).

So while humans have a limited set of innate food preferences and aversions, these are modified through experience (Mela, 2000). For Mela (2000), these experiences are influenced by behaviour patterns associated with exposure, conditioning and reinforcement. For example, feeding problems established in early life may continue to later life (Satter, 1990). For the newborn baby, milk is his or her first experience of flavour, whether breast milk or formula. Sullivan and Birch (1994) suggest that this early experience of milk consumption influences a child’s food preferences in later life. Mothers who fed their babies with hydrolysate or soy formulas reported that the children showed a greater preference for broccoli than those fed with milk formulas. This flavour preference lasted for years (Mennella and Beauchamp, 2002). A finding echoed by Brown (2002) who notes that once preschool children’s food preferences are established, they can last up to their adult years.

Similarly Satter (1990) argues that:

Parents often think of eating as instinctive; they do not realize that it is a complex behaviour with skills that must be learned gradually. The mechanics of eating, the social amenities of participating in family meals, and the acceptance of a variety of foods are all complex skills that children have to learn slowly. (p. S187)

Post Ingestional Factors

Not only do flavour, colour, shape texture and other physical factors influence food acceptance. Birch (1998) emphasised that “The physiological consequences of eating can have a powerful effect on our preference” (p. 408S). Ramos and Stein (2000)

found that when the effects after eating are positive, this is a good predictor of acceptance of this food in the future; however, when the effects after eating are negative, the result is an aversion for the particular food. Ramos and Stein (2000) noted “Post-ingestion consequence is a predictor for acceptance when this consequence is positive, or aversion to foods when the consequence is negative” (p. S232). For example, a negative response can be produced if a particular food is associated with an illness (Birch, 1980a).

The above discussion suggests that learning is a major factor in the development of food acceptance behaviour. The next section discusses the role of social factors and particularly the role of parents and other caregivers as children learn and develop food acceptance behaviours.

Sociocultural Factors in Food Acceptance Behaviour: Learned Preferences

A large number of studies have shown that children’s early experience with food and learned behaviour in the family are critical in developing food acceptance behaviours (Birch, 1980a, 1998; Birch et al., 1995; Birch & Davision, 2001; Brown, 2002; Koivisto Hursti, 1999; Mela, 1999; Sullian & Birch, 1994). Of these, Mela (1999) argues that culture and environment, particularly the values, knowledge, behaviour and organisations which influence the child, are most likely to affect the child’s future food preferences and eating habits:

Culture is perhaps the most obvious influence on food preferences and choice, rooted in ... ritual and belief systems (religious and secular), community and family structure ... which are integrated into a range of particular ‘traditional’ and accepted rules of cuisine and appropriateness, and ‘ideals’. (p. 514) ... At the broadest level, the agro-economic and cultural background and environment shape human food choice and

intake by influencing the range and quantities of foods available to human populations. These factors have also been incorporated into general cultural rules for cuisine and appropriate eating behaviour, which strongly dictate much of what foods and food combinations will be eaten, when, how and by whom. (p. 518)

Similarly, Williams (1993) observed that cultures account for different food preferences and habits:

many facets of a person's culture are learned gradually as a child grows up within a given society. The slow process of conscious and unconscious learning of values, attitudes, habits, and practices occurs through the influence of parents, teachers, and others in that society. Whatever is invented, transmitted, and perpetuated -socially acquired knowledge and habits -persons learn as part of their culture... Food habits are among the oldest and strongest aspects of many cultures and exert great influence on the behaviour of the people. The cultural or subcultural background determines what shall be eaten as well as when and how it shall be eaten. (p. 296)

Culture is strongly associated with food availability. It may be that food is scarce in a particular setting, or that historically some foods were grown while others were not because of prevailing local environmental and climatic conditions. Hence carbohydrate staples vary across the globe from potatoes in South America, millet in Africa through wheat in Europe and the Middle East to rice in Asia. Williams (1993), in analysing factors affecting children's food habits, concluded that "Food habits are based primarily on food availability, economics, and personal food meanings and beliefs" (p. 296). Similarly, Contento et al. (1993) argue that children's food habits are shaped by the availability of food:

Young children's everyday experience with food depends largely on what is made available to them in the home, which in turn is influenced by parental beliefs about food. (p. 244)

In Taiwan, a generational as well as cultural effect on food acceptance is quite commonly observed. While many parents do try to control their children's eating habits, the children's grandparents often give the children treats, thus frustrating the parents in any effort to provide a healthy diet (Hope, 2000). This is a legacy of the traditional Chinese preoccupation with food, and that a fat child is a healthy, thriving child. For older Taiwanese, plumpness is still considered a mark of good fortune, an honour even. This attitude is deeply rooted in Chinese history and culture, as historically, China has been afflicted with floods, droughts and famines, so food has never really been consistently abundant. So while parents may report that they are attempting to control their children's eating habits, at the same time their grandparents may be encouraging them to eat more (Tsai & Smith, forthcoming). Cultural differences may explain some differences in food preferences and food habits.

Food Acceptance Behaviour as Ecological Nature

The range and variety of food acceptance behaviour discussed above demonstrates that these complex behaviours and influences on a child's food preferences are consistent with an ecologically grounded perspective of behaviour, which stresses the complex and connected socialising influence of the home on children's lives and their behaviour, which includes eating (Bronfenbrenner, 1979; Hill & Tisdall, 1997; Sidebotham, 2001). In Bronfenbrenner's (1979) ecological model of socialisation, it is clear that parents, as significant others, exert a powerful influence on children's behaviour and eating habits at home. As Mela (1999) puts it, "For human subjects, unlike animals, perceptions and choices of what and how much to eat are rarely completely separable from cognitive influences and meaning, and a set of expectations based on previous experience or present information" (p. 517). Mela

(1999) also points out that, “human perceptions and selection of food are derived from the prevailing ... food agro-economic and cultural environment, cognitive and biological characteristics of individuals, and the real and perceived intrinsic and extrinsic attributes of foods themselves” (p. 513). Suffice it to say, factors influencing children’s eating habits are complex. The next section examines some of the influences that help to explain the origin of some of these behaviours.

Bronfenbrenner (1979) provides a useful way of understanding relationships between the child and the wider systems in which he or she is located, which may be described as ecological nature. Figure 2.1 shows the ecological nature of relationships and influences on the child.

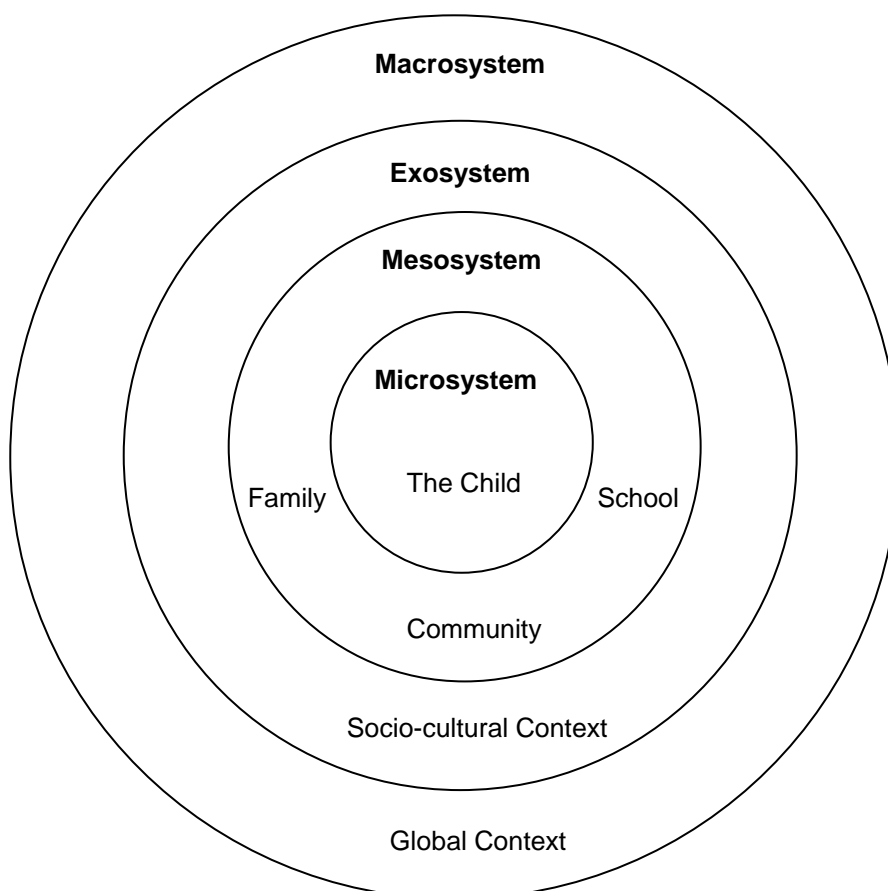


Figure 2.1 The Ecological Nature of Relationships and Influence on the Child

Bronfenbrenner's (1979) work showed clearly that an individual's behaviour cannot be understood in isolation. Rather, individuals (the microsystem) are located and thus affected by a set of relational influences ranging from the immediate others in their lives to the global system itself. Bronfenbrenner called the sphere of immediate relationships the mesosystem, which includes parents and other caregivers, siblings, other family members, the kindergarten, other adults, peers, the school, the community and so on. It also includes the media. The mesosystem has the most immediate influence on the development of food preferences in children (Crockett & Sims, 1995). These influences are complex, themselves relating to and deriving from parents' and others' own beliefs about food acceptance, their cultural and social situations, child rearing styles, knowledge of nutrition and so on. As Mela (1999) notes, the socio-cultural context (Bronfenbrenner's exosystem) plays a critical role in determining food acceptance behaviour. After a certain age, cultural patterning is established, and children find it is difficult to accept food that may be very different from that of their own culture. The exosystem is in turn located within the contemporary global context (the macrosystem). Such an interconnected system demonstrates the ecological nature of influences on the child.

According to Birch (1998):

By providing experience with foods and flavors and not others, the feeding environment can produce individual differences in food preferences and dietary intake. Within subcultural groups, and even within families, individuals can have very different preferences and dietary intake patterns. (p. 407S)

Ray and Klesges (1993) summarised three specific influencing factors on the eating behaviour of children as:

- parental/adult care provider influences,
- social/environmental influences,
- media influences. (p. 57)

Similarly Crockett and Sims (1995) concluded that three areas that have high potential to influence children's eating pattern are:

- family well-being,
- institutions and programs,
- the media. (p. 244)

The following section will discuss these social influences on children's food acceptance patterns, that is, parents and other caregivers as role models for eating, gender, peers and teachers, and the electronic and print media.

*The Role of Parents and Primary Caregivers in Preschool Children's Food
Acceptance Behaviour*

Parents are the food selectors and also the role models (Wardlaw et al., 2004) for preschool children in food choice and preferences in the home. Parents and other caregivers are the primary suppliers of food to the young child, so it is abundantly clear that parents (and other primary caregivers) are the most important persons who directly influence children's eating habits (see Klesges, Stein, Eck, Isbell & Klesges, 1991; Contento et al., 1993; Olivera et al., 1992; Koivisto Hursti, 1997; Koivisto Hursti, 1999; Mela, 1999; Nicklas & Johnson, 2004). Preschool children are dependent on their parents or other caregivers to select the food they consume (Pipes & Trahms, 1993). As the U.S. Department of Education states, "Parents are their children's first and most influential teachers" (as cited in Billman & Sherman, 1997, p. 145). Also, as Billman and Sherman (1997) put it: "Parents' multiple roles are as

nurturers, participants in adult relationships, individuals, workers, consumers, community members and educators” (pp. 146-147). As parents act as gatekeepers of children’s eating and thus the promoters of their health (Whitney, Cataldo, DeBruyne, & Rolfes, 1996), so “parents, with or without conscious effort, guide the food preferences of their children and establish the style for where food is eaten, how it is eaten, with whom it is eaten, and the quantity of food eaten” (Worthington-Robert & William, 1996, p. 289). Parenting of young children is a 24-hour a day, 7-day a week, 365-day a year job, so parents must acquire the knowledge and skills if they are to take care of their young children effectively.

Parents’ Eating Habits and Preschool Children’s Food Intake

Pipes and Trahms (1993) indicate that preschool children imitate parents’, caregivers’ or siblings’ food acceptance models, so as Carruth et al., (2000) affirmed, “the important role of parents in teaching food-related consumer goals and modeling behavior that enhances their child’s decision-making skills” (p. 151).

John and Birch (1994) and Oliveria et al. (1992) also stressed the importance of the parental role in socialising children to eat healthy food. They argued that parental eating habits and the extent of parental control over children’s diet had a critical influence on their children’s manner and behaviour towards foods. Whitney et al. (1996) stressed the parental socialisation role in inculcating desirable eating habits in preschool children, noting the critical role of parents as the gatekeepers and controllers of food availability for their children. As such, parents are in a position to ensure their children receive nutritious food and develop healthy eating habits.

While a number of researchers indicate that parents provide a strong modelling influence on preschool children's food acceptance, Cheng's (2000) study suggests that there exists only a weak correlation between parents' and the child's food preferences. For example, Cheng (2000) found the fruit intake of parents was highly correlated to fruit consumption of children, but parents' vegetable intake did not correlate with the child's vegetable consumption. Also, the father's influence on fruit consumption is greater than mother's.

The Role of Rewards and Incentives

Birch et al. (1980) studied 64 preschool children and found that when food is provided to children in positive social contexts, such as positive reinforcement in the shape of rewards, or is paired with a positive social context with an adult, there is an increased preference for those particular foods. Tapper, Horne and Lowe (2003) argue that it is easy to neglect rewards, "but it is perhaps one of the most important" (p. 18) motivational factors. Tapper et al. (2003) argue that rewards can change one's behaviour:

when used appropriately, rewards can be very effective at altering behaviour. Rewards are most effective when they are highly desirable, achievable, their delivery is contingent upon performance, and when they convey the message that they are for behaviour that is both enjoyable and high status. (p. 18)

However the use of rewards in modifying children's behaviour is open to question. Some claim for example, that "rewarding an individual for engaging in a particular task undermines his or her intrinsic motivation for that task" (Tapper et al., 2003, p. 18).

Tapper et al. (2003) note that the child may view rewards differently. For instance, if the child is told “Eat all your vegetables and then you can have pudding” (p.19), the child learns that pudding is better than vegetables, thinking that “If I have to eat vegetables to get pudding, then vegetables must be really nasty” (p. 19). Although the child may eat vegetables in this situation, it is doubtful if the child would eat vegetables without the lure of the pudding. In the same vein, if adults encourage children to eat nutritious foods by rewarding desirable food preferences with external rewards such as watching TV, this may actually result in decreasing the child’s preference for a food (Birch Marlin and Rotter, 1984). Again it would seem that the child sees the food as something undesirable that has to be eaten to obtain the reward.

The recent study by Sherry et al. (2004) study on a sample of 101 5-year-old and younger children confirmed the idea that parents play an important role in the development of their children’s learned eating behaviours. They found that mothers generally believe that they provided good nutrition, and prevented their children from eating too many sweets and processed foods. However, all the mothers tended to use bribes and rewards to achieve their food preference objectives. Sweets were often used as bribes or rewards to motivate their children to finish their meals. Most mothers also reported that they always ask their children to eat more, even when their children told them they were full.

The Role of Peers in Preschool Children’s Food Acceptance Behaviour

While parents and other primary caregivers are the most significant influences on food acceptance behaviour, peers provide wide opportunities for modelling (Mela, 1999) and hence can have a powerful influence on children’s food acceptance patterns

(Crockett & Sims, 1995; Johnson & Fisher, n.d.; Williams, 1997). Williams (1995) noted that preschool children's eating patterns are influenced by their early social and emotional experiences such as at preschool. Gordon and Browne (1996) describe that peer interactions become important to the child once they have passed early toddlerhood. Through peer interaction, preschool children can learn from each other's behaviour. The peer group is important for preschool children to establish social standards outside the family, to achieve independence from the family and to enlarge their self-concept through forming relationships with peers.

Mahan and Arlin (1992) and Mahan and Escott-Stump (1996) note that peer influence increases as children get older during early childhood, and begins to encompass attitudes to food. Hence peers can directly influence children to establish a variety of different food habits (Williams, 1995), and the behaviour of classmates may provide a model which others imitate. A common situation is for children to suddenly refuse food or demand a fad food or food that is popular with other children. At nursery school or kindergarten, children tend to take more notice of what their peers are eating than the food provided by the institution (Mahan & Arlin, 1992; Mahan & Escott-Stump, 1996). This may be taken advantage of to encourage children to try new foods (Mahan & Escott-Stump, 1996). New food preferences may develop according to what the peer group is eating (Whitney et al., 1996). Similarly, preschool children can be encouraged to overcome their dislike of some foods if they see their peers eating them (Whitney et al., 1991).

Birch (1980b) also suggested that peer modelling may be used to change children's preference, for example for vegetables. Through cooperative group activities and play, children can build social skills and learn to establish good food habits together. Here

children learn to share ideas and materials with others (Berk, 1996; Johnson, Ironsmith, Snow & Potent, 2000). Johnson and Johnson (1985) suggest that “peers are always able to teach their classmates more effectively than especially trained experts” (p. 5).

Teacher’s Role in Preschool Children’s Food Acceptance Behaviour

Tsai’s (2004) study of kindergarten teachers in Taiwan showed that both direct and indirect instructional approaches are used. Direct approaches included using models and applying rules, while indirect instructional approaches included play, role-play activities, encouragement, rewards, as well as creating a positive atmosphere, and the cooperation of peers. They also included punishments such as not allowing children to play on the slide or with new toys. Factors that influence kindergarten teachers’ instructional approaches regarding preschool children’s food acceptance behaviour are the teachers’ beliefs, children’s individual differences, level of cooperation between teacher and parents, access to resources, including textbooks, and the diet provided by the kindergarten. A number of teachers recognise the critical role of parents in influencing preschool children’s food acceptance behaviour, and work actively to establish a relationship with them.

Influence of the Media

The Electronic Media: Television

Media messages are able to influence preschool children’s food habits, food acceptance, and eating patterns in numerous ways. Crockett and Sims (1995) argue that the media is one of most ‘potent factors’ that can shape, define and influence

children's eating patterns. Of the electronic media, television is regarded as the most important factor in influencing children's food choices (Galst & White, 1976; Atkin, 1978; Crockett & Sims, 1995). Crockett and Sims (1995) found that in the United States, preschool children watched television for average 27 hours per week. They also mentioned that after the family factor, television may be one of the most important factors in influencing children's eating habits (Crockett & Sims, 1995). Mahan and Escott-Stump (1996) pointed out that "preschool children are generally unable to distinguish commercial messages from the regular program, and in fact they often pay more attention to the former" (p. 265). In Taiwan the situation is similar. A study conducted in 2004 showed that preschool children spent an average of 1-2 hours a day watching television from Monday to Friday, and some watched 3-4 hours a day on holidays or weekends (Lee, 2004).

TV advertisements have a generally negative influence on preschool children by promoting a desire for sugary, salty and fatty foods of high calorific value. Dietz & Gortmaker (1985) pointed out that:

The foods most heavily advertised on children's television, and more likely to be consumed by children watching increased amounts of television, are calorically dense foods such as sugared breakfast cereals, candy bars, cakes, cookies, and carbonated beverages. (p. 807)

As Dietz and Gortmaker (1985) work indicates, this concern is not new. In 1983, Way using the Nutrient Calorie Benefit Ratio (NCBR) instrument, was able to demonstrate that 53.3% of all program references to food codes were classified as less nutritious, 30.1% as more nutritious, and 15.8% as neutral. Way (1983) noted that food consumption behaviour of family members is influenced by the powerful and

ubiquitous messages of prime-time television. Way (1983) regards television as a significant dimension of the process of nutrition socialisation, contributing significantly to the acquisition of 'food-related knowledge, attitudes and behaviours' (p. 108).

An earlier study of children aged four to seven years came to the same conclusion. Galst and White (1976) found that there was a direct link between TV food advertisements and children's food preferences, which in turn influenced parents' grocery purchases:

a relationship does exist between the reinforcement value of television commercials for children and their persistence in attempting to influence parents' grocery purchases, as well as between the amount of commercial-TV exposure at home and the number of purchase-influencing attempts. (pp. 1094-1095)

In another early major study conducted in 20 supermarkets in Detroit, Lansing, Michigan and Atkin (1978) also found that children played a significant role in influencing parents' grocery purchases, in this case the choice of family cereal. Parents were more likely to choose foods based on premium incentives of the child's choice rather than nutritional features of the product. Ti (1987) studied the relationship between family communication patterns and children, with respect to television advertising. Ti (1987) found that children learned to become consumers through a continued learning of consumer skills, knowledge and attitudes from interacting with socialisation agencies. While these agencies included parents, peers, school and community, television advertising was found to be significant. Ti (1987) showed that the less time parents spend with their children (teaching them healthy

food habits, among other things) the more prone children are to be influenced by television advertising.

Role of Parents in Monitoring and Counteracting TV Advertising

Dietz and Gortmaker (1985) called for the control on TV viewing by children, to ensure that they did not watch too many programs, which advertise and market a particular desire for unhealthy foods:

Alterations in the frequency of television viewing, food consumption while watching television, or reduced consumption of the foods advertised on television may be logical interventions to aid the treatment and prevention of obesity, at least in some cases. (p. 811)

Parents can become a powerful force in counteracting the negative messages from TV advertising. Ti (1987) believes that parents have a responsibility to guide children to develop appropriate consumer skills. Through helping their children to think critically about the goals of advertising, parents can cultivate resistance to inappropriate advertising. Kohn (1998) concurs, stating that parents should know what their children are watching, filter the content, limit the time and choose the programs to allow an opportunity for education and to discuss ideas and values. Abelman and Courtright also agree, noting that the young television viewer should actively interact with a parent, teacher or some other form of mediator to promote understanding of a television program (as cited in Furman, 2000, p. 177).

However, parental education may be needed to assist parents to become knowledgeable and critical TV viewers for their children's sake. It can be concluded that parental education programs were needed to promote the use of

television as a communication channel for meaningful understanding and deciphering of food commercials by preschool children.

A Positive Role for TV

In spite of the above, there is much that TV is doing and can do to provide a positive influence on children's food acceptance. Crockett and Sims (1995) stressed that television exerts a powerful influence on children's minds and controls their needs and desires: "The ubiquitous nature of the media makes it a fertile area in which to form partnerships for positively influencing children's eating patterns" (p. 245). Television can be the source of positive nutrition messages, involving the collaboration and cooperation of television show producers, authors, dietitians, parents and other professionals concerned with promoting healthy food habits and a balanced and nutritional diet for children in general. Ray and Klesges (1993) noted that if the foods advertised on TV "were associated with a positive role model, the strength of that effect increased. Thus, children watching Ninja Turtles eating pizza should show an increased preference for pizza and be more likely to choose it for a meal or snack" (p. 64). Swadener (1994) argued that the mass media may be used as a positive and powerful effective learning tool for preschool children's nutrition education. The USDA (U. S. Department of Agriculture) has established a number of programs through different media. Wetter, et al. (2001) suggested that "practical information or knowledge that transfers skills (e.g., obtaining a recipe) can lead to positive changes" in dietary intake (p. S16).

Crockett and Sims (1995) note that the US Public Broadcasting System's program *Ready to Learn* contains educational messages that are aimed at helping children learn.

The program includes materials, services and training for parents and caregivers on using television as an educational tool, and serves ages 2 to 12 years. Such programs could be included in a nutrition education program to offer parents and caregivers information about healthy eating patterns. The well known US Children's Television Workshop 'Sesame Street' is designed for the education of preschoolers, and contains frequent messages about healthy eating patterns and nutritious food (p. 58).

Given the power of TV over young minds, it is important for educators, policy-makers and professionals working in the media to exercise some control over the content of advertisements of junk food on television during children's shows. Nutrition education professionals do have some power and influence to produce profitable advertising that aims at developing healthy eating patterns in preschool children. The program U.S. *Food Dudes* is an example of this.

Food Dudes

The powerful role of peers on food acceptance behaviour was discussed earlier. The video *Food Dudes* uses peer modelling to provide desirable role models to encourage healthy eating in young children. In one video the heroic *Food Dudes*, a group of four slightly older children, obtain superpowers from simply eating vegetables and fruit, and combat the evil 'Junk Punks', whose diet is junk food. In their study of the impact of the video on 749 children aged 5-11, Horne et al. (2004) found that the association of peer modelling with rewards was very effective for enhancing the children's consumption of both fruit and vegetables. As a result of the video, children ate and enjoyed a variety of vegetables and fruit. Even "fussy eaters" increased their consumption of vegetables from 1% to 83% and fruit consumption from 4% to 100%.

Six months later, the children who had been exposed to the video still maintained a significant increase in fruit and vegetable consumption.

Tapper et al. (2003) believe that there are three significant reasons why *'The Food Dudes'* program works effectively. These are:

1. Children discover they actually enjoy the taste of fruit and vegetables and develop a liking for them. As discussed earlier, there is evidence to show that if children are allowed to taste a food properly, they may actually find they enjoy it.
2. The program changes the culture within the school to one that strongly supports the eating of fruit and vegetables. So children receive “social reinforcement from their peer group for eating fruit and vegetables: it becomes a ‘cool thing to do’ rather than something for which they are ostracised” (p. 21).
3. Children come to see themselves as ‘fruit and vegetable eaters’ and are guided by this self-concept. For example, “on being presented with a piece of fruit, they may say to themselves ‘I like fruit’ or ‘I always eat my fruit’, and these rules influence their behaviour” (p. 21).

The Print Media - Books and Magazines

While television and video play a significant role in children’s lives and hence influence their food consumption, literature such as books and magazines are a key tool for cognitive and language development. As such they can play an important role in developing healthy food acceptance behaviour. However A recent analysis of

popular children's books showed that while 73% of the sample contained references to food, only 7% mentioned vegetables (Byrne, 2000). Books have the potential to stimulate thought, imagination, and feelings. A skilled parent or teacher can enable children to discuss and role play, representing the character's feelings and behaviour in the story, and talk about stories that they like. As such, concepts in stories can be emphasised, particularly through group discussions and activities (Gordon & Browne, 1996; Blenkin & Kelly, 1996; Essa, 1999).

The UK English National Curriculum emphasises this point, noting the importance of both telling stories and listening to them. "Children are encouraged to use their oracy skills to explore, develop and clarify ideas, predict outcomes and discussing possibilities" (Daniels, 1996, p. 120). Daniels (1996) also notes that the most dramatic evidence is that, in listening and telling stories, children are able to grasp the potentiality of the complexity of language long before they have a fully conscious understanding of its nature. Children hear stories from many sources such as books, radio, television, family events and everyday activity, and construct their own interpretations from what they hear.

Food Messages in Children's Literature

In Taiwan, there is little research on the role of books in enhancing preschool children's nutrition knowledge. The Taiwanese story 'Sugar lovers- little Mi' explains the dangers of eating too much sugar. Little Mi likes to eat sugar, which results in her developing dental caries. She dreams her mouth is full of insects, and when she wakes up, she rejects sugar and becomes a healthy girl (Lee, 1993). A story like this may be used as the start of children's fantasy play, with the aim of stimulating the child's

imagination to learn healthy food habits, in this case by reducing the amount of sugar that is consumed. Such narratives can be used as a basis to encourage children to create their own different stories about eating nutritious food.

Having discussed the wide range of influences on children's food acceptance, the next section goes on to discuss how parents' beliefs and rearing styles influence food acceptance behaviours.

Parents' Views on Preschool Children's Food Acceptance Behaviour

There is a wide variety of understanding about food preferences and acceptance behaviours amongst parents. Lin, Chen and Yang (2003), for example, found that parents had limited understanding of their children's food preferences. They found that parents often only provided food they thought their children preferred, which limited children opportunities to experience a wide variety of food. Other key researchers in this field however, note that their research "supports what parents and caregivers, informed about good child-development practice, have been doing for the past 50 years: assume responsibility for providing children with a variety of healthful foods in a positive social environment and then allowing children the freedom to eat what they wish" (Birch et al., 1995, p. 78).

Parents' Gender as a Variable

The role and parenting style of the mother in particular appears to be significant in developing food acceptance. Rozin et al. (1986) discuss the significant role of the mother in the early phase of the socialisation process affecting food preferences:

The flow of food to the child is under the control of the mother for the first few years of life, so that an elaborated rejection scheme would be superfluous. In the years from two to seven, the child becomes a much more independent feeder, and the development and differentiation of rejections takes place during this period. (p. 150)

Cutting, Fisher, Grimm-Thomas and Birch (1999) compared the responses of daughters to their mother's control of their eating. In one case the mothers had a high level of control over their daughters' diet; in the other the mothers did not exercise any restrictions. The study found that the daughters whose diet was controlled ate better and were less hungry than those who were free to govern their own diet. Lee, Mitchell, Smiciklas-Wright and Birch (2001) demonstrated that daughters' food intake was closer to what mothers were eating than to what mothers were telling their daughters to eat. They suggested that an effective way for mothers to influence their daughters' diet to meet the dietary recommendation is for mothers themselves to observe the diet and then their daughters are likely to model themselves on their mothers' eating habits.

An increase in food intake was higher in girls than in boys who were not controlled in their diet by their mothers. Further, Fisher and Birch (1999) found that children whose eating of snacks had been restricted always ate too much when they were free to eat previously restricted food, even when they were not hungry.

Taylor et al. (2004) stress the importance of the mother as a desirable role model and educator for young children, something they relied on in designing intervention strategies aimed at changing parents' motivation and behaviour towards their children's eating habits.

Parental Rearing Styles

Since the landmark research by Baumrind (1971) that identified three categories of parents' rearing styles: *authoritarian, authoritative and permissive*, a range of studies has demonstrated the importance of these styles on children's long term attitudes and behaviour (Berk, 2003; Winsler, Madigan & Aquilino, 2005). Darling (1999) believes that parenting styles can be a reliable predictor of the parental role in the overall socialisation process of children, by providing role models that produce competence from early childhood. To discuss parenting styles as they relate to food acceptance behaviour, I have drawn on the work of Berk (2003) who has added a fourth style, *uninvolved*, and has identified four typologies of child rearing styles based on Baumrind's earlier work. While Berk's work goes beyond food and nutrition parenting to examine rearing styles in general, I am assuming here that the rearing style would be evident through approaches to food acceptance, including parents' influence on children's eating habits. For Baumrind (1991), an authoritarian approach usually results in unfavourable and undesirable outcomes, while authoritative parenting assists the development of child's self-esteem and self-control. For example, an authoritarian style has been associated with poor school achievement in European-American samples (Wang and Phinney, 1998). But before discussing Berk's work further, a note of caution is required.

Cultural Notions of Rearing Styles

Berk's (2003) parenting style categories were developed within a Western cultural framework, notably in the US, and as such most likely do not have the same meaning in the Taiwanese cultural context. Indeed Chao (1994) considers that to describe

Chinese (and other East Asian's) parenting in these typologies is 'ethnocentric and misleading' (p. 1111). In her original study, Chao (1994) categorised Asian parenting styles largely as authoritarian. However unlike their European-American counterparts, Asian students in the US tend to achieve high grade point averages in school. Wang and Phinney (1998) argue that immigrant Chinese mothers' use of authoritarian parenting results in their children's higher cognitive ability. For this and other reasons, Chao (1994) believes that Baumrind's typologies are not appropriate for Asian parents. Chao (1994) notes that the concept of 'authoritarian' evolved from American culture, and is associated with a derivation that is highly negative. For Chao (1994):

parental obedience and some aspects of strictness may be equated with parental concern, caring or involvement. Just as important, for Asians parental control may not always involve 'domination' of children per se, but rather a more organizational type of control for the purpose of keeping the family running more smoothly and fostering family harmony. (p. 1112)

Chao (1994) suggests an alternative concept: "*chiao shun*, or training, derived directly from an appreciation of Asian culture" (p. 1112). Chao describes the concept of *chiao shun* as holding "some distinctive meaning that is not part of the authoritarian concept" (p. 1117). This issue will be returned to in the discussion of the data.

Berk's Rearing Styles

Berk (2003) gives detailed definitions of the four parenting styles across a spectrum ranging from acceptance to control. Since rearing style is only one of the areas focussed on in this study, I have chosen to present them as the broad categories of authoritative, authoritarian, permissive and uninvolved. Table 2.1 summarise the key attributes of each style.

Table 2.1 *Typologies of Parents' Rearing Styles*

Parents' Rearing Style	Characteristics
Authoritative	<p>Is warm, responsive, attentive, patient, and sensitive to the child's needs</p> <p>Makes reasonable demands for maturity, and consistently enforces and explains them</p> <p>Permits the child to make decisions in accord with readiness</p> <p>Encourages the child to express thoughts, feelings, and desires</p> <p>When parent and child disagree, engages in joint decision making when possible</p>
Authoritarian	<p>Is cold and rejecting and frequently degrades the child</p> <p>Makes many demands coercively, by yelling, commanding, and criticising</p> <p>Makes decisions for the child</p> <p>Rarely listens to the child's point of view</p>
Permissive	<p>Is warm but overindulgent or inattentive</p> <p>Makes few or no demands</p> <p>Permits the child to make many decisions before the child is ready</p>
Uninvolved	<p>Is emotionally detached and withdrawn</p> <p>Makes few or no demands</p> <p>Is indifferent to the child's decision-making and point of view</p> <p>May be absent entirely</p>

These four categories represent a continuum of degree of the shift in power and authority that parents exercise in teaching their children food preferences. Parents draw from aspects of all of these in their relationship with their children, but, like multiple intelligences, they tend to exhibit a general dominant style. The characteristics of each style is discussed next.

Authoritative Rearing Style

Darling (1999) concluded that “authoritative parenting, which balances clear, high parental demands with emotional responsiveness and recognition of child autonomy, is one of the most consistent family predictors of competence from early childhood through adolescence”(p. 2). Gray and Steinberg (1999) note that authoritative parenting involved three central dimensions: parental acceptance-involvement, behavioural control and reasonable demands, and appropriate autonomy granting (Berk, 2003). Mayseless Scharf and Sholt (2003) in a meta study of rearing styles, concluded that “authoritative parents are described as responsive and demanding; warm and involved; and consistent in establishing and enforcing guidelines, limits, and developmentally appropriate expectations and allowing and promoting autonomous behaviour and decision making”(p. 427). In their recent study, Winsler, et al., (2005) found that mothers were ‘more authoritative’ than their husbands in their parenting styles. Mayseless et al. (2003) also suggested that adoption of this style resulted in lower levels of behaviour problems. This parenting style is child-centred and relies on a high degree of parental involvement, and high behavioural control (Barber, as cited in Aunola, Stattin & Nurmi, 2000), meaning that parents are active participants in their children’s life (Paulson, 1994, as cited in Aunola et al., 2000), Baumrind (1991) notes that authoritative parents are both demanding and responsive:

They monitor and impart clear standards for their children’s conduct. They are assertive, but not intrusive and restrictive. Their disciplinary methods are supportive, rather than punitive. They want their children to be assertive as well as socially responsible, and self-regulated as well as cooperative. (p. 62)

For Berk (2003):

Authoritative parents are high in acceptance and involvement--warm, responsive, attentive, patient, and sensitive to their child's needs. They establish an enjoyable, emotionally fulfilling parent-child relationship that draws the child into close connection and interaction. At the same time, authoritative parents use adaptive control techniques... Finally, authoritative parents engage in gradual, appropriate autonomy granting. They allow the child to make decisions in areas where he is ready to make choices. (p. 564)

Berk (2003) considers that the authoritative parenting style is the most successful means of rearing a child. A study of African American families with preschool children provides strong support for this view (Querido, Warner & Eyberg, 2002). Berk (2003) pointed out that authoritative parents show characteristics which include "upbeat mood, self-control, and cooperativeness" during the preschool years (p. 564). Darling (1999) also concluded that "authoritative parenting, which balances clear, high parental demands with emotional responsiveness and recognition of child autonomy, is one of the most consistent family predictors of competence from early childhood through adolescence" (p. 2).

Patrick, Nicklas, Hughes and Morales (2005) tested the associations between 231 caregivers' styles and preschool children's food consumption patterns among African-American (AA) and Hispanic (H) caregivers. The results demonstrated that authoritative feeding was positively associated whereas authoritarian feeding was negatively associated with the consumption of dairy food, fruit and vegetables. The results remained significant after controlling for child's gender and body mass index (BMI), and caregiver's ethnicity, BMI, and level of education. Overall, this study provides strong evidence for the benefits of authoritative feeding approaches and

suggests that interventions to increase children's consumption of dairy, fruit, and vegetables should be targeted toward increasing caregivers' authoritative feeding behaviours.

An authoritative style would include creating a positive atmosphere where eating takes place. This is an important factor that influences young children's attitudes toward food and eating (Mahan & Escott-Stump, 1996; Roth & Townsend, 2003), and may help the child to develop a good appetite (Whitney et al. 1991). Pipes and Trahms (1993) also suggested that children need to feel safe and comfortable: "For eating to be successful, it should occur at a time and in a setting that is comfortable and free from stress and unreasonable demands" (p. 131). "A positive environment allows children sufficient time to eat, tolerates occasional spills, and encourages table conversation that includes all family members" (Manhan & Escott-Stump, 1996, p. 264). A bright, unhurried atmosphere, which is free of conflict and stress is conducive to developing a good appetite in children (Whitney et al., 1991). A positive environment may diminish a child's negative attitudes and emotions associated with eating.

Authoritarian Rearing Style

A number of studies suggest that authoritarian approaches to food acceptance are less successful than authoritative ones. The authoritarian style is one where all control is vested in the parents, unlike both authoritative and permissive styles that are essentially child centred, or at least have some degree of control vested in the child. The Lee et al. (2001) study found that mothers who use both restrictive methods and

put pressure on children during feeding tended to be ineffective and even counterproductive in teaching their children about healthy diets.

Lee et al. (2001) showed that strong parental discipline and control strategies used in controlling desirable feeding practices are not as effective in ‘fostering healthier diets among girls’ as are ‘mothers’ own eating’, which appear to be more influential (p. 1). As noted earlier, Lee et al. (2001) findings concerning children’s intake of healthy foods indicate that a daughter’s food preferences were more closely related to what the mother was actually eating than to ‘what mothers were saying to daughters about eating’ (p. 6). Mayseless et al. (2003) note that authoritarian parents are described as highly demanding and use “power-assertive practices” (p. 428) while being low in acceptance and responsiveness. Berk (2003) pointed out that authoritarian parents control their child’s behaviour by commanding, shouting, and criticizing. Besides, authoritarian parents are low in “psychological autonomy granting” (Mayseless et al. 2003, p. 428), that is, they make decisions for their children and demand that they obey. If obedience is not forthcoming, authoritarian parents may force or punish. The authoritarian parenting style is clearly biased in favour of the parents’ needs, while children’s self-expression and independence are suppressed (Berk, 2003).

Birch (1998) showed that “children whose parents exerted the most control over what, when, and how much children eat showed the weakest evidence for regulating energy intake. Parental control of children’s eating can include both 1) restriction of certain ‘forbidden’ foods, sweets and high fat foods, as well as 2) ‘encouraging’ the consumption of ‘healthy’ foods” (p. 409S). This study also indicated that a restrictive child feeding style may also transfer the mothers’ ‘disinhibited’ eating style to their daughters and besides, restricting children’s food consumption may actually result in

an increased consumption of forbidden foods (Birch, 1998; Fisher & Birch, 1999). As Birch (1999) put it: “Child-feeding practices that restrict children’s intake of foods at the top of the food pyramid, those that are high in energy density, sugar, salt, and fat, actually promote their liking for the intake of those foods” (p. 57).

However such results are not conclusive. Klesges et al. (1991) suggest that authoritarian parental influences may have a distinct impact on food selection at preschool. They found that preschool children’s selection of non-nutritious foods was decreased under threat of monitoring by the mother, but agreed with Birch (1999) that children are likely to choose foods high in sugar when their mother was not monitoring them. Lee et al. (2001) concur, noting that “although modelling healthy patterns of food intake may be effective, the use of controlling child-feeding practices that restrict children’s intake of snacks and pressuring children to eat healthy foods are not associated with healthier diets in children” (p. 6). Further, Wardle, Carnell and Cooke’s (2005) recent study of parents of 564 two to six year-old children found that the children’s fruit and vegetable consumption was strongly influenced by parental fruit and vegetable consumption, and that children’s food neophobia were both related to an authoritarian feeding approach.

Permissive Rearing Style

Mayseless et al. (2003) characterise permissive parents as “being somewhat responsive but not demanding” (p. 428). Berk (2003) describes a permissive parenting style as “high in acceptance but over-indulging or inattentive, low in control, and lax rather than appropriate in autonomy granting” (p. 565). As with authoritative, permissive parents represent a child-centred attitude to the child (Baumrind, 1991).

Birch et al. (1995) in their overview of 50 years of child-development practice appear to condone a somewhat permissive approach when they suggest that parents and caregivers have the responsibility for “providing children with a variety of healthful foods in a positive social environment and then allowing children the freedom to eat what they wish” (p. 78). Other researchers are of the same opinion, emphasising that children should not be forced to eat (Mahan & Arlin, 1992; Mahan & Escott-Stump, 1996). Satter (1990) noted that “Children do best with feeding when they feel that they have both control and support. Optimally, the parent offers support without intruding and holds back without abandoning... She lets him maintain control by stopping feeding when he shows he has had enough” (p. S183). Satter (1990) noted that the permissive approach suggests that children should be the sole decision makers regarding their food intake. It would seem that an authoritative framework that gives the child freedom to explore may well be the best way of instilling good food acceptance behaviour.

Satter pointed out, “Feeding goes best when parents depend primarily on information coming from the child about timing, amount, preference, pacing, and eating capability” (p. S181). As Satter (1990) put it: “In feeding, effective parents provide opportunities to explore but also provide structure and limits” (p. S181). Satter (1990) also noted that children should be involved in the decision-making process:

Along with teaching about what foods children should be offered, it is important to remind parents of the importance of letting the child decide what he actually eats. For instance, as part of a discussion on selecting and introducing solid foods, it is important to alert parents to developmental signs of readiness, to encourage them to engage their infant actively in the process of feeding, and to stop feeding at the first sign of unwillingness. (p. S187)

Holden and MacDonald (2000) suggest that basic and useful strategies for parents for more effective management of food refusal are also consistent with an authoritative rearing approach:

1. Provide a small amount of food and set a time limit for mealtime.
2. Praise the children, if they finish the food provided.
3. Do not force or bribe children to eat.

Breakwell's (1991) study also suggests that children whose parents interact with them positively, i.e. demonstrate aspects of an authoritative rearing style, gained a higher score in nutritional assessment than those children whose parents used an authoritarian style. This again emphasises the importance of interactive communication between parents and children. Conversely, Koivisto Hursti (1997) found that if parents nag and criticise the child, he or she tends to eat less.

Uninvolved Rearing Style

For Berk (2003), a parent is considered 'uninvolved' in his or her parenting by being either physically or emotionally absent. Some parents for a variety of reasons may be emotionally detached and withdrawn, unable to bond or engage with their children, and form close relationships. Other parents may be physically absent from the family home for long periods of time. Uninvolved parents tend to make few or no demands on their children and are indifferent to, rather than critical of, the child's decision-making and point of view. There is little research on the impact of this style on food acceptance behaviour. In Taiwan it is common for the father to be away from the family through work commitments so the mother or other caregiver is left to rear the children. In this case it would seem that her parenting style would be dominant.

It must be remembered, however, that these observations are culturally located, and may not be appropriate for the Taiwanese child in his/her cultural situation (Chao, 1994). Further research in this area is needed, as the relationship of rearing style to food acceptance behaviour has not been thoroughly explored in the case of Taiwanese parents.

Parents' Beliefs, Attitudes and Knowledge about Food Acceptance Behaviour in Preschool Children

Having established that there are a wide range of food preferences and behaviours amongst preschool children and that parents and other caregivers' role in the development of good behaviours is critical, I now turn to examine the literature on the actual beliefs and knowledge parents hold about this large and complex field. It is through a linking between what is known about children's food acceptance behaviours and parents' knowledge and beliefs that progress can be made in working towards more harmonious and effective eating patterns.

Research has shown that parental attitudes to and knowledge of nutrition are important influencing factors in the diet of preschool children and one of the contributing factors to the role of parental influence in the determination of their food choices (Taylor et al., 2004). Birch (1999) has suggested approaches that would assist parents' education about nutrition and food acceptance behaviour:

'nutrition education' approaches would incorporate what is known about the importance of the food environment and take advantage of knowledge about our predispositions to prefer and reject basic tastes, to reject new foods, and to learn to prefer foods based on the postingestive consequences and social contexts of eating. An initial step would be to augment information on children's nutrient needs by providing

parents with information about the predispositions that infants and young children bring to the task of learning food preferences, and about the impact of child-feeding strategies on children's preferences and intake. (p. 58)

Parent's beliefs about children's food acceptance behaviour arise from their own background, their knowledge of parenting and nutrition and their own eating habits and preferences. Thus parents play an important role in selecting foods to be served at home, and that their food habits and choice directly influence the food habits of children (Koivisto Hursti, 1997). For Lees (1996), children's health behaviour in general is influenced by parental beliefs about it which are transferred by parents as children and parents interact around health issues. Lees (1996) studied 58 parents (40 mothers and 18 fathers) who participated in a teaching interaction with their children. The parents were asked to teach their children either to prevent health problems or to make friends. Lees (1996) was able to trace links from parents' beliefs to their teaching behaviours, which influenced the children's outcomes. She found that parents used more directive and controlling strategies when teaching about health issues and socialisation than when teaching them to make friends, and concluded that the two teaching strategies reflected different parental beliefs, attitudes and behaviours between the two issues.

In another study with Latino mothers and their 4 to 5-year-old children, Contento et al. (1993) showed that mothers' food beliefs strongly influenced their food selection for their children. Contento et al. (1993) concluded that parental nutritional knowledge has a significant impact on children's diet:

when healthfulness of foods is valued by mothers in choosing foods for their children, their children eat more healthfully. The fact that such mothers are also more

knowledgeable may indicate that they also seek out the information they need to act on their concerns. (p. 257)

Other mothers in this study “selected foods for their children on the basis that they “taste good” to them... inferring that the foods taste good because their children frequently eat them” (Contento et al., 1993, p. 255).

The review so far has indicated that food acceptance behaviours in preschool children is extremely complex, dependent on a range of factors, some of which are innate, but mainly socially constructed. It has also presented evidence that argues that the early years are critical in establishing good eating patterns throughout life. It is not surprising to find that there is a large amount of research and development on strategies and programs designed to enhance healthy food acceptance behaviour. The final section of this review discusses what parents and primary caregivers can do based on knowledge of nutrition and food acceptance behaviour. It then goes on to examine some systemic programs that take account of the very large amount of research in this area with the aim of developing healthy food acceptance behaviour in preschool children.

Help for Parents-Managing Food Acceptance Behaviour

As discussed at length, parents play a significant role in managing the food acceptance behaviour of preschool children, and all too often children are not given the opportunity of repeated training in the acceptance of different foods. Public education for parents or caregivers must emphasise this point (see Chapter 6). In Taiwan, Lin et al. (1997) have called for parental education as a result of their

findings that many children consume vitamins and minerals at lower levels than Recommended Daily Nutrient Allowances (RDNA).

As long ago as the 1970's, Smiciklas-Wright and D'Augelli (1978) had noted that in the Preschool Eating Patterns Program (PEP), it was the child who is the target of the preventive intervention while the family is the medium. The parents are the agents who direct the preschool children towards good nutrition. When young children eat in a positive environment, undisturbed and not closely monitored by parents, their food intake improves, while a negative environment can have an adverse effect on food intake.

Guthrie (2001) suggests guidelines for parents, such as giving food in moderation, in order to reach the desirable objectives. For example, allowing one biscuit with a cup of milk instead of no biscuits at all, or one tablespoon of peanut butter on bread, instead of nothing on the bread, may be a practical substitute strategy to reduce unhealthy food intake. Guthrie (2001) concluded that child-feeding strategies that inspire a child to eat a certain healthy food are likely to increase his or her preferences for that food. In contrast, too restrictive control and restriction of unhealthy food tends to result in the increased consumption of this food if or when the child has the opportunity to eat it.

At a simple level, a number of strategies are available for parents such as simple guidance, establishing standards or rules about food and eating for preschool children, establishing good lifelong eating habits, encouraging children to taste different foods, providing a positive social environment for preschool children, using a co-shopping

strategy, and a positive parental attitude to preschool children's food acceptance behaviour. Some of these are discussed below:

Simple Guidance

Due to the small food intake capacity of preschool children, small servings of food offered frequently during the day is suited to their needs (Mahan & Escott-Stump, 1996; Whitney et al., 1991; Williams, 1995). Williams (1997) pointed out that children like single foods more than a combination of dishes. They also like food they can hold and touch with their fingers. Mahan & Escott-Stump (1996) also suggest that parents and other caregivers offer a variety of foods, including the favourite ones, and similar substitutes for food that the child refuses. For example if the child rejects vegetables, parents may offer a desirable fruit instead (Williams, 1995). When parents plan to introduce a new nutritious food to children, they should supply it repeatedly and encourage children to try to eat it. Allowing children to become used to the experience of the new food can reduce food neophobia. Rothlein (1989) notes that one way to discourage junk food is to provide fresh fruits and vegetables, as an alternative to junk food such as sweets, biscuits and potato chips.

Guthrie (2001) agrees, pointing out that an adult should not assume that a child is unlikely to accept a new food straight away unless it tastes sweet or salty. Guthrie (2001) suggests that the caregiver should continue to provide the food repeatedly until the child realises that the food is not unpalatable. In order to overcome neophobia, the infant should be encouraged to eat the food, not just taste or smell it. Parents should continue to teach their children to accept different flavours and textures of foods from

an early age. Guthrie (2001) believes that a child will accept food when he or she feels comfortable and also hungry.

An innovative scheme *Food Dudes* of Tapper et al. (2003) was developed in a home environment with a small group of 5 to 6 year old children, who were considered by their parents as 'fussy eaters' in that they ate little fruit and vegetables. They evaluated four different procedures for children's consumption of a range of vegetables and fruit, which were merely presented to them. These procedures were: present fruit and vegetables only; if children taste the presented foods, reward them; peer modelling, and rewarded taste exposure combined with peer modelling (also see below). Tapper et al. (2003) found that the use of rewards in modifying children's behaviour is open to question. Tapper et al. also noted a person's incentive for doing a task is weakened if they receive a reward for doing it.

Mahan and Escott-Stump (1996) appeal to parents to adopt an authoritative rearing style. They suggest that parents try to refrain from attitudes that have a negative influence on young children's eating such as an undue emphasis on desirable mealtime manners, arguments and other emotional appeals; urging young children to eat quickly or forcing them to eat the foods they dislike (Williams, 1995). In order to encourage a good appetite, children need to be active and spend time in the fresh air (Mahan & Escott-Stump, 1996; Guthrie, 2001).

In addition, Carruth et al. (2000) found that mothers frequently used the shopping experience to educate their children about food selection.

Establishing Standards or Rules about Food and Eating for Preschool Children

Sidebotham (2001) indicates that one of the areas of stress in the home was parents' concerns about their children's health, which can be directly linked to food acceptance behaviours. Birch, Johnson and Fisher (1995) argue that parents or caregivers who have established standards or rules about food and eating enable their children to understand the importance of healthy eating. Birch et al. (1995) believe that rules defining conduct during meals have a positive influence on the development of desirable eating habits:

Cuisine rules and rules of etiquette are necessary and positive when they provide the opportunity for children's learning and allow for the development of proper eating behaviours (p. 78).

However Birch, et al. (1995) notes that if rules are overpowering, and "control but do not empower the child, they become problematic" (p. 78).

Systems Level Programs

While parent education can be extremely useful in establishing good food acceptance behaviours, there is a need for support from systems levels i.e. local, regional and national governments, as well as school systems, if a consistence of message is to be imparted. Crockett and Sims (1995) consider that a collaborative process, involving parents and other agencies of socialisation, is the most effective way to make a difference to children's eating habits:

a collaborative approach that would include the food industry, the media, and child care providers as we seek to help parents convey valid information about healthful eating patterns for children. (p. 240)

There are a number of such systems level programs around the world that have been successful in developing good eating behaviour in young children. Two are described briefly here:

1. Start Right- Eat Right award scheme in kindergartens (Department of Health, Government of Western Australia)
2. Head Start program (Department of Health and Human Services, USA) - Sesame Street.

Start Right-Eat Right Award Scheme

Based on a knowledge of early childhood nutrition and food acceptance behaviour, the Start Right-Eat Right award scheme implemented in Western Australia has been used to provide incentives to bring about improvement in food service in line with government policy and regulations in the childcare industry (Pollard & Lewis, 2001). Theories of organisational change were used to identify processes and strategies to support the industry in translating policy into practice. Two years after the launch, 40% of centres had registered in the scheme. A baseline survey of food service management practices, as well as process evaluation, identified barriers and informed action. Impact evaluation demonstrated that the award scheme brought about improvements in the quality of food service; indeed 80% of the centres made changes to their menu as a result of participating. Sangster, Chopra and Eccleston (1999) recommended that Day Long Care centres should provide at least 50% to 67% of the recommended daily intake (RDI) of nutrients while children are in the centre. After training, Pollard and Lewis (2001) found that most coordinators of Day Long Care who attended the training course of the award scheme and had changed their centre's

menu. Of these, 39 (81%) had increased milk consumption, 8 (17%) increased meat, and 6 (12%) increased the variety of food served.

The success of the scheme was based on four factors: an understanding of the industry, collaboration between the childcare industry and government, supporting resources, and incentives (p. 320).

Pollard and Lewis (2001) argued that the use of incentives was very effective:

The award scheme is a way to recognize and acknowledge best practice in the childcare industry. It is an effective way for government regulators to monitor and measure food service standards in the child care industry. The lessons learned in this Australian state-based strategy may be adapted and used by other governments and organizations to further their regulations and programs that seek to improve food service in child care centres (p. 329).

Pollard and Lewis (2001) concluded that “Start Right-Eat Right” award scheme has improved nutrition and food service standards in Western Australian child care centres.

Head Start

Sesame Street is an educational television program designed for preschool children, is produced in the United States by Sesame Workshop (formerly the Children's Television Workshop CTW). As a part of their Healthy Habits for Life Initiative, Sesame Street's advisory board of education and research has appointed leading children's nutrition academics including Leann Birch. Sesame Street is recognised as a pioneer in combining education and entertainment in children's television. From its premier on November 10, 1969, more than 4,000 episodes have been produced, earning it the distinction of being one of the longest-running shows in television

history. The program uses a combination of puppets, animation, and live actors to teach young children the fundamentals of reading, mathematics, colours, and the concept of time. Of particular interest to this thesis is that it regularly includes segments which focus on the importance of proper hygiene and healthy eating habits. In 2002 Sesame Street was the second most-watched children's television series for mothers aged 18–49 who had children under the age of three (Sesame Street, 2006). The accompanying website offers names of foods and provides songs about eating healthily such as “I love fruit” and “I eat the colors of the rainbow” (PBS Kids, 2005).

Concluding Comments

In this relatively lengthy literature review I have firstly shown the importance of good nutrition for young children. I have also shown that establishing good food acceptance behaviour is complex, relating to number of interacting sociocultural factors.

I have explored at length the role of parents as a powerful socialising influence on children's attitudes towards food, their preferences for particular foods and their overall eating habits. Parents, as the gatekeepers of preschool children's eating habits, clearly play a significant role model in teaching their children accepted and desirable food habits. Their effectiveness in doing so relates to factors such as attitudes, beliefs, level of education, knowledge and skills together with their own eating habits. Also I have considered the issues of rearing styles that play an important role in developing a positive attitude to food acceptance behaviour in young children.

From the perspective of Taiwan, I have discussed the role of culture in general in developing food preferences, but I have also drawn attention to the issue of parenting

styles and that findings from US studies are not transferable to Chinese cultures. I have also made reference to the fact that compared with the body of knowledge from (mainly) the USA in this field, there is relatively little research on Taiwanese parents' attitudes to and beliefs about food acceptance. In the next chapter (chapter 3), I draw on aspects of the literature review to frame interview questions that are designed to answer the research questions, and throw light on the experience of Taiwanese parents. In particular, I seek to explore parents' understandings, beliefs and strategies for developing food acceptance behaviour, in order to answer the set research questions.

Towards Chapter 3

Having discussed at length the literature that has informed my research questions, in Chapter 3, I will discuss the theoretical framework of the methodology, methods of data collection, analysis and representations for this study.

CHAPTER 3

METHODOLOGY, DATA COLLECTION AND DATA INTERPRETATION

Introduction

Chapter 3 describes the theoretical perspectives, epistemological underpinning, methodology, data collection methods and analysis used in this thesis. As noted in Chapter 1, a qualitative approach is considered the most appropriate to answer the three research questions.

1. What do Taiwanese parents describe as their preschool children's food preferences and aversions?
2. What are parents' beliefs and concerns relating to their preschool children's food acceptance behaviour?
3. What strategies do parents use to encourage food acceptance behaviour in preschool children?

Theoretical Perspectives

The way in which an understanding of the world is constructed constitutes a theoretical perspective. The purpose of any research must be justified within the theoretical perspective adopted by the researcher (Crotty, 1998). The perspective directs the structure of the research design, methodology and the methods to be used to generate and enable data to be analysed. In the case of this research, a constructionist epistemology is adopted which is consistent with qualitative research,

and its characteristics are outlined below. Qualitative researchers stress the socially constructed nature of reality (Denzin & Lincoln, 2005), an epistemological perspective which is particularly pertinent to answering the research questions, that rely on rich and detailed data from lived experience. The methodology associated with this epistemology is described as naturalistic, phenomenological and interpretive (hermeneutic). As Sarantakos (2005) puts it, “qualitative methodologies are centred in a relativist orientation, a constructionist ontology and an interpretivist epistemology” (p. 37). Sarantakos (2005) considers that “construction in everyday life is a constructed reality - their [in this case the parents’] reality - based on interpretation” (Sarantakos 2005, p. 37). Constructionism or constructivism defines no objective truth (Crotty, 1998; Denzin & Lincoln, 2003). Rather than striving to locate objective truth it understands that meaning is constructed from experience. Sarantakos (2005) describes the basic assumptions of constructionism as follows:

- There is no objective reality, the physical world exists but is not accessible to human endeavour;
- There are no absolute truths;
- Knowledge does not come through the senses alone;
- Research focuses on the construction of meanings;
- Meanings are not fixed but emerge out of people’s interaction with the world;
- Meanings do not exist before a mind engages them;
- The world is constructed by the people who live in it. (p. 37)

Within this epistemology, an interpretive approach aims to understand the values, attitudes and beliefs of people as they act in certain situations. Researchers who adopt this stance reject the belief that human behaviour is governed by objective and general laws (Candy, 1989). Qualitative research is entirely consistent with this epistemology.

Denzin and Lincoln (2005) define qualitative research as:

a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world. They turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings, and memos to the self. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of or interpret phenomena in terms of the meanings people bring to them. (p. 3)

They go on to note that, “qualitative researchers deploy a wide range of interconnected interpretive practices, hoping always to get a better understanding of the subject matter at hand. It is understood, however, that each practice makes the world visible in a different way” (Denzin & Lincoln, 2005, p. 4). Table 3.1 summarises the theoretical perspectives that underpin this research as well as the data collection and analysis methods.

Table 3.1 *Research Framework for Data Collection, Analysis and Representation*

Epistemology	Constructionism
Theoretical perspective	Interpretivist
Methodology	Qualitative
Method of data collection	Semi-structured in-depth interview as conversation
Data interpretation	Theme analysis
Data representation	Themes, narratives, concept mapping

Data Collection

The collection of data consistent with the above theoretical frameworks can be achieved using a number of methods. The purpose of the data collection in this study is “the effective collection of rich data that generate alternative hypotheses and provide the basis for shared constructions of reality” (Erlandson, Harris, Skipper & Allen, 1993, p. 114).

Data Collection Procedures

There are many ways to collect data consistent with an investigation within an interpretive perspective. From a social justice perspective, Smith (1993) believes that data collection procedures must not diminish the self-understandings and feelings of worth of individuals in any study. He suggests that researchers adopt data collection designs that enable participants to tell their story and reflect on their perceptions of the research questions. Relevant too are the actual data collection procedures employed. These depend on the kind of data required which must be consistent with the purposes of the study.

The In-depth Interview

For this study it was decided to conduct face-to-face in-depth interviews with the parents of the preschool children. However, as Czarniawska (2004) puts it: “It is important to understand that interviews do not stand for anything else; they represent nothing else but themselves. An interview is an interaction that becomes recorded, or inscribed, and this is what it stands for ... An interview is not a window on social reality but it is a part, a sample of that reality.” (p. 49)

Crabtree and Miller (1999) note that the “in-depth interview is a particular field research data-gathering process designed to generate narratives that focus on fairly specific research questions” (p. 93). And as van Manen (1990) puts it, interviews are used in hermeneutic studies to “explore and gather personal narrative material that may serve as a resource for developing a richer and deeper understanding of a human phenomenon ... as a vehicle to develop a conversational relation with a partner (interviewee) about the meaning of an experience” (p. 66). Both uses are employed in this study. The development of personal trust and rapport and equality of relationship between interviewee and interviewer is considered crucial for the integrity of the research whose stated aims are collaborative and dialogic rather than exploitative. The parents are the experts on their children’s food acceptance behaviours, and I as the researcher am seeking to uncover their beliefs, attitudes and views.

For the purposes of this study I have chosen to use an unstructured interview format. I need to obtain as much information as possible from the parents in a non-threatening and relaxed atmosphere. As Denzin and Lincoln (2005) suggest, “Unstructured interviewing can provide greater breadth than do the other types given its qualitative nature” (p. 705). They also emphasise that “Gaining trust is essential to the success of the interviews” and that as “The goal of unstructured interviewing is understanding, it is paramount to establish rapport with respondents, that is, the researcher must be able to take the role of the respondents and attempt to see the situation from their viewpoint rather than superimpose his or her world of academia and preconceptions on them” (Denzin and Lincoln, 2005, p. 708).

I believe that I have been able to develop good relationships with the parents in this study, and they were particularly willing to take part when I explained that I hoped that

the knowledge gained from this study would be used by parents and teachers to help them improve food acceptance behaviours in preschool children.

While the setting should be as non-threatening as possible, the actual process of the interview is not necessarily an easy one. Burns (1997) cautions that while the interview setting should be “made to be as natural as possible, the direction of the conversation is always controlled somewhat minimally to ensure the focus stays relevant to the problem” (p. 331). Further, Sarantakos (2005) notes that the in-depth interview is a very sophisticated technique, and to be effective it requires good knowledge of the research topic as well as extensive experience of interviewing, and an ability to communicate effectively to establish and maintain trust and rapport with the respondents.

Research Setting

The setting for the study is a major city in the southern region of Taiwan, Republic of China. The participants in this study are parents of preschool children who attended one of four private day kindergartens (numbered 1-4).

Selection of the Participants

In all, 20 families (i.e. parents and their preschool children) including 20 mothers and 3 fathers) participated in this research. They all had at least one preschool child in kindergarten and were willing to be involved in the study. Six of the families were introduced to me by the teacher in kindergarten 1. The head of this kindergarten is known to me and is interested in my research. A further 10 families were introduced to me through two of my Junior College students who are teachers at kindergartens 2

and 3. The other four families were recruited from kindergarten 4 through a personal contact. The children were assigned pseudonyms. Table 3.2 displays the participants in the study and number of times each was interviewed.

The Interview Procedure

Interview dates and times were arranged by telephone and confirmed before the interview. Appropriate ethics information regarding confidentiality was given to all interviewees and consent to participate in the study was obtained in writing before the interview (appendices A & B). Interviews took place in a comfortable setting chosen by the participants (usually in the kindergarten meeting room or at the interviewee's home). A small number of interviews were conducted by telephone where parents were particularly busy.

Guide questions were developed relating to the research questions (see Table 3.3) but not asked in any specific order, rather as and when the opportunity arose in the course of the conversation (Maykut & Morehouse, 1994). However at the end of the interview I ensured that all guide questions had been asked. The interviews ranged from one to two hours in length depending on the willingness of the participants to continue the conversation. All interviews were preceded by the statement: "All this is totally confidential and you don't have to answer any questions you don't want to". Interviews were recorded on audiotape. The conversations were conducted in Mandarin, the participants' and my first language. They were then transcribed and translated into English. Stake (1995) considers that audiotaping is important to be able to catch all the words interviewees use. In a number of cases participants were interviewed twice, the second time by telephone (see Table 3.2). The reason for the

second interview was to provide data saturation with respect to some of the interview questions. As such this method draws loosely from a grounded theory approach.

Most participants were the children's mothers (Table 3.2). Only three fathers were interviewed due to time constraints and a general reluctance to be interviewed.

Data Collection Timeline

Data were collected over a year period.

Table 3.2 *Participants in the Study*

Preschool child (pseudonym*)	Parent	Number of times interviewed
1. Ren	mother	2
2a. Shi**	mother	2
2b. Xin		
3a. Li***	mother	2
3b. Ming		
4. Shu	mother	2
5. Yu	mother	2
6. Yang	mother	2
7. Yue	mother	2
8. Han	mother	2
9. Xiao	mother	2
	father	2
10. Lin	mother	2
11. Mei	mother	2
12. Fun	mother	2
13. Hui	mother	2
14. Da	mother	2
	father	1
15. Te	mother	2
16. Nan	mother	2
17. Wen	mother	2
18. Xiang	mother	2
19. Yi	mother	2
	father	1
20. Bang	mother	2

* Chinese names normally consist of two syllables. I have abbreviated them to one syllable for convenience.

** 2a and 2b are twins.

***3a and 3b are sister and brother. Li was at primary school during the interview period. Li's eating habit directly influenced her mother's rearing style with Ming. Therefore, Li's food acceptance behaviour was also discussed.

Development of Interview Guide Questions

The guide questions were developed from the research questions and informed by the literature review. In particular I wanted to find out how parents viewed their preschool children's food acceptance behaviours, especially the range of foods they consumed, their concerns about food acceptance patterns, and what they thought influenced them. I was also interested in parents' descriptions of the rearing styles and strategies they used in teaching their children what they consider to be desirable food habits. Table 3.3 sets out the interview guide questions and their relationship to the research questions.

Table 3.3 *Interview Guide Questions*

Guide Questions	Relevant to Research Question
1. Which food does your preschool child like and why do you think this is?	Question 1
2. Which food does your preschool child dislike and why do you think this is?	Question 1
3. What has been your child's dietary history since he or she was born?	Question 2
4. In your view, how does the nature of food itself influence your child's food acceptance behaviour?	Question 2
5. In your view, how has your child's food acceptance behaviour during infancy influenced his/her food acceptance behaviour now?	Question 2
6. In your view, how have family members and others influenced your child's food acceptance behaviour?	Question 2
7. In your view, how do your own eating habits influence your child's food acceptance behaviour?	Question 2
8. In your view, how do the media influence your child's food acceptance behaviour?	Question 2
9. In your view, what other factors influence your child's food acceptance behaviour and why?	Question 2
10. What concerns do you have about your child's food acceptance behaviour?	Question 2
11. How do you seek nutrition information about early childhood nutrition?	Question 2
12. What strategies do you use to influence your child's food acceptance behaviour? Do they work? Why?	Question 3

Data Interpretation

Burns (1997) states that the purpose of analysing data is to find meaning in it by systematically arranging and presenting the information, and organising it so that comparison, contrasts and insights can be made and demonstrated. Data interpretation in qualitative analysis is a time-consuming and complex task, particularly when the data first need to be translated from one language to another. In addition, subtleties of meaning expressed in Mandarin are often difficult to translate and may not even have equivalents in English. As well, the cultural significance of the data can be lost in translation. This needs to be borne in mind when reading the data.

As Crabtree and Miller (1999) put it, data interpretation as “a complex and dynamic craft, with as much creative artistry as technical exactitude, and it requires an abundance of patient plodding, fortitude, and discipline” and that it is like a “high school prom night, the process is a sweaty, physical, experienced one” (p. 128). This was certainly my experience in this study.

For Dey (1993), skilful qualitative analysis can obtain “a fresh view of our data. We can progress from initial description, through the process of breaking data down into bits, and seeing how these bits interconnect, to a new account based on our reconceptualization of the data ... The core of qualitative analysis lies in these related processes of describing phenomena, classifying it, and seeing how our concepts interconnect” (p. 30).

The Process

Burns (1997) suggests that the first stage in analysing the interview data is coding, i.e. classifying material into themes, issues, topics, concepts and propositions. He also believes that interviewers need to read and re-read the data and notes many times before they can begin to grasp the major themes.

In the case of this study the data interpretation process started by reading all the interview transcripts, firstly in Mandarin and then in English, at least six times. From this I began to obtain a sense of the major themes contained in the data to gain a general picture of the parents' views on their children's food acceptance behaviours. Because of the complexity of working in two languages, movement between the Mandarin and English transcripts was frequent to try to ensure meaning was being carried across. Other bilingual Mandarin or English speakers were frequently consulted at this time for confirmation.

Data Representation

Though the semi-structured interview was the only method used to collect data, the richness and complexity of the data meant that much could be drawn from them. In order to provide the reader with multiple and rich perspectives on the answers to the research questions, I have chosen to represent the data in three distinct ways. Firstly, I draw out and discuss the themes emerging from the data obtained from all participants. These are described in Chapter 4. Secondly, I use the data to construct narratives for two selected families, that are the best exemplars of the emerging themes. Thirdly, I display the data as a set of concept maps for the same families. Fourthly I summarise

the key themes in a concept map representing all families. The narratives and concept maps are displayed in Chapter 5.

Theme Analysis

Theme analysis provides the most appropriate way of interpreting the data in this study. Van Manen (1990) describes a theme as “an element (motif, formula or device) which occurs frequently in the text” (p. 78). As he so poetically puts it, themes are “more like knots in the webs of our experiences, around which certain lived experiences are spun and thus lived through as meaningful wholes ... Themes are not objects or generalizations ... they are the stars that make up the universes of meaning we live through” (p.90). For van Manen (1990), “theme analysis refers ... to the process of recovering the theme or themes that are embodied and dramatized in the evolving meanings and imagery of the work” (p. 78). Although a useful way of interpreting qualitative data which “gives control and order to our research and writing” (van Manen, 1990, p. 79), themes are only ever a perspectival interpretation of a lived experience within the context of the research question.

Theme analysis involves the iterative process of “scanning the data for categories of phenomena and for relationships among such categories, developing working typologies and hypotheses upon an examination of initial cases, then modifying and refining them on the basis of subsequent cases” (Burns, 1990, p. 241). Burns (1990) suggests that the researcher chunk the data and allocate it to categories. These categories are then assembled within the frame of the study, so that the “whole phenomenon is divided into its components and then reassembled under various new rubrics” (p. 242). For this study I chose not to use one of the many qualitative data

analysis computer tools available for work of this nature. Apart from the time that would be required to learn how to use such a tool effectively, particularly as translations are involved, I preferred to remain close to the data and analysed them by hand.

After these multiple readings, data were collated and organised in ways that seemed useful to enable themes to be identified. The themes were organised using the section headings used to write the literature review, which were also consistent with the research questions. These are:

1. Children's food preferences and aversions (Birch & Marlin, 1982; Pipes & Trahms, 1993; Birch, 1999; Roth & Townsend, 2003)
2. Parents' beliefs about their children's food acceptance behaviour (Contento et al., 1993; Lees, 1996)
3. Parents' concerns about their children's food acceptance behaviour (Sidebotham, 2001)
4. Parenting style and strategies used to encourage children to eat (Baumrind, 1991, Berk, 2003). Berk's (2003) typologies of parental rearing styles were used to identify and organise the data in this theme.

Narrative Representation

Narratives, constructed from semi-structured or unstructured interviews, by not having a strict predetermined content, offer much more freedom in representing data obtained from conversation than themes constructed in an ordered way. The researcher seeks to hear "the personal experiences of a person's concerning a particular phenomenon" (Kumar, 2005, p. 124). As such, narratives are a powerful

method of data representation for various situations, in this case, parents' views of children's food acceptance behaviour.

For Crabtree and Miller (1999), a narrative approach is “firmly grounded in qualitative traditions and stresses the ‘lived experience’ of individuals, the importance of multiple perspectives, the existence of context-bound, constructed social realities, and the impact of the researcher on the research process” (p. 223).

From interviewing each mother or father, I was deeply moved as they talked about their children. Their stories were complex and personal, ranging across their own childhood experiences, the influence of caregivers on their children, their children's changing food acceptance behaviours after going to kindergarten, their own food preferences, strategies they tried to get fussy children to eat, how they obtained nutrition knowledge and their cooperation with the kindergarten teacher. Their stories compelled me to develop narratives that tell of the parents' lived experience of their children from when they were born, to when they learned to eat solid food, to starting kindergarten. Each child has a unique, complex and different story, and the narratives are real life stories, presented in an easy to read form.

Concept Map Representation

In order to try to identify relationships and connections between the themes described above, I have also used concept mapping to represent the research findings. Daley (2004) illustrated a number of advantages of using concept maps in qualitative research. For Daley (2004), one of the strengths of using concept maps in qualitative research is that it allows the researcher to extract the data in a meaningful and

parsimonious way. By using concept mapping it is possible not only to display a great amount of interview data on a single page, but also allow for the visual identification of themes and patterns through the capturing of meaning from the interviews. As the maps display concepts in both a horizontal and vertical fashion. It is the linkages of these concepts that facilitate the process of understanding interconnections and meaning in the data. A graphical display of the maps can help readers understand the findings by providing a vehicle whereby the actual data quotes can be connected to larger parts of the study.

Limitations of the Study

The findings of this study are limited by the small sample size of the participants, and that the study was limited to particular preschool parents in South Taiwan. In addition, most interviewees were mothers, so the interview data is mainly limited to mothers' perspectives.

However as the literature shows and experience tells, many parents at some stage have concerns about their children's eating behaviour. Thus it is likely that some of the findings of this study may be generalised to some degree. However the study is significant for those directly involved as it is considered that the parents are representative of the particular community where the study was carried out. Also, the study can provide clear pointers and directions for further research in this area. These are discussed in Chapter 6, the final chapter.

In order to overcome these complexities and to attempt to represent the richness and interconnectedness of parents' beliefs and views about children's food preferences and acceptance behaviour, I have chosen to present the data in four different ways:

- A. As themes and sub-themes. The data were analysed and organised using thematic analysis (van Manen, 1990). This provides an overview of the range of categories parents refer to.
- B. As a narrative for 2 families which attempts to portray the complexity of the parents and children's interrelations around food preferences as a 'lived experience'.
- C. As an individual concept map. I have used the same families to show how the factors relating to food preference might be linked using a concept map.
- D. As a composite concept map which attempts to include all identified factors relating to food preferences from all the parents in this study.

Chapter 4 describes the themes and sub-themes that emerged from various readings of the interviews transcripts, which were conducted in Mandarin. Two examples of the interview data are presented in Appendix C and D, which were translated from Mandarin into English by the author.

Towards Chapter 4

The following two chapters present the interpretation of the interview data. Themes and sub-themes are described in Chapter 4, narratives and concept maps are represented in Chapter 5.

CHAPTER 4

DATA ANALYSIS AND REPRESENTATION PART 1: THEMES AND SUB-THEMES

Introduction

In the present study, the analysis and representation of the data was the most difficult part of the research process. Due to the large quantity of the interview data and the complexity of the concept categories, three types of data representation were used to conduct the data analysis, including theme analysis, the narratives and concept maps. This chapter shows theme analysis of the interview data, while the other two, narratives and concept maps, will be discussed in chapter 5.

Themes and Sub-themes

Presenting the data initially in themes allowed me to explore parents' interpretations of the range of their children's food preferences, their beliefs and understandings of their origin and their strategies for inducing their children to eat. In order to answer the research questions, I summarised the data into four themes. These are:

Theme 1. Children's food preferences and aversions.

Theme 2. Parents' beliefs about preschool children's food acceptance behaviour.

Themes 1 and 2 are closely related, the first being a description of food preferences and aversions, the second being parents' views on the origin of these preferences and aversions.

Theme 3. Parents' concerns about preschool children's food acceptance behaviour.

Theme 4. Parents' rearing styles (Berk, 2003) and strategies to encourage food

acceptance behaviour in preschool children. In addition, I have attempted to explore possible links between whether a child has ‘good’ or ‘poor’ eating habits and the rearing styles parents adopt.

The following section provides details of each theme, with supporting evidence from the interview transcripts and a summary of the findings. The interview data source is represented by the number of the child, then the pseudonym of the child, whether the interview is with the mother (M) or father (F), then the page of the transcript. For example, [10-Lin, M, 5] means that the interview was with the mother of the 10th child, whose pseudonym is Lin. The quote comes from page 5 of the transcript.

Theme 1. Preschool Children’s Food Preferences and Aversions

According to their parents, overall, the preschool children in this study had a wide range of food preferences (Figures 4.1 - 4.3). Further, different children in the same family might have the same or different food preferences. Some children ate food they had seen before, especially vegetables and fruit, while others were neophobic. Some children would eat a wide variety of food while others are fussy eaters. In addition, the cooking methods might dictate whether the child likes a particular food or not. Many children enjoyed porridge, but others preferred noodles or cooked rice. Outside the home, fast food is popular amongst many children.

Food Preferences

Overall, children enjoyed a variety of food. Parents reported that preschool children’s preferences include cereals, meat, fish, milk, fruit (particularly sweet fruit), vegetables, sweets and soft drinks. Fast food was also a favourite, especially McDonald’s (Figure 4.1).

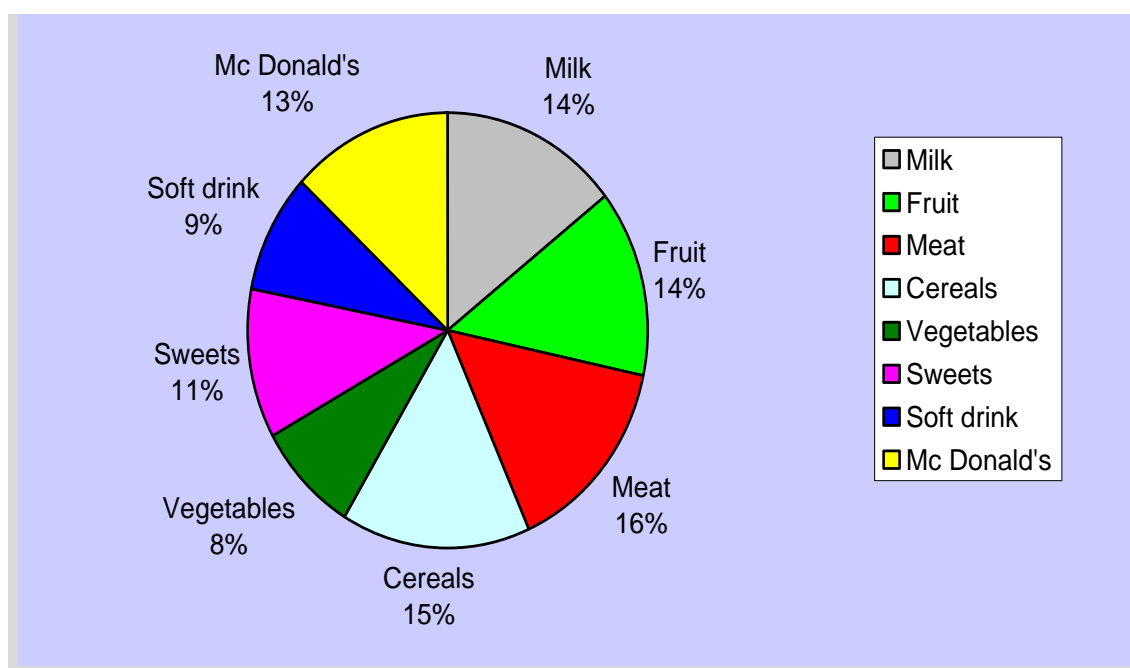


Figure 4.1 Food Preferences in Preschool Children

However, food preferences varied widely from child to child. Han, for example, “likes vegetables, especially green cauliflower, spinach and carrot.” [8-Han, M, 1] “Fruit is Xin’s favorite food, and he will eat almost all kinds” [2b-Xin, M, 1], while “Xiao is very fond of sweets.” [9-Xiao, M, 1] “Mei likes to eat fried fish with black pepper.” [11-Mei, M, 3] while “every kind of soup is Yang’s favourite food; he can drink 3-5 bowls.” [6-Yang, M, 3]

Food Aversions

Parents reported a range of foods that their children dislike; the variety was as complex as the preferences. Food aversions included vegetables, soft drinks, sweets, fast food (Mc Donald’s), milk and fruit. Vegetables appeared to rank top as the most disliked food, whilst no child was reported as disliking cereals or meat. Figure 4.2 shows the range of food aversions reported by parents.

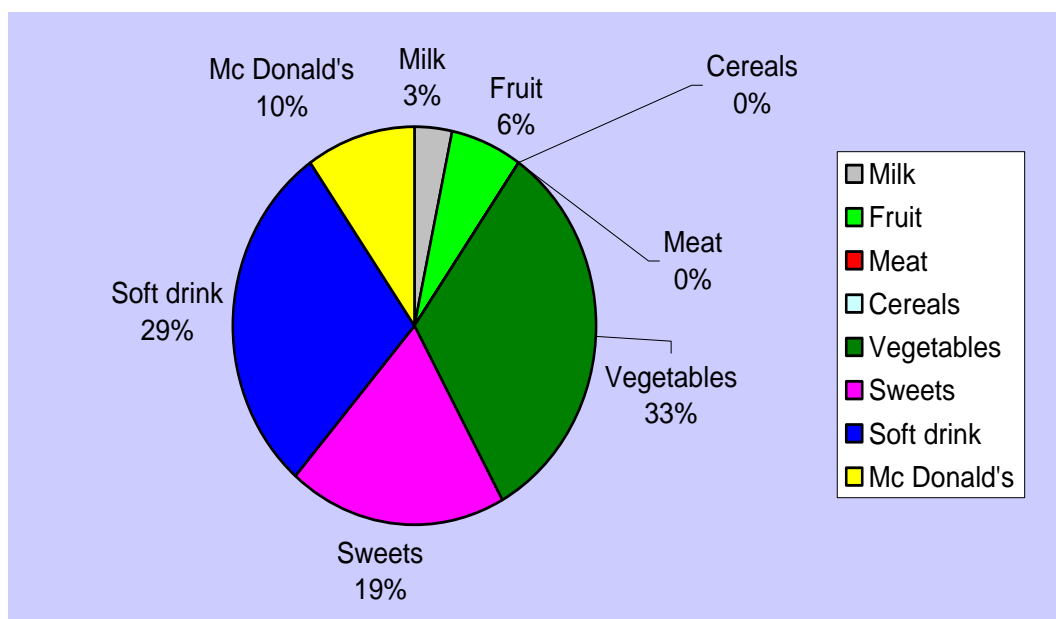


Figure 4.2 Food Aversions in Preschool Children

The results also show that overall the number of food aversions is smaller than preferred foods (Figure 4.3).

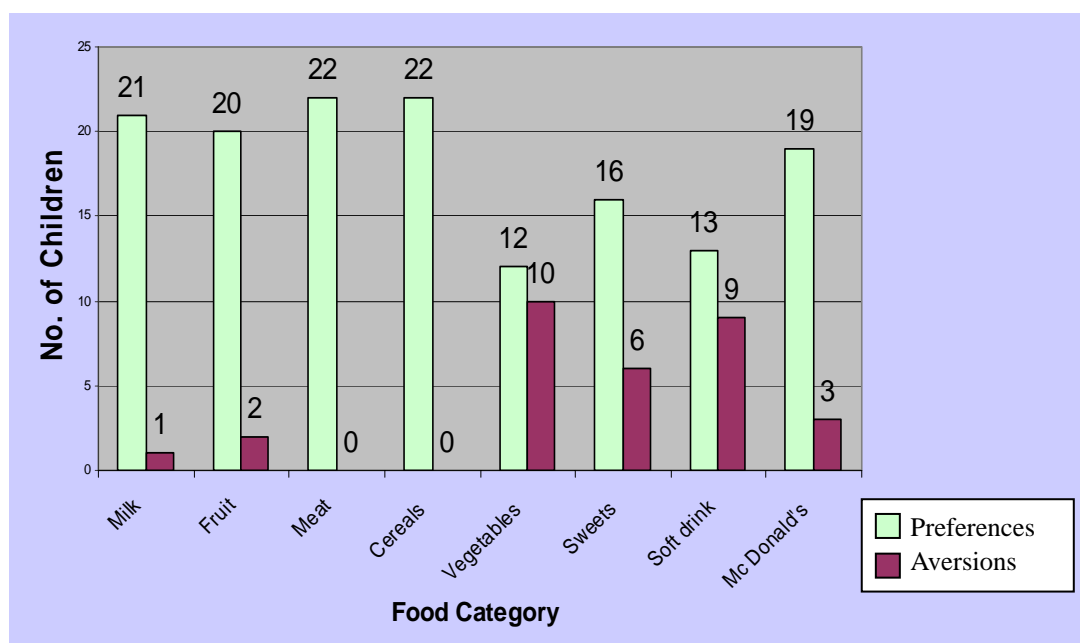


Figure 4.3 Comparison of Food Preferences and Aversions in Preschool Children

Complexity of Preschool Children's Food Acceptance Behaviour

As well as preferences for particular foods as noted above, food preferences also included a complex range of intrinsic variables such as texture, flavouring, colour, shape and preparation method. In addition, there are temporal variables, including time of day, seasonal variation and difference over lifespan, which also cut across siblings within the same family. Table 4.1 shows the variety and complexity of food preferences reported by parents of the preschool children in this study. Their children rejected food because of strong or bland taste, texture, colour, shape or preparation method.

Table 4.1 *Complexity of Preschool Children's Food Acceptance Behaviour*

Food characteristics	Preferences		Aversions	
	Food example	No. of children	Food example	No. of children
Colour	Yellow fruits	1		
	Green leafy vegetables	3	Green leafy vegetables	3
	White vegetables	1		
	White rice	5	Porridge with meat and vegetables	2
	Dried mushroom(black)	1	Dried mushroom(black)	2
			Yolk	2
	Taste/Flavouring	Sweet fruits	20	Sweet fruits
Sour fruits		1	Sour fruits	6
Strong-tasting food -onion		2	Strong-tasting food -onion	1
Carrots		2	Carrots	5
Fried food		5	Fried food	3
French fries with ketchup		19	French fries with ketchup	3
Soft drink		14	Soft drink	8
Chicken nuggets		8	Chicken nuggets	1
Sweets		16	Sweets	6
Biscuits		12	Biscuits	4
Texture	Porridge	14	Porridge	4
	Minced pork	13		
	Thin slices of meat	1		
	Fish meat	4		
	Yolk (minced)	1	Yolk	8

Table 4.1 *Complexity of Preschool Children's Food Acceptance Behaviour (continued)*

Food characteristics	Preferences		Aversions	
	Food example	No. of children	Food example	No. of children
	vegetables	12	vegetables	10
	Green-leafy vegetables	3	Green-leafy vegetables	3
	Dumplings(minced vegetables)	8	Dumplings(minced vegetables)	2
			Sticky food like salad dressing	1
Shape	sliced carrot fried with eggs	1		
	Ham with small pieces	1		
	Food in interesting shapes	3		
Preparation method	Eggs-various cooking methods	3	Eggs-various cooking methods	1
	Steamed eggs	7	Steamed eggs	1
	Fried eggs	5		
	Poached eggs	1	Poached eggs	1
	Egg white only	6		
	Egg stewed with soy sauce	3		
	Meat-various cooking methods	8	Meat-various cooking methods	4
	Meat stewed with soy sauce	8		
	Fish- various cooking methods	11		
	Fried fish	4	Fried fish	1
	Fruit juice	8	Fruit juice	1
	Vegetable juice	2	Vegetable juice	1

Having discussed the range of food preferences found among children in the study, I now turn to the second theme which considers parents' views about how these preferences may come about and what influences them. These two related themes are then summarised before moving on to theme 3.

Theme 2. Parents' Beliefs about Preschool Children's Food Acceptance

Behaviour

Parents recognised that a number of factors influenced their children's food preferences and aversions. Some of these were considered innate, or steamed from familiarity or cooking methods. Taste was considered a major factor, and parents also stressed that foods that make their children feel uncomfortable during or after eating are likely to be rejected. Often parents felt that rejection stems from when the child was very young. If the first experience with food was unpleasant for some reason, the child would refuse the food later. Parents also identified the influence of other people in the child's life as having a strong influence on food preferences.

Relationship between Parents' Own and Their Preschool Children's Eating Habits

According to a number of parents, children had the same eating habits as they do.

Parents believed that if they have good eating habits, their children would be influenced by them, that is, they acted as positive role models. In contrast, if parents' eating habits were not good, this would have a negative influence on the children. As

Lin's mother noted:

I like plain food, which my children like also. My husband and I like most food, so our children eat their own food naturally. My husband likes stronger tasting food. He adds soy sauce to increase the taste. Lin's elder sister likes stronger tasting food, similar to my husband. But Lin likes simple, plain tasting food. [10-Lin, M, 6] ... I find parents'

food acceptance behaviour influences our children's food choice very much, especially mine. The reason is that I buy food and cook it. Besides, my children always eat with me, so I directly influence their food choice. Every child's mother is the direct and important person who influences their preschool children's diets. [10-Lin, M, 10]

Mei's mother agreed:

The food habits and favorites of the family directly influence the children's food acceptance behaviour because children copy their parents. Mei learns dietary habits from parents. For example, Mei likes to eat fruit, which is influenced by my husband and me. [11-Mei, M, 8]

And Fun's mother also stated:

Fun is fond of strong tasting food and adds a lot of soy sauce, garlic and chili like my husband and me. Fun's dietary habits are the same as ours, such as a preference for flavour and familiarity of food. So our dietary habits directly influence Fun. [12-Fun, M, 7]

Similarly, Da's mother said:

My husband and I have good eating habits. Both our parents are farmers. We do not find fault with food. My younger son is fussy about food, so I prepare our family's food depending on his favorites. My husband and our elder son will eat everything ... We do not teach our children in special ways. I find the reason is we are good models for our children. I do not worry about our children. [14-Da, M, 5]

Father's role

Some mothers believed that the father was the most significant role model for their child's food acceptance behaviour. They believed that fathers influence children's eating habits including, food preferences and aversions, as well as taste and poor eating habits. Regarding these perspectives, four representative statements were extracted from the interview data. As their mother noted:

My husband is the only child in his family. He is a fussy eater and does not eat

vegetables. He just eats fruit that I prepare for him. I think that my children's dietary habits are like those of their father's. [2a-Shi, M, 9]

When my husband finishes his meal, he always drinks soft drink instead of soup. I think his habit influences Yu to have a fondness for drinking soft drink. [5-Yu, M, 5]

Mei is fond of eating sweets like her father. Sometimes I mention to my husband to buy rice and other dishes for her instead of sweets, because I notice she likes to eat them. But it is difficult to change my husband's habit of eating sweets and snacks. There are many sweets at home. How can Mei eat only a small amount of them? [11-Mei, M, 9]

Yang's father likes to drink fresh milk, to eat bananas, noodles and pork glutinous rice dumplings. His dietary habits influence Yang to eat these foods. [6-Yang, M, 7]

Preferences as Innate

Sweetness

Sweetness has been singled out here because most parents reported that their children enjoy sweet foods and beverages. Parents of 13 of the children reported that they like soft drink because it was sweet, while 16 children were thought to enjoy sweets and chocolate because of their sweetness (Figure 4.3). A number of extracted statements of the mothers interviewed noted their children liked sweet fruit:

I always buy the fruit with a sweet taste including watermelon, pears and apples. My children like these fruits. [2a-Shi, M, 1]

Yue likes to eat watermelon, peaches, grapes and bananas. She likes these fruits because they are soft, juicy and sweet. [7-Yue, M, 1]

Lin likes to eat different kinds of fruit except kiwi fruit because of its sour taste. [10-Lin, M, 1]

Mei's mother noted that:

Mei likes to eat bananas, wax gambuor and apples. If I did not buy these fruits, she would ask me to buy them. The kindergarten teacher told me, 'Mei likes to eat sweet fruit including watermelon and guava. She also likes sweet fruit juice. [11-Mei, M, 1]

Hui's mother also said:

Hui likes to eat the fruit which is sweet and soft. [13-Hui, M, 3]

Similarly, Te's mother mentioned:

Te likes a sweet taste. He likes to drink cola at Mc Donald's... He also likes to drink sweet green tea. He also likes to eat sweets very much. [15-Te, M, 6]

Wen's mother also stated:

Wen likes to eat the carrots in the soup cooked with pork ribs because of the sweet taste of carrots. [17-Wen, M, 3]

Some parents observed familial differences but still considered them innate.

Yi's mother noted:

Yi liked to eat noodles when she was younger. But her younger brother likes to eat rice. They have the same caregiver. I think this is due to the child's innate preference. [19-Yi, M, 1]

Yang's mother also said:

Yang likes to eat vegetables especially green-leafy vegetables such as lettuce, spinach. I also think the habit is innate. [6-Yang, M, 1]

Aversions as Innate

In describing food aversions, parents believe that some of these are innate:

Te's mother noted:

Te does not like eating the food I cook since he began eating food. I think this is due to his individuality because his younger sister is not like him. She likes to eat every kind of food. [15-Te, M, 8]

Wen's mother said:

I cook porridge to feed Wen when he began to eat food supplements at 7 months. He did not like to eat porridge from the beginning until now. I think the habit is innate. [17-Wen, M, 5]

And Yi's mother mentioned:

Yi does not like to eat fruit though the caregiver provided many kinds of fruit everyday. In contrast, Yi's younger brother likes to eat fruit, he says 'I am the king of fruit'. Both Yi and her younger brother have the same caregiver. So, I find that is due to Yi's character, I feel that it is innate. [19-Yi, M, 1-2]

Familiarity with Food, Taste and Cooking Methods

Parents have discussed as what Birch et al. (1995) have noted: that familiarity can assist in developing good food acceptance patterns over innate preferences, but they were unsure as to which is which. Some parents believed that while a child would enjoy a food because he or she had an innate preference for it, they could also learn to enjoy a food through familiarity. This view came from the recognition that some parents or caregivers always provided certain foods that preschool children recognised and thus became familiar with in appearance and taste, which increased their acceptance, particularly for vegetables and fruit. The same applied to familiarity with cooking methods, even going back to previous generations. This developed positive habits in the children. As Yue's mother put it:

I cook what my husband's mother buys. She always bought white coloured vegetables like cauliflower, Chinese cabbage, balsam pear, cabbage, radish, wax-gourd etc. Yue likes to eat white vegetables like her grandparents. Yue does not like green vegetables. I think the reason is she is familiar with white vegetables, which are softer. [7-Yue, M, 4]

Other mothers made similar comments:

Han likes bananas, apples and grapes. Han only eats the fruit he has seen before.
[8-Han, M, 1]

I always cook vegetables at home. I cultivate the habit to eat vegetables, so Ming likes to eat them too. [3b-Ming, M, 1]

I cook different kinds of vegetables everyday. Lin likes to eat the vegetables which I cook, especially green and white cauliflower. [10-Lin, M, 1]

Hui likes to eat brown rice and brown porridge. My children did not eat them in the beginning. I always cook them, so they are now accustomed to them and they like to eat them. [13-Hui, M, 12]

If I fry an egg, I must mix the yolk in with the egg white. Da likes this cooking method. He also likes only egg white cooked with soy sauce. The reason is Da does not like the taste of yolk. [14-Da, M, 2]

Regarding taste, Yang's mother mentioned:

Yang likes to drink milk very much. He drinks at least 2 cups of formula milk every day in the morning and at night and he can prepare milk by himself. If Yang is at home at noon, he also drinks milk. Yang regards milk as his normal meal and is accustomed to the taste. --- Yang likes to eat minced meat with soy sauce cooked by his grandmother. He is familiar with the taste so I always cook it. [6-Yang, M, 1-2]

The situation was similar for Han, Fun and Wen:

Han particularly likes milk, and has two cups of fresh or formula milk in the morning and at night every day, which he drinks very quickly. Sometimes Han drinks milk like water. I think he is accustomed to the taste. [8-Han, M, 2]

Fun only likes to eat green-leafy vegetables especially water convolvulus, lettuce and sweet potato leaves. The reason is that garlic is added when these vegetables are fried. Their taste is stronger, which Fun likes. She did not like the other vegetables unless they are mixed with soy sauce. [12-Fun, M, 1]

As usual, Wen likes to eat white rice; other dishes (meat, fish and vegetables) must put on another plate. He does not like other dishes and rice mixed together in the same bowl. But he likes to eat rice with chicken; he likes that taste because the chicken juice is added. [17-Wen, M, 6]

Unfamiliarity with Food

In contrast to providing food over a period of time so that children became familiar with it, parents believed that if a child was unfamiliar with food they might reject it (neophobia). Again this could be due to either or both innate preference and/or unpleasant eating experiences. For instance, it appeared common in Taiwan for some parents or caregivers to provide a limited range of food such as porridge or milk, before children go to preschool. When they did go to preschool, they might be unfamiliar with new foods, and also might not be able to swallow solid food effectively. For example, if preschool children were not able to swallow food such as rice, egg yolk or bigger pieces of meat easily the first time they encountered them, they might go on to refuse these foods later.

Some examples reported by parents were of children only being fed liquids, porridge or a limited range of foods when they were younger. Li and Hui's mother pointed out:

My mother always fed Li with porridge and milk every day. She could not eat rice and solid food in the kindergarten because the period of her eating porridge was too long. Thus she ate little food supplied by the kindergarten. I believe the reason Li cannot eat dry and hard food like vegetables is that she has not learned to chew properly. --- She did not eat rice until she was three years old, and even now she dislikes it and is sick if she eats anything that is not soft in texture. [3a-Li, M, 4]

Hui drank too much milk from when she was born until 4 years of age, I feel she did not like to chew. When she is hungry, she only likes to drink milk because she feels it is quicker than chewing other foods. When she was 4 years of age, she drank formula milk twice a day. I was afraid that she might not have enough nutrients, I let her drink milk one more time before going to bed. When she finished her milk, she was too full to eat porridge. [13-Hui, M, 1]

Some parents reported that their children would not eat food they had not seen before.

Yue's mother mentioned:

Yue does not eat food which she has not seen before. So one of the reasons she at first did not accept food such as green leafy vegetables in the kindergarten is because she had not seen or eaten them at home. [7-Yue, M, 8]

Da's mother also said:

Da and his elder brother do not like to eat candy, biscuits and soft drinks. The reason is my husband and I do not buy them. They are not familiar with these foods. The other reason is they are full after eating their meals. If their teacher gives them candy, they store it till the expired date. They do not eat it. [14-Da, M, 4]

Exposure to Fast Foods

The role of fast food in the nutritional life of children is of critical concern to nutritionists, and parents' views on this are discussed here separately. Processed food has become a popular way to feed families which are time poor but relatively affluent, and Taiwan is no exception. The fast food industry, McDonald's in particular, has capitalised on this situation by offering low cost but generally nutritionally poor meals to be consumed inside or outside the home. It is easy to see how the availability of such food may appeal to busy parents trying to juggle work and family responsibilities. For further discussion of the effect of fast food corporations on the traditional Taiwanese diet, see Tsai and Smith (forthcoming). The interview data show in fact that many of the parents in this study did not take their children regularly to fast food restaurants in spite of their popularity amongst preschool children.

Ming's family was a typical example:

Ming and his elder sister Li like to go to McDonald's; they like to play on the play equipment. They do not go to McDonald's very often, but on their birthdays, we go to McDonald's to celebrate, and our children are allowed to eat anything they want. Ming likes French fries and chicken skin. Li only likes French fries. [3b-Ming, M, 2]

Sometimes parents take their children as a reward or treat or for a special occasion,

and even then they do not always eat there. Sometimes they went to buy the toys only, or to use the play equipment. Six of the children (Yue, Han, Fun, Da, Nan and Wen) were particularly attracted to Mc Donald's toys, and were taken there especially for them or to play in the playground. Not many, it seemed, particularly like the food.

Han's mother said:

I take Han to McDonald's once a month, and he only eats French fries and chicken nuggets. I believe that Han is attracted as much by the toys as the food and enjoys playing in the playground. He sometimes nags me to buy toys. [8-Han, M, 2]

The same situation for Da:

We take our children to Mc Donald's once or twice a month. When the toys are advertised on television, Da wishes to buy them. If I find the toys are safe for him, I will buy him the whole set of toys. He does not like the food. I ordered the child's meal for him. He did not eat all of it. [14-Da, M, 5]

Being the only son, Wen's mother took Wen to McDonald's so that he could play with other boys:

Wen is the only son in my family. He likes to play at McDonald's because he can play with many children. I take him there once a week at the weekend. He only eats a child's meal including French fries with much ketchup and chicken nuggets. He also likes the toys with the child's meal. ... Sometimes he asks to go to McDonald's during the week. If he behaves well at school, I take him there twice a week. I care about Wen's interaction with his peers because I find he does not share with others. If the kindergarten teacher told me that Wen has had good interaction with peers, I will encourage him by taking him to Mc Donald's as a reward. [17-Wen, M, 9]

Similarly Xiang seemed to enjoy the playground more than the food:

Xiang likes to go to McDonald's to play in the playground. She only eats a few chicken nuggets of her child's meal. She almost always plays all the time. [18-Xiang, M, 6]

Parents often used McDonald's for the playground as much as for the food, seeing it

as an attractive venue where their children play with others in a safe environment.

Some parents were even anti-McDonald's, being concerned about the nutritional quality of the food. One representative statement is presented in the following:

Though Shi and Xin like cola, I do not often buy cola. I tell the twins: 'cola is not good for your stomach'. If we go to McDonald's, the twins usually drink iced black tea. I have doubts about the nutritional value of fast food. I find the food at McDonald's contains too much oil and protein but lacks vegetables. As Shi only likes chicken nuggets and Xin, French fries, I really only take them to McDonald's once a week, so that they can play in the playground. [2a-Shi, M, 2]

In spite of fast food supposedly helping busy parents, some cannot find the time to go there. As Hui's mother said:

Though Hui likes the food at McDonald's, I only take her there twice a month. The reason is she spends too much time in McDonald's and I do not have the time. [13-Hui, M. 5]

Influence of Others on Food Acceptance Behaviour of Preschool Children

Parents listed a range of people other than parents as having an influence on their children's food acceptance and preferences. These included family members such as siblings and grandparents, caregivers, kindergarten teachers and cooks, and peers. The media is also considered a source of influence. Parents regarded these influences variously as both good and poor. Parents observed that often their children's eating habits at home, at their grandparents and at kindergarten might be different for a range of reasons, discussed below.

Influence of Siblings

Siblings could influence each other quite strongly as noted by a number of parents. This might be due to competition between siblings, or a younger child copying an

older one; either way it might change a child's eating habits. For instance, Yue's mother commented:

Yue's brother eats food quickly at home. If he leaves the dinner table, Yue will not continue eating and tells us she had finished her meal. [7-Yue, M, 5]

Shi's mother observed:

Shi did not like to drink soup cooked by me. He told me, 'The soup has s strange taste and I do not like it.' His younger sister Xin is influenced by his opinion and also does not like the soup. [2a-Shi, M, 4]

Yang's mother noted:

Yang can eat quickly when he eats with his older cousins, because they compete with each other. [6-Yang, M, 6]

In Fun's case, her mother noted that when she was alone she was not interested in eating, but behaved differently when she was with her cousin:

Fun can eat quickly when she eats with her cousin Ling, because they compete with each other. Ling feeds her and she also listens to what Ling tells her. [12-Fun, M, 6]

Influence of Grandparents

In Taiwan grandparents play a major role in the bringing up of children, as in most families both parents are working. Parents often live with their own parents while their children are young, so the grandparents are intimately concerned with child rearing and may have a lasting influence on a child's food preferences. These influences may include what the child is fed when young, allowing the child to have what he or she is not allowed at home, or disciplining the child differently from the parent.

Like grandparents everywhere, they were apt to spoil their grandchildren. Parents

perceived that grandparents were more lenient than they are, allowing children to have what they ask for, especially sweets, fast food or soft drinks. This was so that the children would be happy to be with them. For example, Li's mother noted that:

Li lived with her grandparents after she was born. Her grandmother always fed her with porridge with sliced vegetables and milk every day. She did not feed Li rice, so she does not like rice. [3a-Li, M, 4]

Xiao's father admitted:

When Xiao's grandparents pick him up from kindergarten, Xiao asks them to take him to McDonald's and asks for cola, which they buy for him because they love him and want to please him. [9-Xiao, F, 6]

Fun's mother said that her mother gives Fun snacks that ruin her appetite:

When Fun is hungry after school, her grandmother gives snacks to her. So she eats little at dinner time. She is not interested in eating if she is not hungry. [12-Fun, M, 4]

In the case of Te, his grandparents are able to spend more time with the child and are able to supervise his eating, compared with his busy parents. As a result, Te eats better when he is with his grandparents than at home:

Te does not like to eat food and he always eats very slowly at home. He ate quickly when he went to my parents' house in Kaohsiung on summer vacation. The reason is my parents watch him closely; he must finish the meal and eat quickly. He cannot but do it. So he looked well when he came back each time. I do not have the time to watch him closely. [15-Te, M, 12]

Influence of Caregivers

Like grandparents, in many Taiwanese families, caregivers are involved with the upbringing of children when they are very young, so may have a significant influence on the child's food preferences. Parents who both work long hours may place their children with caregivers from 8 to 12 hours a day. Some children even

live with a caregiver from the age of 2 months until they go to kindergarten. Ren's mother attributed his dislike of rice to never being offered it at his caregiver's - an example of neophobia.

I asked Ren why he did not want to eat rice. He told me: 'I only drink milk at the caregiver's home.' I finally knew the caregiver did not prepare rice for him. [1-Ren, M, 2]

This situation also occurred in Xiao's case and caused friction between the parents and the caregiver. Xiao's father noted:

When Xiao was born, he was taken care of by a caregiver. The caregiver was experienced in taking care of children. However, she always fed him with porridge instead of rice. When Xiao was two years of age, we took him home. And then, my mother in law and my wife took the responsibility of taking care of him. They also fed him with porridge because he ate little rice. Xiao did not like to eat unless he was very hungry ... My wife and I think, "We do not know whether eating porridge for a long time has influenced Xiao not to chew textured food like vegetables and fruit". [9-Xiao, F, 3]

Influence of the Kindergarten Teacher

Once a child reaches the age of three or four up till the age of six, he or she is most likely to be sent to kindergarten. Many parents consider that the kindergarten plays a key role in instructing children to eat a balanced diet. Parents believe that kindergarten teachers use their authority, peer pressure, rewards and encouragement to persuade children to eat food they do not normally like. A number of parents reported that their children learned to eat vegetables at kindergarten, while they had not eaten them previously at home. In some cases this habit still did not transfer to the home, and they continued to eat vegetables only when at kindergarten.

For example, Han's mother pointed out:

Han responds to his teacher's strategy because of her authority status as a teacher. I think the teacher has the authority to make the children obey. [8-Han, M, 7]

Similarly Fun's mother noted:

At kindergarten, Fun seldom left food after meals because her teacher instructed her step by step. Fun obeyed what her teacher told her... I think the power of the group influences a child's preference or acceptance and the teacher has the authority to require the children to obey. [12-Fun, M, 9]

Smiliarly, Shi's mother said:

My two children did not like to eat vegetables at home, they only eat three bites. After they went to kindergarten, they changed. They eat vegetables in the kindergarten now. The only reason is that they care about the teacher's admiration in front of their classmates. I think they are proud of it. [2a-Shi, M, 12]

Yue's mother also noted:

The kindergarten teacher told me: 'Yue eats slowly and cries at lunch time. She always puts the disliked food at the bottom of the bowl.' I told her that Yue did not like vegetables, but that she might be able to persuade her to eat if she told the child they would make her beautiful. The kindergarten teacher then began to give Yue vegetables and praised her when she ate them , making a point of doing this in front of the other children. The teacher said,: 'Yue is a good child and she becomes more beautiful!' and: 'If you eat sweet soybean curd, you will become more beautiful!' This appeared to be a successful strategy because Yue would eat two bowls of the curd. [7-Yue, M, 8]

In addition, Yue's mother added:

Yue can eat lunch and desserts during the meal time at the end of last semester due to much praise and permitting her more time to eat than the other children have. Now, Yue is eating vegetables at kindergarten. I believe that this is due to a combination of her teacher's authority as a teacher and Yue's need to be praised in front of her classmates. [7-Yue, M, 8]

Some kindergarten teachers encouraged children to eat by rewarding them with candies or stickers or playing toys. Xiao's mother concured:

The kindergarten teacher told me: 'I let him play with the only special toy in the kindergarten first as a reward, he can eat lunch quickly. And I encouraged Xiao with candies and words when he ate fruit and vegetables' I find the kindergarten teacher has the ability to instruct Xiao to accept the food provided by the kindergarten. [9-Xiao, M, 6]

And Fun's mother also commented:

When Fun ate the food up, her teacher gave lovely stickers to her. She could eat all food because of her teacher's encouragement, though her eating speed was still slow. ...I find the teacher plays an important role in the instruction of children to accept all food served in the kindergarten. [12-Fun, M, 9]

Influence of Peers

In ways that are similar to the influence of siblings; that is, competition and modeling, parents reported that many preschool children developed good eating habits at kindergarten through the influence of peers. As Yu's mother observed, "peers can influence Yu's food acceptance, so he could eat food at kindergarten." [5-Yu, M, 5]

Yue's mother also recognised the significant impact of peers by stating:

I believe that peers play a key role in food acceptance at kindergarten. I attribute this to competition in the setting. Peers can influence Yue's food acceptance because she thinks she can not lose to the others. So she can eat more and more quickly at kindergarten than at home. [7-Yue, M, 8]

Fun's mother agreed:

Peers also influence Fun's food acceptance behaviour. I think the power of the group influences a child's preference or acceptance and the teacher has the authority to require the children to obey. When Fun went home, she told me, 'One child (Yi) does not like to eat some food at kindergarten but I eat it.' [12-Fun, M, 6] ... Fun's teacher also told me, 'Fun tries to eat some dishes when she sees the other children eat the dishes.' I thought, 'It is another advantage of going to school earlier to use the group to influence Fun's food acceptance and to prevent her from eating some food only.' [12-Fun, M, 9]

Wen's mother also noted:

Wen does not like to eat some food at home, especially vegetables but he eats vegetables at kindergarten. He eats quickly at kindergarten. The reason is he likes to be competitive with the others and he wishes to win. [17-Wen, M, 2]

Influence of the Kindergarten Cook

Along with the kindergarten teacher, the kindergarten cook plays an influential role in developing children's food acceptance behaviour. The cooks at the three kindergartens in this study are seen by the parents to be concerned with the children's needs and to cook appropriate food. As Shi's mother said:

My children do not always like to eat food I cook. Shi's teacher told me, 'Shi eats quickly and ranks first in the class. It is only desserts he does not like to eat.' [2a-Shi, M, 7] ... The kindergarten's cook pays attention to the nutritional needs of children and has expertise in cooking. She cooks different dishes everyday. The children like the taste of the dishes. [2a-Shi, M, 13]

Da's and Yi's mothers also agreed:

Da likes to eat the food at kindergarten. He told me that the dishes at kindergarten are delicious. His teacher told me there are many kinds of food at school. Da could eat the food he liked. [14-Da, M, 3]

I feel the food provided at my children's kindergarten is good. The menu will be checked by the nutritionist to make sure the nutrition is adequate for preschool children. My children liked to eat the food at kindergarten. [19-Yi, M, 4]

The Role of the Media

As well as significant others in the children's lives as discussed above, parents believe that the media strongly influences children's food acceptance. Media mentioned by parents include television programs, television advertisements and magazines.

Television

Parents observed that their children liked to watch television programs and advertisements, and copied the characters' eating habits. As Lin's mother said: "When Lin and her sister watch the cartoon program 'Popeye', who eats spinach for strength, they copy it and say 'spinach' and they eat it". [10-Lin, M, 6] Ming had a similar reaction: "After watching Popeye, he likes to eat spinach. I think that my son is modelling himself on Popeye so that he can be as strong as Popeye". [3b-Ming, M, 7]

Thus television had the potential to persuade children to eat properly or encourage them to eat inappropriate food. However, some of the children in the study wanted to go to fast food restaurants only for the toys advertised on television, they did not actually like the food itself.

Ren's mother mentioned:

I find that television has an influence on Ren's food acceptance behaviour. He prefers the television program-'Bread Superman'. After he watches the program, he likes to eat bread, sandwiches and chilli chicken, just like Bread Superman. I think Ren models himself on this character. Ren thinks if he eats the same food as Bread Superman does, he will have the same superpower as him. [1-Ren, M, 5]

Additionally, Fun's mother noted:

Television programs like 'Fruit Grandmother' teach children to eat fruit. Another television program produced by the children's channel Tung-Sen, teaches both parents and children to cooperate to cook some simple food. I feel the program is good for children because the child will like to eat the food he (she) cooks. For example, I let Fun mix the eggs or put something into the food. She likes to taste that food. [12-Fun, M, 7]

Xiao was also influenced by television food advertising. His father said:

Xiao likes McDonald's, Qoo fruit juice and Popeye advertisements on television. Xiao knows about Qoo fruit juice from a television program; the advertisement was lovely, touching and interesting. Qoo fruit juice becomes the most fashionable beverage among the children. It is a kind of sub-culture among the kindergarten's children. I bought Qoo once, Xiao liked it very much, especially the orange taste. [9-Xiao, F, 6-7]

In contrast, Xiao's father did not believe that Popeye was able to influence his son to eat spinach. He said: "Xiao likes to watch Popeye on the television but will only eat a small amount of spinach". [9-Xiao, F, 7] In other words, if the child did not like the food, nothing could persuade him or her to accept it.

Magazines

For parents, magazines and books were another source of influence on their children's food preferences, in particular a magazine aimed at preschoolers called Qiao Lian Zhi (Benesse Publishing Co.) where the main character, Qiao Fu, appeared to influence children, as the following comments indicate:

Fun's mother pointed out:

Fun likes to read books. I ordered some preschool children's magazines, Qiao Lian Zhi. One of the main characters in the magazine is 'Qiao Fu'. Fun could repeat Qiao Fu's words, such as 'eating rice can help children grow up and eating meat can make children stronger'. It has a good effect on Fun to accept the nutritious food from books. [12-Fun, M, 5]

Wen's mother also mentioned:

Every month there are different stories in the magazine, Qiao Lian Zhi, about children's habits. 'Qiao Fu' teaches children to eat vegetables in a month. Wen likes to eat vegetables only in that month. I find Wen does not like to eat vegetables after that month. I think I must ask Wen to read the story about eating vegetables frequently. Then, she would always like to eat vegetables. [17-Wen, M, 10]

Summary: Theme 1 and 2

Parents reported a wide range of food preferences and aversions. These included taste /flavour, texture, colour, and ability to swallow. They noted that food preferences show both temporality and are intrinsic. Parents recognised neophobia as a major cause of food rejection, and for some this stems from lack of a range of foods offered in the very early years. Parents believed that food preferences are both innate and learned, particularly from parents themselves. In addition, they noted that different children demonstrate difference food preferences, even within the same family.

Parents also recognised the influence of others on their children's food preferences and acceptance. Here they cited the role of other family members, caregivers, kindergarten teachers and cooks as well as the media as having an influence, both positive and negative. Like most parents, the parents in this study were often concerned about their children's food preferences, believing that any poor eating habits would lead to poor health. So having established that there were a wide range of views and beliefs about food preferences amongst the parents in this study, the next section, theme 3, discussed the particular concerns they have about their children's food preferences.

Theme 3. Parents' Concerns about Preschool Children's Food Acceptance

Behaviour

Before directly discussing parents' concerns about their children's eating habits, I will first briefly discuss what has emerged from the data about parents' nutritional knowledge, the assumption being that parents' understanding of nutrition will affect the concern they have about their children's eating. This knowledge also influences parents' strategies in persuading their children to eat as discussed in theme 4 below.

*Parents' Knowledge of Preschool Children's Nutrition**Sources of Knowledge*

A number of parents in this study clearly understood the basics of good nutrition. They have a sense of a balanced diet, frequently mentioning the child's need for vegetables and fruit. Various parents mentioned the value of milk, fibre, or the need to reduce sugar consumption.

Some parents described themselves as having formal or academic knowledge about nutrition. Xiao's father for example, lectured in chemistry, while his mother majored in preschool education. Li's, Han's, and Bang's mothers reported that they had studied nutrition at school.

Other parents obtained nutrition knowledge from a range of sources. In some cases this may be general knowledge, in others specific.

Shi's mother mentioned:

I obtain nutrition knowledge from the newspaper. There is a whole page in the newspaper about food and nutrition. The data includes the nutrients in food, how to choose cheaper vegetables according to the seasons. I will buy those vegetables. I also watch cooking programs on television to learn about the cooking methods. [2a-Shi, M, 5]

However a number of parents believed that there is not enough information about early childhood nutrition generally available in the media or through newspapers or magazines. [e.g. Ren, Shi, Xiao, Lin, Fun, and Hui's mothers]

Hui's mother reported that she obtained information on pesticide levels in food from a lecture she attended, which has influenced her choice of vegetables when she goes shopping:

I know the pesticides are easily retained in the green leafy vegetables from a lecture, so I buy the other vegetables and the water-cultivated green leafy vegetables to avoid pesticides. [13-Hui, M, 3]

Other parents reported that they obtained information from their children's kindergarten:

The kindergarten teacher gives us articles about child's nutrition and shares her experience about children's eating. [17-Wen, M, 11]

Our children's kindergarten always holds a series of talks including food nutrition. My husband and I always attend the nutrition talk once a semester. The nutritionist discusses preschool children's nutrition and the menu in the kindergarten. I feel it is a good opportunity to obtain nutrition knowledge. [19-Yi, M, 28]

Use of Nutritional Knowledge in Food Provision

Whatever their nutritional knowledge, it is clear from the interview data that a number of parents consciously tried to provide what they considered as a balanced diet for their children, and attempted to teach their children to accept nutritious food (see also theme 4)

For example, Shi's mother was aware of the need for good nutrition in the early years in preparation for development at puberty. As a result she bought them growing formula milk: "I think if they store energy when young, they will grow taller in puberty" [2a-Shi, M, 2].

Li's mother applied her nutritional knowledge when shopping, for example when buying bread, she said:

I bought whole wheat bread for my children to eat because its nutrition is higher... If Ming and his elder sister Li wanted to buy candy and nagged me for it, I told them, There is of no advantage when you have candy in your body. It will decay your teeth. If my children asked me to buy soft drink by nagging, I would tell them, 'These

beverages do not have nutritive value. If you always drink them, you will be sick. The reason is that they make little guards that can not fight with bacteria in the body. [3a-Li, M, 3-4]

Han's mother used her knowledge of nutrition to provide the family with a broad and balanced diet. She noted:

Han's father and I eat every kind of food...I know how to prepare nutritious, well balanced food for my children. I buy pre-prepared food for my family. The children eat what I buy. I always buy fish like striped marlin or Spanish mackerel, and vegetables like cabbage or green cauliflower and soy bean curd cake. When my children are eating, I tell them, 'If you eat meat and fish, it will become your muscle and you will grow up quickly. And if you eat vegetables, you will not suffer from constipation.' Thus, Han is not constipated. [8-Han, M, 4] ... I prepare fruit juice instead of soft drink to decrease their opportunity to drink beverages with low nutritive value. [8-Han, M, 2]

Lin's mother acted similarly:

I always cook fish, which my children like to eat very much. I myself prepare my family's food. I buy food in the traditional market once a week. But I buy fish everyday to make sure it is fresh. I buy all kinds of food and fruit and I cook every kind of food. Both children can eat many kinds of food. [10-Lin, M, 4]

These data show that parents adopted a range of approaches to encourage good nutrition in their children, and the specific strategies used form the subject of theme 4 below. The next section discusses specific concerns parents have regarding their children's nutrition.

Parents' Concerns

The main concerns parents reported were related to quantity and rate of food consumption, and more broadly to children's health. A number of these parents had a good level of nutritional knowledge and were concerned that their children were often not hungry, or eat too slowly because they were distracted by watching television.

Further, parents were worried that their child was getting insufficient exercise as a result of being inactive. More broadly, parents are concerned that their children would become malnourished if they refused to eat nutritional food.

Rate of Eating

Yu's mother was concerned about his eating pattern. If his father was present he ate quickly as he is afraid of him. Otherwise he sat in front of the television or read a book while eating:

Yu always eats meals by himself at home; he does not eat with us at the table. He likes to watch television or read books when he is eating. So he spends about 1 hour to eat meals. If his father is at home, Yu could eat quickly. Yu is afraid of his father. He can accept what his father wishes him to eat. [5-Yu, M, 6]

Indeed the rate at which their children eat was a concern for a number of these parents (Han, Xiao, Hui, Nan, Wen and Xiang's parents). While watching television seemed to be a common pattern in this group; parents also reported fidgeting, playing, reading, losing concentration. For example, Han's mother mentioned:

I am concerned about Han's eating speed. Both Han and his sister seem to eat more slowly than other children. I recognise that Han eats more slowly when he is inactive. When he comes back from kindergarten, he always plays with his toys with his sister, and does not engage in outdoor activity much, except on holidays. I think Han does not engage in outdoor activities, so he does not eat as much and eats more slowly. If Han eats too slowly, I encourage him to eat quicker, and he does. When we go out to play on holidays, he eats more. [8-Han, M, 5-6]

And Hui's mother noted,

Sometimes I let Hui watch the English program when she is eating. She always watches television and forgets to eat her food. Then, I tell her, 'If you do not eat food, I will turn off the television.' She would then eat food. I find Hui sometimes is stunned and keeps the food within her mouth for a long time. She spends much time on eating. The

caregiver always feeds her. The habit comes from when she was a baby and has continued until now. [13-Hui, M, 10]

Nan's and Wen's mother pointed out:

Nan's appetite is bad everyday. The main reason is she is curious for everything; she likes to run when she is eating. She also likes to watch television. She cannot concentrate on eating. If her grandparents feed her, she could eat quickly. But I insist she must eat herself, she would eat the meal for a long time and she would leave the dining table. If I tell her you cannot leave the dining table, she will move in her chair like a swarm of bees. [16-Nan, M, 12]

Wen always eats dinner alone in the living room. He likes to watch television at dinner time, so he eats meals slower. He could finish it. I never feed him. [17-Wen, M, 11]

Health concerns

Perhaps more serious are the health concerns that parents attributed to poor eating habits. The main health issues parents express were constipation, catching a cold and poor nutrition.

Constipation

Constipation seemed to be of particular concern among this group of parents. They attributed this to poor diet, in particular lack of vegetables, fruit or rice. In contrast, Han's mother who prided herself on her nutritional knowledge, claimed:

The children are not fussy eaters, and I believe this is because of my nutritional knowledge. Due to the instruction of me, Han and his sister have good dietary habits. They are not bothered by constipation. [8-Han, M, 4]

Shi was frequently constipated until he started kindergarten where he increased his intake of vegetables. The constipation began to disappear. As his mother said:

Shi always felt his abdomen was sore and he suffered from constipation because he liked to eat more meat and did not eat any vegetables. He ate a little fruit. I told him: 'If you eat vegetables and fruit, you will not suffer from constipation.' But he still only ate

watermelon and litchi at home. I must explain about the benefits of eating vegetables ten times at home. Then he eats vegetable but only about three bites ... After Shi and his younger sister Xin went to kindergarten, they changed the habit of eating vegetables. They eat vegetables in the kindergarten. The condition of Shi's constipation declines. [2a-Shi, M, 7-8]

Mei was another child suffering from this complaint. Unlike the others, this child appeared to be eating fewer vegetables since she started kindergarten. Her mother said:

After Mei started kindergarten, she ate fewer vegetables at home. The reason is she does not eat dinner with us and her dinner is bought by her father and does not always have vegetables in it. As well, she does not drink water at home. These two reasons cause her to suffer from constipation easily. She can not always excrete her stool at one time because she leaves the toilet as soon as possible to play.. I always ask her to sit on the toilet for a long time to excrete the entire stool at one time. [11-Mei, M, 6]

Li's case seemed to be of particular concern. Her mother reported:

Li usually got sick and had constipation after she studied in the primary school. Her teacher told me, 'she threw away the food she could not eat every day when she just entered the primary school.' And then, her teacher considered it was not good for her health, so she forced Li to eat food up. She had to take a long time to finish eating. If she ate quickly, she vomited all her food. Her teacher told me about the condition, which worried me very much. I still gave her psychological support step by step. I wished she could accept food gradually, but the progress was very slow. [3a-Li, M, 5]

Poor Nutrition

Poor nutrition was another concern for many of these parents, believing it to stem from refusing food or eating very slowly. For Ren's mother this caused a great deal of anxiety, and she resorted to threatening him with punishment to try to make him eat. She said:

I think if Ren does not eat rice and other dishes, he will become malnourished which will influence his health. I began forcing him to eat rice with us, but he still did not eat and he was bad tempered. I told Ren, 'If you do not eat rice, I will punish you.' Ren

began eating a small amount of rice and other dishes. [1-Ren, M, 2]

Li's mother, already worried about her child's eating problems, recounted that she took the child to the doctor. She was told that the child had somehow missed out on the oral stage of development of healthy eating habits, for which the mother blamed herself because of her obsession with cleanliness:

I was very concerned about my daughter's eating problems, and sought help from a doctor. The doctor told me: 'Li missed her oral period to practice eating. She does not practice chewing food because she usually eats bruised food. On the other hand, she may not be familiar with food, so she can not accept new food.' The doctor's diagnosis caused me to reflect that I might be the cause of Li's problems. When she was very young, I was obsessed with cleanliness. I would stop her from crawling and eating food off the floor, grabbing food by hand due to my own morbid preoccupation with cleanliness, and I may have inadvertently made my daughter feel disgusted by food. After the second child Ming was born, I changed my instruction due to Li's abnormal eating habit. I let Ming eat food of his own will. I allowed him to sit on the dining chair and to grab food to eat in his hands. His eating habit is good. It is fortunate that his Li's abnormal eating habit has not influenced Ming's food acceptance behaviour. [3a-Li, M, 5-6]

Catching a Cold

A number of parents believed that poor nutrition left their children more susceptible to catching a cold. For example, Xiang's mother reported that "Xiang's eating habits are not good. Her appetite is not good and she eats slowly. She always catches colds." [18-Xiang, M, 5]

Xiao's father felt the same way: "Xiao always caught colds and his body weight was lighter than the other children of his age". [9-Xiao, F, 4] Because of this, Xiao's parents gave him vitamin C supplements.

Parents, then, expressed a number of concerns about their children's nutrition and the

consequences of not eating properly in their view. Most commonly cited in this chapter are eating too slowly or not enough because of distractions such as television, becoming constipated, with the potential for poor nutrition and catching colds as a result. The next theme discusses the rearing styles and strategies parents used to encourage their child to eat.

Theme 4. Parents' Rearing Styles and Strategies to Encourage Food Acceptance Behaviour in Preschool Children

Theme 4 is perhaps the most difficult to interpret. It examines the range of strategies that parents adopt to encourage or force or persuade their children to eat. Much of what has been written above could also be interpreted as strategies as there is considerable overlap between all the 4 themes. Further, strategies directly relate not only to parents' beliefs and views about nutrition, but also more broadly to their beliefs and views about child rearing in general, which goes beyond the scope of this thesis.

To organise the strategies parents report, I have drawn on the work of Berk (2003) which is based on Baumrind (1991) and discussed earlier in chapter 2. While Berk's four typologies of parents' rearing styles go beyond food and nutrition to parenting rearing styles in general, I am assuming that the rearing style would be reflected in approaches to encouraging food acceptance. At the same time, I am aware that these categories were developed within a Western cultural framework and may not have the same meaning in the Taiwanese situation as Berk's interpretation, as discussed in the literature review (Chao, 1994). For Chao (1994), the 'authoritarian' style in particular is problematic as applied to Chinese parents. She prefers the alternative concept;

chiao shun, or 'training' (p.1112) which holds 'some distinctive meaning that is not part of the authoritarian concept' (p.1117).

It is also particularly difficult to identify rearing styles from the data as the research design did not specifically seek this information. Rather, this theme has emerged from the interview data. Also because of the large amount of data reported in this study, I have not used Berk's (2003) spectrum from acceptance to control, only the broad categories of authoritative, authoritarian, permissive and uninvolved rearing styles (Table 4.2). After categorizing parents' rearing styles into the four styles, I complete this theme by attempting to match them with the parents' and children's food acceptance behaviour. This aims to throw light on whether parent role modeling is a significant factor within a range of rearing styles.

Exemplars of each typology are given below from the interview data. Also of interest is the relationship between rearing styles, parents' eating habits and whether the child has developed good or poor eating habits. While this study did not set out to determine this, again this is a theme that has emerged from the interview data and could well form the basis for further study. Some preliminary exploration is attempted here. Table 4.2 shows a tentative comparison between rearing styles, parents' eating habits as they describe them, and the child's food acceptance behaviour. In this chapter, it is difficult to separate clearly these four rearing styles in a family. The rearing styles overlap and sometimes parents used different rearing styles in different situations. Table 4.2 describes the parents' dominant rearing styles.

Table 4.2 *Parents' Eating Habits, Rearing Styles and Children's Eating Habits*

Child Name	Parents' Eating Habits		Children's Eating Habits at Home	Parents' Rearing Styles								
				Authoritative		Authoritarian		Permissive		Uninvolved		
	F	M		F	M	F	M	F	M	F	M	
1-Ren	G	G	G				R	R				
2a-Shi	G	G	G				R				R**	
2b-Xin	G	G	G				R				R**	
3a-Li	P	G	P				R	R				
3b-Ming	P	G	G		R			R				
4-Shu	G	G	G		R			R				
5-Yu	P	G	P						R		R**	
6-Yang	G	P	G			R			R			
7-Yue	G	G	P					R	R			
8-Han	G	G	G				R				R**	
9-Xiao	G	G	G			R	R					
10-Lin	G	G	G			R	R					
11-Mei	P	G	P					R				R
12-Fun	G	P	P						R		R*	
13-Hui	G	G	P						R		R**	
14-Da	G	G	G		R			R				
15-Te	P	G	P				R				R	
16-Nan	P	P	P						R		R**	
17-Wen	G	G	P						R		R**	
18-Xiang	G	G	P						R		R**	
19-Yi	G	G	G			R	R					
20-Bang	P	G	G		R						R**	

G: good eating habits; P: poor eating habits; R: dominant rearing styles

2a-Shi and 2b-Xin are twins

3a-Li and 3b-Ming are sister and brother

*The father only eats at home on Saturday and Sunday

**The father rarely eats at home with children (less than 4 times each month)

Authoritative Rearing Style

From the interview data, all parents applied authoritative rearing style to rear their children. Authoritarian, permissive and uninvolved parents also used many authoritative approaches to encourage their children to develop food acceptance behaviour. From Table 4.3 shows that the parents usually used authoritative rearing

style to help their children to develop good eating habits, including Ming, Shu, Da and Bang (show in the Table in blue colour). The other children's eating habits were influenced by their parents' dominant rearing style which will be discussed with the other rearing styles.

Table 4.3 Parents' Rearing Style -Authoritative Rearing Style

Child Name	Parents' Eating Habits		Children's Eating Habits at Home	Parents' Rearing Styles								
				Authoritative		Authoritarian		Permissive		Uninvolved		
	F	M		F	M	F	M	F	M	F	M	
1-Ren	G	G	G		(R)		R	R				
2a-Shi	G	G	G		(R)		R				R**	
2b-Xin	G	G	G		(R)		R				R**	
3a-Li	P	G	P		(R)		R	R				
3b-Ming	P	G	G		R			R				
4-Shu	G	G	G		R			R				
5-Yu	P	G	P		(R)				R		R**	
6-Yang	G	P	G		(R)	R			R			
7-Yue	G	G	P		(R)			R	R			
8-Han	G	G	G		(R)		R				R**	
9-Xiao	G	G	G	(R)	(R)	R	R					
10-Lin	G	G	G		(R)	R	R					
11-Mei	P	G	P		(R)			R				R
12-Fun	G	P	P		(R)				R		R*	
13-Hui	G	G	P		(R)				R		R**	
14-Da	G	G	G	(R)	R			R				
15-Te	P	G	P		(R)		R				R	
16-Nan	P	P	P		(R)				R		R**	
17-Wen	G	G	P		(R)				R		R**	
18-Xiang	G	G	P		(R)				R		R**	
19-Yi	G	G	G		(R)	R	R					
20-Bang	P	G	G		R						R**	

G: good eating habits; P: poor eating habits; R: dominant rearing style; (R): less frequently used rearing style

2a-Shi and 2b-Xin are twins

3a-Li and 3b-Ming are sister and brother

*The father only eats at home on Saturday and Sunday

**The father rarely eats at home with children (less than 4 times each month)

As described in the section of the unfamiliarity with food (see p. 14), Li's mother learned from her experiences with Li and made some quite major changes in her response to her younger child Ming's eating behaviour. Her description suggests a move from an authoritarian to an authoritative approach. As she described it:

I let Ming hold his own food in his hand from about 2 years old, and introduced rice and vegetables earlier so that he learnt to chew properly. I let him eat food with his own free will. I allow him to sit on the dining chair and to grab food to eat with his hands. I supplied rice earlier and lengthened the vegetables from 1 cm to longer to train his power of chewing. Ming normally liked to eat everything except porridge and extremely large meat that was not easy to chew. [3b-Ming, M, 8] Ming told me about another boy, Rong, at kindergarten who is allowed to drink sugar-rich beverages. I told him: 'Rong's mother does not care about Rong to allow him to drink sugar-rich beverages, but I insist our children cannot drink them.' This stops Ming from nagging for them. [3b-Ming, M, 3-4]

Ming's mother tried to reward her children, she said:

I tell my children, 'You must eat whole wheat bread because I have bought it. If you eat whole wheat bread, I will buy white bread.' Ming's elder sister Li will eat it, but Ming has to have jam before he will eat it. [3-Ming, M, 9]

Shu's mother was busy at work. She cooks dinners 2-3 times every week. She buys food once a week. She said,

I cook food to match the children's favourite. Shu can eat food up at kindergarten and she likes to drink water. She has a healthier body. She does not eat meals on time at home due to her bad temper or illness sometimes. The reason is I allow her to eat when she is hungry. [4-Shu, M, 4]

Da's father pointed out,

I do not force our children to eat food they do not like because it is useless. My wife and I eat the food our children do not like to eat like carrots. [14-Da, F, 1]

Da's mother remarked,

When it is dinner time, our family will eat together. There is no problem eating meals in our family. Our children do not ask for any other food, they just like to eat rice and other dishes. I usually cook four dishes. I can cook the dishes which our children like. I boil green vegetables and mix them with sesame oil and garlic. I also add a little salt. Our children like the taste of green vegetables. I steam fish; they like to eat this. Our children do not like a salty taste, so I do not add soy sauce to the vegetables. [14-Da, M, 7]

Berk (2003) found that parents who have a good understanding of nutrition tend to adopt an authoritative style. This certainly seems to be the case for a number of mothers. Bang's mother noted:

I have studied nutrition. I understand it is necessary always to make different changes in children's diets. Thus, the children would like the food. If my children like the food I cook, I would cook it next time. If my children do not like the food, I will ask their opinion and make changes. I would cook to meet their requirements. So my children like to eat the food I cook. [20-Bang, M, 2]

Nan's parents encouraged her to eat by acting as role models. As her mother put it:

If there is new food on the dinner table, my husband and I always eat it in front of her. She concentrates on watching our expression to see whether the food is bitter or sour or hot. If she feels our expression is happy and we enjoy the food, she will try to eat it. [16-Nan, M, 20]

Li's mother continually educated her children about healthy food. When she took the children to the supermarket, she only bought food that she wanted to cook for meals.

She noted that:

I always tell Li and Ming, 'If you eat every kind of food, you will have a healthier body.' [3a-Li, M, 3]

If her children asked her to buy fizzy soft drinks, Li's mother attempted to educate them about tooth decay:

There is no advantage when you have candy in your body. It will decay your teeth. The reason is that they can not fight bacteria in the body. [3a-Li, M, 4]

The following statements extracted from the interview data, all demonstrated the same notion. Han's mother pointed out:

If you eat meat and fish, it will become your muscle and you will grow up quickly.... if you eat vegetables, you will not suffer from constipation. [8-Han, M, 4]

Lin's mother said,

I told my children, 'Eating spinach can make you as strong as Popeye.' So my children like to eat spinach. I also told them, 'You can eat less meat, but you must eat vegetables'... If we eat out, I tell my children, 'Eat the appropriate amounts of food, do not eat too much.' [10-Lin, M, 6-7]

Hui's mother noted:

If you eat apple, your face will look like an apple. One day Hui told me that she likes her beautiful English teacher because she has a lovely face like an apple. Sometimes she does not like to eat apple, I use the words to encourage her. It works. [13-Hui, M, 2]

Nan's mother commented:

The first time Nan did not like to eat carrots, I told her, 'If you eat carrots, your hair will be beautiful.' She eats the food that would help her become beautiful. Sometimes I tell her, 'the food will ensure you grow up to become wise or make many people like you.' She also eats the food. She will accept the food the first time after my encouragement. But if she feels the taste is not good, she refuses it the second time, no matter how you encourage her. [16-Nan, M, 2]

Han's mother also understood good food hygiene, and taught her children not to eat with their fingers except dried meat:

When they were younger, I forbid them to grasp food with their hands. The only food I permit them to use their hands to grasp was dried meat, but they must wash their hands first. [8-Han, M, 4-5]

The following approaches used by parents, which are considered to be authoritative including food adaptation, praise and rewards, partnership with the kindergarten and establishing an environment. These approaches are conducive to develop good food acceptance behaviour.

Food Adaptation

Another important and widely used approach to be authoritative, is adaptation of the food to the child's needs. This may take the form of a change in cooking method, or in the shape, colour or flavour of food, disguising food or substituting the parents' preferred food with something more acceptable to the child. These actions may well be informed by parents' knowledge of nutrition. In addition, some parents who adopted adaptive approaches closely monitor their children and deliberately plan for their tastes.

Shi's mother explained:

I believe that my children should be exposed to a diverse range of foods. So I deliberately plan meals that are different from what the children eat at kindergarten so that they experience a range of different foods. For example, I will cook rice if the children have had noodles at kindergarten. I alternately cook rice, noodles and dumplings. [2a-Shi, M, 4]

Yang's and Da's mother were sensitive to their children's needs while still providing a balanced diet:

Yang likes to eat vegetables especially green-leafy vegetables such as lettuce, spinach, sweet potato leaves and Buk Choy Shianghai, so I always cook those vegetables. [6-Yang, M, 1]

Da's mother said,

Our children do not ask for any other food, they just like to eat rice and other dishes. I

usually cook four dishes. I can cook the dishes which our children like. I boil green vegetables and mix them with sesame oil and garlic. I also add a little salt. Our children like the taste of green vegetables. I steam fish; they like to eat this. Our children do not like a salty taste, so I do not add soy sauce to the vegetables. [14-Da, M, 7]

Da's, Xiang's and Bang's mothers clearly attempted to respond to their children's food preferences:

If I find dishes our children do not like and I know they do not like them. I do not force them to eat food they dislike. I cook other vegetables to replace the vegetables they dislike. I cook the food they prefer, so our children have a good appetite. [14-Da, M, 6]

Xiang eats meals very slowly from when she was younger. She likes to eat meat and vegetables, especially cauliflower and sausage. If I cook cauliflower or other food she likes, she would eat quickly. Xiang tells me, 'You cook this food today and cook another food tomorrow.' She gives me suggestions. Her favourite foods are different from her elder brother; I try my best to cook for her. [18-Xiang, M, 4]

I have studied nutrition. I understand it is necessary always to make changes in children's diets. Thus, the children would like the food. If my children like the food I cook, I would cook it next time. If my children do not like it, I will ask their opinion and make changes. I cook to meet their requirements. So my children like to eat the food I cook. [20-Bang, M, 2]

The four representative statements show how parents tried to tempt their children through a variety of means, such as changing the shape, texture, colour and flavour of food.

For Ming, the interesting shape of food can increase his appetite. [3b-Ming, M, 6]

If I fry the onion softer, Lin will eat it. The reason is the taste is sweet. [10-Lin, M, 1]

Han enjoys sausages and eggs cooked in a variety of ways other than poached as he does not like yolk separated from egg white. I always fry vegetables and meat or stewed chicken with garlic, and cut the meat up into small pieces. [8-Han, M, 1]

Fun only liked to eat green-leafy vegetables especially water convolvulus, lettuce and sweet potato leaves. The garlic is added when these vegetables are fried. Their taste is

stronger, which Fun likes. In addition, she does not like the other vegetables unless soy sauce was mixed with them. [12-Fun, M, 1]

A number of parents used disguise to make their children eat food they dislike, for example:

To encourage Li to eat vegetables, I mashes food and disguise it in rice. [3a-Li, M, 4]

In Da's case:

Da does not eat carrots at kindergarten, he eats radish and ready-cooked onions. If the onion is already cooked and Jung can not see it, he eats it. [14-Da, F, 6]

Other parents reported that they substitute more nutritious food to replace food with lower nutritive value, or used low calorie foods to replace high calorie foods, as these examples show.

Lin's mother said:

I do not buy soft drinks for my children. I make different drinks for them, like honey, fruit juice instead. I usually buy biscuits or other food instead of sweets. [10-Lin, M, 3-4]

Shi's mother also used a form of deception to prevent her children from drinking soft drinks with low nutrition value:

At the supermarket, the twins always ask for sugar-rich beverages. When we go to pay, I tell the shopkeeper that I do not want to buy the beverages. When we get home and the twins cannot find them, I tell them that the shopkeeper forgot to put them into the bag. We will buy them next time. This has worked many times. [2a-Shi, M, 3]

She also made a conscious decision to shop where the children could not be tempted:

When we go the supermarket, we buy fresh milk directly. The twins do not have the opportunity to see other beverages, so they do not desire to buy them. [11-Mei, M, 3]

Praise and rewards

In contrast to threats, praise and rewards might be offered, both at home and at the kindergarten. However as noted by Tapper et al. (2003)), rewards may not necessarily lead to a lasting re-orientation towards more healthy foods. Rewards may be also construed as bribes. However, according to the interview data, parents who used rewards believed they work.

Ming's mother pointed out:

When I go to kindergarten to take Ming home, his teacher also praises him in front of me, and I believe this makes him feel very proud. He eats almost all food provided at kindergarten. [3b-Ming, M, 8]

Li's mother told her children:

If you do not eat any sweets from now to your birthday, I will buy sweets for you. [3b-Ming, M, 4] This works.

Han's mother encouraged Han to eat food he might not like by offering juice as a reward. He might eat the food slowly but he does finish everything he is given. As she said:

When Han does not like some food, I will tell him: 'If you eat up, you can have some juice.' Sometimes I tell him, 'If you finish your meal, you could go out and play. In this situation, he can eat quickly.' [8-Han, M, 6]

Lin's mother mentioned:

Lin eats green beans at kindergarten but she does not eat them at home. Her teacher tells me, 'If Lin finishes her food, I will praise her in front of her classmates.' I think that is the reason she eats everything at kindergarten. [10-Lin, M, 7]

Hui's mother noted:

Hui likes to eat cake. If she wants to eat it. I will tell her, 'You can eat the cake after you finish your meals.' Hui will eat quickly. The cake has the effect to influence Hui to finish the meal quickly. But if there is no cake, I do not have another way to ask her to eat quickly. [13-Hui, M, 10]

Partnership with the kindergarten

The data reveal that authoritative parents might also seek a partnership with the child's kindergarten to assist developing good eating habits in their children. Although the role of the kindergarten did not specifically form part of the research design, as it was considered beyond the scope of the thesis, the relationship between parents and kindergarten was clearly an important one and would form the basis for further research. Some successful examples of cooperation between parents and the kindergarten teachers will be briefly described below. The strategies adopted between the kindergarten and parents are varied, ranging from authoritative to authoritarian.

In Da's case, he was a fussy eater at home, which his mother discussed with his teacher who agreed to work with him. As Da's mother said:

The kindergarten teacher told me that there are many different foods available for the children. Da can select the food he likes. There are not many children in Da's kindergarten. The kindergarten teacher often communicates with parents. She understands which food Da likes to eat and she gives him more of these. If Da dislikes the food, his teacher will give him less. He does not like to eat sticky foods and he likes other foods. Da could eat most food at kindergarten. [14-Da, M, 3]

Wen would not eat vegetables at home, even though his parents and grandparents tried to encourage him through their role modeling. Wen's mother talked to the kindergarten teacher and asked her to encourage the child to eat them. Wen's mother believed that peer pressure was a factor in persuading her son to eat. She commented:

Wen's teacher encourages him by stickers or seals. He could then eat vegetables. I feel peer pressure influenced Wen very much. He copies and competes with peers at kindergarten, but he does not have his peers to help him learn at home. [17-Wen, M, 2] ... Both grandparents and I eat vegetables to encourage him model his behaviour on ours, but it is useless. [17-Wen, M, 12]

Establishing an environment conducive to developing good food acceptance behaviour

Another characteristic of authoritative parenting is the creating of an environment that is conducive to eating, and establishing rules. These include the whole family eating together, definite meal times, making rules about eating sweets and other treats, not eating before bedtime, and not wasting anything. However, as in other authoritative categories, these may sometimes appear authoritarian.

A number of mothers (Lin, Da and Nan's mothers) believed in the importance of the family eating together in developing good food acceptance behaviour. Three examples are extracted in the following.

I feel that eating together with the whole family is one of the important ways to instruct our children to have good food acceptance behaviour. [10-Lin, M, 9]

When our family eats meals, we are very happy. We finish our meals in about half an hour. Naturally our children like to eat meals. [14-Da, M, 7]

I feel atmosphere is important to my child. The reason is my husband is not always at home. Nan likes the feeling of the whole family eating together. We usually eat meals at my mother's home. Her eating habits are not good. She eats small meals, slowly. I try many ways to instruct Nan. It is useless. Sometimes I take Nan to eat out; she feels the food is delicious. Then, she always asks me to eat out again, I tell her, 'If you behave well, I will take you out to eat.' She looks forward to it and she can eat quickly. I think Nan feels, 'If I eat with my parents, everything is delicious.' I try to manage the feeling of the whole family eating together. Though her father can not always accompany her, I try to let her feel I will always accompany her. [16-Nan, M, 18]

A number of parents did not allow their children to watch television while they were eating:

In Shi's case his mother pointed out:

I bought a dinner table to encourage my children to eat meals. I do not permit them to watch television when they are eating. I think if they watch television, they will not finish their meals and this may result in malabsorption. [2a-Shi, M, 7]

Bang's mother also suggested,

If Bang's father is at home, he forbids our children to watch television when they are eating. [20-Bang, M, 5]

Some families insisted on meals on time. In Da's family, his mother explained that:

Our family has a definite time to eat meals. We eat dinner about 6 o'clock. We don't buy any junk food. If they are hungry, sometimes I would let them eat milk and bread. [14-Da, M, 4]

Authoritarian Rearing Style

An authoritarian style means that parents exert their authority over their children by using coercion, force, control, threats, bribery and punishment to persuade them to eat. The child might then eat out of fear of punishment, or that food would be withdrawn in the future when they were hungry, or that they would miss out on a treat. Most of the parents in this study appeared to use aspects of this style (Table 4.4)

Table 4.4 *Parents' Rearing Style -Authoritarian Rearing Style*

Child Name	Parents' Eating Habits		Children's Eating Habits at Home	Parents' Rearing Styles								
				Authoritative		Authoritarian		Permissive		Uninvolved		
	F	M		F	M	F	M	F	M	F	M	
1-Ren	G	G	G				R	R				
2a-Shi	G	G	G				R				R**	
2b-Xin	G	G	G				R				R**	
3a-Li	P	G	P				R	R				
6-Yang	G	P	G			R			R			
8-Han	G	G	G				R				R**	
9-Xiao	G	G	G			R	R					
10-Lin	G	G	G			R	R					
15-Te	P	G	P				R				R	
19-Yi	G	G	G			R	R					

G: good eating habits; P: poor eating habits; R: rearing styles

2a-Shi and 2b-Xin are twins

3a-Li is Ming's elder sister

*The father only eats at home on Saturday and Sunday

**The father rarely eats at home with children (less than 4 times each month)

Table 4.4 suggests that although parents identified the use of an authoritarian approach for their children's food acceptance behaviour, they were often successful as the children were most likely to comply with that, except Li and Te. The reason for Li's poor eating habits was described in the section on the unfamiliarity with food (see p. 14). As for Te's poor eating habits, it appeared that his mother did not consider Te's needs. This may well reflect far more the notion of *chiao shun* (training) than more usual concepts of authoritarianism (Chao, 1994). Many parents are stressed, work long hours and have little time for their children. They believe that the best way for them to eat well is for their children to comply with their rules. Examples are given below:

Shi's mother used a number of strategies with her twins to persuade them to eat what she considered healthy food. The twins argued with her and played her off against one

another. She used coercion, reporting that the twins will only eat vegetables after she punishes them. As she put it:

The twins argue with me and support each other's view. Sometimes they do not want to listen, I must explain something to Shi ten times, and then he could accept it. The only thing I can not persuade him to do is to eat more vegetables and fruit. Xin likes to argue too. She will listen to my words after she is punished by me. [2b-Xin, M, 9]

Han's mother reported that:

My husband works in another town, so does not spend much time at home. As a result, I always buy food from a cafeteria. I force Han to eat a definite amount of food I give him....My husband has the same attitude as me. [8-Han, M, 7]

Te was a fussy and slow eater, which caused his parents distress as they tried to manage their small shop at the same time:

I do not consider my children's demands. My opinion is my children must eat what I cook. I can not let them have the opportunity to choose the food. I tell Te that if you do not finish your food, you can not leave your seat. Sometimes he has not finished his dinner when I close the shop door about 10 p.m. [15-Te, M, 8]

According to her mother, Xiang was afraid of her father, who set up strict rules for eating. Xiang's mother noted:

Xiang's father strictly sets up eating rules and asks Xiang to eat everything on the dinner table. She can leave the table only when she finishes eating. She is afraid of her father, whether he is at home or not. But she still eats food very slowly. [18-Xiang, M, 2]

In Lin's, Te's and Yi's cases, their mothers used the threat of withdrawing food at a later date or not offering any sweets or soft drinks if the child did not finish their food.

Three representations of the interview data are presented as follows:

Lin's mother noted:

Lin sometimes did not want to eat something when she was younger. I told her, 'No! you must eat it. If you do not eat now, I will not give you any food later and you will be hungry'. She ate it unwillingly. I forced her to eat the food I prepared. She dared not refuse to eat it. [10-Lin, M, 9]

And Yi's mother mentioned:

If Yi told me that she could not eat the food I served, I would tell her that she could not eat any food later, including desserts. Yi likes desserts very much, so she would finish all food. [19-Yi, M, 10]

Li's mother refused soft drinks by taking the children straight home.

If my children insist on buying soft drinks, I take them home immediately and do not buy anything. This seems to stop them from asking again. [3a-Li, M, 3]

Permissive Rearing Style

Like authoritarian parents, permissive parents may also not know how to encourage their children to eat, but react by being lax rather than authoritarian. They may attempt to encourage their children, but often they allow the children to eat what they want to rather than give guidelines and education. In this study, a number of parents appeared to be permissive in their rearing style. Of the children with permissive parents, most seem to have poor eating habits, in particular, they are slow eaters (Table 4.5). In the Table, some children's good eating habits were influenced by their mother's dominant rearing style, whereas Ming, Shu and Da were influenced by their mother's authoritative rearing style and Ren, Yang and Xiao were influenced by their parents' authoritarian rearing style.

Table 4.5 Parents' Rearing Style -Permissive Rearing Style

Child Name	Parents' Eating Habits		Children's Eating Habits at Home	Parents' Rearing Styles							
				Authoritative		Authoritarian		Permissive		Uninvolved	
	F	M		F	M	F	M	F	M	F	M
1-Ren	G	G	G				R	R			
3a-Li	P	G	P				R	R			
3b-Ming	P	G	G		R			R			
4-Shu	G	G	G		R			R			
5-Yu	P	G	P						R	R**	
6-Yang	G	P	G			R			R		
7-Yue	G	G	P					R	R		
9-Xiao	G	G	G			R	R		Initial		
11-Mei	P	G	P					R			R
12-Fun	G	P	P						R	R*	
13-Hui	G	G	P						R	R**	
14-Da	G	G	G		R			R			
16-Nan	P	P	P						R	R**	
17-Wen	G	G	P						R	R**	
18-Xiang	G	G	P						R	R**	

G: good eating habits; P: poor eating habits; R: rearing styles

3a-Li and 3b-Ming are sister and brother

*The father only eats at home on Saturday and Sunday

**The father rarely eats at home with children (less than 4 times each month)

Fun's mother also found if Fun was not hungry, she ate meals slowly. Fun's mother believed she was not a good role model for her daughter and was not sure how to get her to eat. She considered:

My eating habits are not good, I do not know how to instruct Fun to eat nutritious food. I do not limit her and ask her to eat. If she is not hungry, I will let her eat later. [12-Fun, M, 6]

Hui's mother said:

I did not force Hui to eat all the food I served when she was younger, so her eating habits are not good. She only likes to eat rice, eggs, sweets and a small dishes and her eating speed is slow. [13-Hui, M, 10]

Wen's mother commented:

If we go out to eat meals. Wen always likes to eat hot pot. We always eat that, I want to take him to eat the other food. He is unhappy and insists to eat that. His father will compromise with him and let him eat the food he likes. Thus, he can not eat all nutritious food like vegetables. [17-Wen, M, 8-9]

However Wen's mother tried to encourage him and stated:

Wen does not like to eat vegetables at home. When we take him to go out and he sees a big lorry. He tells me he will buy a lorry when he grows up. I tell him, 'If you eat vegetables, you will have the strength to drive a big lorry'. I encourage him by providing the things he likes. But it does not work well; it is hard to encourage him to eat vegetables at home. [17-Wen, M, 9]

Xiang ate quickly if she was hungry but otherwise ate slowly and very little. Her mother allowed her to eat in her own way because she did not know how to help her child develop better eating habits. She pointed out::

When Xiang has just come home, she eats quickly because she is hungry. She only eats a little food. Then, she eats slowly and keeps the food in her mouth for a long time. Sometimes I feed her, so she can eat quickly. I do not force her to eat food because she always eats food like that. She spends a lot of time eating - about one to two hours. I try many methods to instruct her but it is useless. I do not know how to instruct her to eat meals normally. [18-Xiang, M, 9]

In Da's case, both parents allowed their children to choose what they wanted to eat, and Da's mother always cooked the food their children liked. She believed this was why Da ate reasonably well, though his father regarded him as fussy. Da's father indicated:

I do not force our children to eat food they do not like because it is useless. My wife and I eat the food our children do not like to eat, like carrots. [14-Da, F, 1]

Uninvolved Rearing Style

Some parents appear not to care about their children's eating habits, or whether they eat appropriately or not. It would appear that children of uninvolved parents do not develop good food acceptance behaviour except Shi, Xin, Han and Bang (Table 4.6). The good eating habits of Shi, Xin and Han (shown in the Table in blue) were cultivated by their mother's authoritarian rearing style while Bang's mother used an authoritative rearing style as described above.

Table 4.6 Parents' Rearing Style -Uninvolved Rearing Style

Child Name	Parents' Eating Habits		Children's Eating Habits at Home	Parents' Rearing Styles							
				Authoritative		Authoritarian		Permissive		Uninvolved	
	F	M		F	M	F	M	F	M	F	M
2a-Shi	G	G	G				R			R**	
2b-Xin	G	G	G				R			R**	
5-Yu	P	G	P						R	R**	
8-Han	G	G	G				R			R**	
11-Mei	P	G	P					R			R
12-Fun	G	P	P						R	R*	
13-Hui	G	G	P						R	R**	
15-Te	P	G	P				R			R	
16-Nan	P	P	P						R	R**	
17-Wen	G	G	P						R	R**	
18-Xiang	G	G	P							R**	
20-Bang	P	G	G		R					R**	

G: good eating habits; P: poor eating habits; R: rearing styles

2a-Shi and 2b-Xin are twins

*The father only eats at home on Saturday and Sunday

**The father rarely eats at home with children (less than 4 times each month)

Though Te's father ate with Te, Te's mother considered:

My husband's eating habits are not good. When he finds Te does not like to eat meals and eats slowly, he only murmurs. He does not supervise him. [15-Te, M, 10]

A number of fathers of the children in this study were rarely at home, so their rearing

style was less likely to influence their children's eating habits. The impression here was that the mothers would like their husbands to be more involved in child rearing, believing that their influence would make a difference. Nan's mother noted:

Nan does not like to eat meals and eats slowly usually. When my husband was at home, Nan would eat more because her father would force her. I feel my husband only asks her to eat and is not really strict with her. My husband does not always eat meals with us, so he could not change Nan's eating habits. [16-Nan, M, 16]

In Fun's case, she did not eat well. His father was authoritative but he is seldom home, so it was not clear how he influenced his daughter's eating habit. Fun's mother did not eat well, and was permissive with her daughter.

Mixed Messages or a Question of Balance

Another apparent difference in Chinese conceptualisations of child rearing as opposed to Western that emerges from this study is the question of mixed messages or balance. In my experience, Taiwanese families consider that a divergent approach to child rearing in the family is healthy. This I believe comes from the philosophy of Yin Yang, which sees the universe as two primal opposing but complementary forces found in all things. Thus, reports of differences in approach between parents may not necessarily be viewed unfavorably within the family. In contrast, Western parents tend to believe that consistency is the preferred style so that the child receives a constant, reinforcing message. For example:

Nan's mother pointed out:

Nan does not like to eat meals and usually eats slowly. When my husband was at home, Nan would eat more because her father would force her. I feel my husband only asked her to eat and is not really strict with her. My husband does not always eat meals with us, so he could not change Nan's eating habits. [16-Nan, M, 16]

Similarly, Yu's mother added:

If my husband was at home, Yu would eat more and quickly because he asked Yu to finish within a definite time or he would punish him.... But my husband is not always at home. [5-Yu, M, 6]

On the other hand, Fun's mother was concerned about their difference in style of rearing attitudes. She said:

Fun's eating habits are not good. Her father uses an authoritative style to rear his child, but he is not always at home. Thus, his rearing style and good eating habits do not influence Fun's eating habits. His mother's poor eating habits and her permissive rearing style result in Fun's poor eating habit. [12-Fun, M, 7]

While Xiao's father tried to force the child to eat, his mother permitted him to eat his meals later. Xiao's father acknowledged his wife's expertise and went along with her views:

My wife majored in preschool children's education. She did not force Xiao to eat food. She lets Xiao do anything according to his own will. If Xiao eats snacks in the afternoon, she permits him to eat dinner later. [9-Xiao, F, 7]

Yang's parents were also examples of the Yin Yang approach. Yang had good eating habits, and although his mother was permissive, his father tended to be more authoritarian. As well, Yang's mother had poor eating habits, while his father ate well. Yang's mother believed that her poor eating did not influence Yang. As she put it:

Yang's father likes to drink fresh milk, to eat fruit noodles and glutinous rice pork dumpling. His dietary habits influence Yang to eat these foods. Thus his father's food preference influenced Yang's directly. I drink tea everyday and do not like to eat fruit. When I eat fruit, my tongue becomes tasteless. So I do not like to eat it. It is fortunate that my own dietary habits did not influence Yang's food acceptance behaviour. [6-Yang, M, 7]

Parents' Suggestions for Improving Preschool Children's Food Acceptance Behaviour

A number of mothers made useful comments and gave suggestions for ways that might help them and others improve children's food acceptance behaviour. These ranged from training for caregivers in nutrition and cooking, education for women about being a mother, understanding the relationship between mother and child, and effective education for young children. These will be revisited in Chapter Six.

Ren's mother suggested:

I would like to have the opportunity to learn how to cook tasty and nutritious food for my child. I suggest that all caregivers should acquire some knowledge of preschool children's nutrition and how to cook appropriate food for a healthy diet. [1-Ren, M, 6]

Li' mother commented:

I believe that all women should learn how to educate children to eat properly before they become mothers ... I also believe that good food acceptance patterns need to be established by the age of three, through setting a good example and serving nutritious food. In addition, parents' good eating habits and the right ideas about food will help their children to establish a good habit of food acceptance. [3a-Li, M, 8]

Han's mother emphasised:

Each child's mother's attitude in teaching her child dietary habits has a very important influence on his or her children's food acceptance behaviour. [8-Han, M, 7]

Nan's mother also expressed a need for education about nutrition:

I want to obtain more nutrition knowledge about preschool children, but there is only some theoretical knowledge. It is not easy to understand. I wish to read the data which is easier to understand and incorporated into daily life. I told the head teacher of the kindergarten that parents must promote themselves like teachers. It is not easy for each parent to be the parents. Like me, I just began learning how to be a mother. I do not understand much knowledge about nutrition and health. I feel it is important. If preschool children do not have enough nutrition, it would influence them in many ways.

I feel it is necessary to learn more about these. [16-Nan, M, 19]

As far as training children went, Hui's mother suggested:

It is important to train the children from when they are younger. The training must begin from when the baby starts on solids, from 4 months, to cultivate good eating habits. [13-Hui, M, 9]

Summary

Chapter 4 discussed the data that was generated in response to research questions 1, 2 and 3. The findings show the complexity, contextual and cultural nature of parents' beliefs, concerns and strategies regarding their children's food acceptance behaviours. They also show the very wide range of approaches to food acceptance evident even within this relatively small number of families. The first and second themes reveal that children in this study show a very wide range of food preferences and aversions, which parents see as both innate and learned. Parents recognise that they have a key role in the development of these behaviours, variously seeing themselves as role models and educators. They note that different children demonstrate different food preferences, even within the same family, and that others involved in the child's life may strongly influence preferences and acceptance, both positively and negatively. The parents are often concerned about their children's food preferences, strongly linking them to the child's overall health. Some express concern over fast food and their children's susceptibility to advertising.

Parents' strategies for developing their children's food acceptance can be regarded as falling into four typologies as described by Berk (2003): authoritative, authoritarian, permissive and uninvolved. However, the different cultural meaning attached to these must be born in mind. The dominant style in this group of parents appears to be

authoritarian, but a significant number of parents show an authoritative style. Few appear to be permissive, and few mothers were still uninvolved, with the exception of some fathers were absent at mealtime. However, it could be considered that many parents are uninvolved during the early years of a child's life, as in Taiwan, it is common for the total responsibility of child rearing to be given to a caregiver or grandparent.

Towards Chapter 5

Because of the complexity of these data, Chapter 5 presents two other ways of representing them. These are firstly in the form of two narratives from selected families – Ren and Xiao, and secondly as concept maps which display the complex relationships between food acceptance behaviour and family context for Ren and Xiao, and also for the group as a whole.

CHAPTER 5

DATA ANALYSIS AND REPRESENTATION PART 2:

NARRATIVES AND CONCEPT MAPS

Introduction

This chapter introduces data in the form of narratives of two of the interviewees, and three concept maps. The two narratives are examples of good models of how parents' instruction can change their preschool children's food acceptance behaviour. Two concept maps were used to explain the factors influencing Ren and Xiao's food acceptance behaviour and the approach parents used to change their children's food acceptance behaviour. Finally, there is a concept map to summarise all factors influencing the interviewees' preschool children's food acceptance behaviour.

The Narratives

The first section of this chapter presents two narratives. This form of interpretation of the data and representation has been chosen as it allows me to portray the complexity of the parents and children's interrelations around food acceptance behaviour as a "lived experience". To create the narratives the interview transcripts were rearranged to produce a text that attempts to bring life to the interview data. See Appendix C and D for the transcripts. The two children and their families that have been chosen for the narratives - Ren and Xiao best represent aspects of the themes that have emerged from the interview data. Quotes from the translated interview transcripts have been kept in the original Mandarin idiom to give authentic voice to the parents, and signified by "...".

Ren -The Child Who Only Liked to Drink Milk

Ren was the elder of two children, and had a younger sister. Both parents work. Ren was four years old at the time of the interviews. Ren's mother Jean was very concerned that her son ate a healthy diet. Ren's family relied on a caregiver to raise the boy from the age of two months until he was two and a half. The parents went to see him everyday for a short time as they were both very busy, also Ren's mother did not believe she had enough experience to take care of the child. In addition they had younger child to care for as well. Sometimes they would take Ren home for a short time.

At home, the family always ate at Ren's grandparents' house, and his grandmother usually cooked. When Ren was brought home permanently from the caregiver's, his mother Jean was very surprised to find that he refused to eat his grandmother's food. The child appeared to be the classic "fussy eater". Ren told his mother that he only had milk at the caregiver's home, and it quickly became clear to Jean that the caregiver had never given him any rice or indeed much else at all. Hence Ren was unfamiliar with a range of food, and initially refused everything except milk. Like so many young children, Ren also disliked vegetables. Ren's parents were particularly concerned that he refused to eat rice, and worried about him becoming malnourished.

However the parents were at odds over the best way to approach Ren's poor eating behaviour. Jean used a variety of approaches, some authoritarian, some better described as authoritative. These included threats, praise, rewards and nutrition education. Jean believed that she should force the child to eat, but his father did not agree. As Jean put it, "When I ask Ren to eat food, his father always maintains that if

Ren does not like something, parents should not force him to eat it". While initially Jean went along with her husband, she found that the child did not respond. Jean believed that the difference in approach between her and her husband might be causing Ren to miss out on nutrition. Sometimes Jean resorted to threats, such as "If you do not eat rice, I will punish you". He responded by eating a small amount of rice and other food.

Jean also employed a number of other approaches in an effort to persuade him to eat. She disguised vegetables by adding vegetable juice to steamed eggs. She tried to tempt her son by offering "well-flavoured" food such as chocolate bread and stewed chicken. She also tried to encourage him by educating him about the nutritional benefits of the food, telling him, "If you eat carrots, your eyes will be brighter". This was reinforced by the parents when they praised Ren for recognising their car in the car park before they did, telling him, "The reason why you can do that is that you eat carrots". Jean also tried to tempt Ren by teaching him both the Chinese and English names of the food, in the belief that this might encourage him to eat a wider variety. As Jean put it, "If Ren recognises the food on the table and tells us the name, we will praise him". Again this worked to some extent, as the child at least "starts tasting the food". Gradually Ren began to widen the variety of food he would eat, and began to "accept the food prepared by his grandmother gradually, but he still does not like to eat vegetables".

Because of his reluctance to eat at home, Jean was concerned about whether he would eat properly at kindergarten. She tried to encourage him by offering him the reward of coming home early, "If you can eat all your food at kindergarten, I will take you home earlier". Jean believed Ren would think that, "If I am ready for everything, mother

would take me home earlier as a reward”. This seemed to work, as Ren ate his food quickly, slept well and looked after his own bowl and utensils properly (in this particular kindergarten, the children had to bring their own bowls and eating utensils from home. After lunch they had to put them in their bag to take home to be washed). Jean directly linked the child’s expectation of the reward of going home early to his apparent increase in appetite and food acceptance. She said, “His expectation causes Ren to have a good appetite and do everything quickly”.

However the main change in Ren’s eating habits came about through cooperation between the parents and the kindergarten. Because of her concern over Ren’s food acceptance behaviour, Jean approached his kindergarten teacher, Ms. Wu, for help. When Ren first started kindergarten, he cried at lunch time and refused to eat. Ms. Wu informed Jean, and Jean told the teacher of her concerns about her son’s eating habits. Between them they devised strategies to encourage the child to eat, based on close communication between parent and teacher. Everyday when Jean collected Ren to take him home, Ms. Wu would tell her about his eating habits that day. If Ms. Wu were not available to talk to Jean, they would discuss this by phone later in the day or even at night. Jean kept Ms. Wu informed about progress at home. She would tell her, for example, if Ren had eaten carrots that day. Then the next day Ms. Wu would single out Ren and praise him for this in front of the other children. Jean reported that Ren was thrilled by this; when he went home he told his mother, “Wu says that I am a good child!” Jean believed that this strategy was key in persuading Ren to eat at home. Jean said, “In order to obtain his teacher’s admiration, Ren would try to eat up the food provided by me as quickly as he could”. The cooperation between teacher and mother resulted in Ren eating a much wider variety of food, and within three months

he was eating all the food served in the kindergarten. He told Jean, “Ms. Lin, the cook in the kindergarten, cooks delicious food!” At the same time Ren was making good progress at home, other than eating vegetables. The cooperation between the kindergarten and the home was clearly significant in expanding Ren’s food choices, and was a huge relief for his worried mother. As Jean put it, “Finally, a big worry is resolved”.

At the time of the interview, Jean described Ren as liking a variety of food, particularly chicken with chili sauce, pork and steamed beef with rice. He ate these at kindergarten so would also eat them at home. Ren also enjoyed chicken at McDonald’s and liked the smell of these foods. He also liked all kinds of fruit. Jean believed that Ren’s taste in food is now similar to her own, reporting that she liked hot rice but not noodles, and Ren was the same.

Television also had an influence on Ren’s food preferences. Like many other children, Ren enjoyed watching television, and one of his favourite programs was “Bread Superman”. Ren ate bread, sandwiches and chilli chicken just like Bread Superman does. Jean thought that Ren believed that if he ate like Bread Superman he would be powerful just like he is.

Ironically, a new problem had now surfaced, giving Jean further cause for concern. Ren was now eating so well that he was putting on too much weight. Now the parents had to develop strategies to control their son’s food intake. One approach was to create an illusion that he was getting more food than he actually was. When Ren’s father took him to buy “steamed rice cake”, he told the shopkeeper, “My son wanted to eat a lot, please loosen it so it looks bigger in the bowl”. This seemed to satisfy the

child and he did not ask for more. Low calorie substitutes were also used. For instance, Ren was hungry after swimming, so Jean gave him fruit juice rather than snacks to fill him up, which satisfied him. At home, Ren was now not allowed to eat any food before he went to bed after dinner. Ms. Wu also controlled the amount of Ren's food at kindergarten. Ren maintained a normal body weight which was increasing steadily through the cooperation between Ms. Wu and Jean.

Jean concluded her interview by reiterating her concern over the influence of the caregiver and the poor diet she had exposed Ren to during his early years. She believed that all caregivers should acquire some knowledge of preschool children's nutrition and how to cook appropriate food for a healthy diet. She herself would also like the opportunity to learn how to cook tasty and nutritious food for her child.

Xiao - The Child Who Did Not Like Vegetables and Fruit

Xiao was also four years old at the time of the interviews. He lived at home with his father, mother and two-year-old sister. Xiao's mother Ling majored in preschool children's education, and his father Hong was a lecturer in chemistry. As such, both parents felt they had a good knowledge of young children's nutritional needs and an understanding of health issues.

Since he started on solids at the age of six months, Xiao had enjoyed all types of meat and fish. These days he was a McDonald's fan, particularly enjoying French fries and chicken nuggets with plenty of ketchup. Xiao would only drink packaged orange juice, not the fresh juice his mother squeezed. He was also very fond of sweets. But generally Xiao was a fussy and slow eater, and only seemed to eat properly when he

was very hungry. His mother remarked that, “If Xiao is hungry, he can eat quickly by himself”. From the age of one and a half, Xiao had refused to eat vegetables or fruit. Although his grandmother always offered him three kinds of fruit after meals, he would rarely eat any. Sometimes Xiao might see his parents eating fruit such as honeydew melon, and decided he wanted some too. But then, as Hong said, “Xiao only has a mouthful of it, he immediately says, ‘it is disgusting!’ I considered it was his psychological response, because Xiao insists, ‘I don’t like to eat any fruit’”.

This was of great concern to the parents, and in stark contrast to Xiao’s younger sister who was a good eater and was particularly fond of fruit, so much so that her nickname was “fruit girl”. As Hong said, “She cries if we do not give her food”. Like Ren, Xiao was brought up by a caregiver who fed him porridge instead of rice, so he became very used to soft textured food. Xiao’s parents suspected that part of Xiao’s reluctance to eat fruit and vegetables could be because of their hard texture. But Ling believed her son took after his father in his food preferences. Both enjoyed meat and salty food. Xiao liked spare-ribs from lunch-boxes if they were cut small enough. And neither would touch even a small piece of food they did not like. Hong also did not particularly like fruit which he attributed to growing up on a cereal and fruit farm, where the best fruit was taken to market and the family ate only the poor quality fruit that could not be sold. Even though he could now afford the best quality fruit, Hong was not interested in eating it, especially if he had to peel it himself. He would only eat it if his wife cut it up for him. As Ling put it, “My husband will not peel fruit himself, but he eats the fruit I have cut into slices. So he does not like to eat any fruit except banana, orange and peeled fruit”.

Xiao's father also believed that her son's food preferences were partly influenced by television food advertising. When out shopping, for example, Xiao recognised Qoo fruit juice from seeing it advertised on television and asked his mother to buy it. He said he liked the orange flavour. The advertisement in question was lovely, touching and interesting. In fact Qoo fruit juice had become a fashionable drink for young children in Taiwan, as Hong said, it was a kind of sub-culture among kindergarten children. Not all food seen on the television was sought after by children however. Although Xiao liked to watch Popeye, like generations before him, it did not make him eat spinach. According to his father, Popeye would not influence his son to eat spinach if he did not like it. It would appear that the influence of television advertising was to create brand identification and loyalty for products the child already liked. Xiao's parents took him to McDonald's once a week, but he dared not ask them for cola or toys as he knew his parents would forbid it. They believed sugar-rich drinks were bad for children. Xiao was an intelligent child and could read his parents' expressions. However when his grandparents picked him up from kindergarten, Xiao asked them to take him to McDonald's and asked for cola, which they bought for him because they loved him and wanted to please him.

Like Ren's, Xiao's parents appeared to have differing parenting styles. Hong tended towards an authoritarian style, and tried to force his son to eat. Xiao's mother was more permissive, but gave this up, going along with her husband's authoritarian approach in her concern to get the child to eat healthily. Ling believed that Xiao took more notice of his father than he did of her – he was fearful of his father as an authority figure. As Ling put it, “He listens to his father's words more than mine because he feels his father will not compromise easily”.

Xiao was not a particularly healthy child, and suffered from painful constipation. As Hong put it, “Xiao’s stool is always harder and sometimes he has painful constipation. Xiao can not sleep well at night. He cries and wakes up many times because of constipation”. He also suffered from colds and was lighter than average for his age. Because of this his parents gave him vitamin C supplements. With their knowledge of nutrition, Xiao’s food acceptance behaviour was a major cause of concern for Ling and Hong, particularly his refusal to eat fruit, which they believed was the cause of his poor health. Xiao’s parents believed that they understood their son well and had worked out how to induce him to eat. They described him as knowing what he wanted. The parents had adopted a number of strategies to encourage Xiao to eat fruit, but their differences of opinion about how best to deal with the situation added to the tension.

Hong used coercion, “In order to ask Xiao to eat an apple at home, I struggle with him for an hour and even punish him”. His father also threatened him, “If you don’t eat fruit and vegetables at kindergarten, you cannot go to the slide (his favourite activity) after school. And you cannot go out playing on Saturday and Sunday”. Hong believed this worked.

Hong attributed his authoritarian approach to his own family background, “I was born in a large family. My parents told the children if we did not eat meals on time, we would not have anything to eat later. So we ate meals on time, which became a habit ... thus, I insist that Xiao must eat meals on time!” However Xiao retaliated by complaining of feeling ill, saying he had a stomach ache and wanted to be sick.

In contrast, Ling used to permit Xiao to leave his food for later if he was not hungry.

However her more permissive approach gave way to her husband's as the child was not eating any better and his health problems continued.

Along with an authoritarian approach, the parents also attempted to educate their son about healthy eating. Ling told Xiao, "You must eat all nutritious food. You are growing up now, you must eat fruit". Hong always told Xiao, "You must eat food rich in fiber, such as vegetables and fruit to avoid constipation". And "If you eat fruit and vegetables, you will have a healthier body". They also tried rewards and bribery. Hong told Xiao that he could have sweets if he finishes his meal.

Just as Ren's mother Jean mixed vegetable juice into egg, Hong also tried to disguise fruit and vegetables by hiding them in other foods. Hong has found that if he sliced vegetables into Xiao's porridge, the child would eat them. Hong said, "I put sliced vegetables into porridge to feed Xiao on Sunday. Xiao will eat this. Xiao did not reject fruit paste ground with very expensive apples before he was one and a half years".

Hong cut vegetables such as green pepper into small pieces and fried them with egg. He said, "Xiao cannot pick out the small green pepper, so he eats them". For Hong, this was the most successful method, "He gradually accepts various vegetables by using this method several times". Ling cut fruit into small pieces for Xiao to eat. Eventually the child gets to like the taste and began to increase his fruit and vegetables intake. As Birch, Johnson and Fisher (1995) noted, once children actually get to taste food, they often find they like it.

Like Ren's mother, Ling and Hong worked actively with his kindergarten teacher, Ms. Hu, to change his reluctance to eat fruit and vegetables. Hong explained to Ms. Hu

how he and Ling were working with Xiao, in particular preventing him from playing outside if he had not eaten his food. Ms. Hu agreed to use the same strategy at kindergarten, thus re-enforcing the message. Between them, they were experiencing success, and Xiao started to eat fruit and vegetables. Both parents and teacher were pleased with the success of their strategies.

Discussion: Developing Food Acceptance Behaviour

Both these narratives give a sense of the complexity of the development of children's food acceptance and the role played by the family and other caregivers. Like so many children in Taiwan, Ren and Xiao as babies were both brought up by caregivers. Parents seemed to be unsure about the quality of nutrition provided by such caregivers. Like so many children, both Ren and Xiao were fussy eaters, not liking food that their parents believe was good for them. This was a real source of anxiety for the parents, who generally wanted to provide a healthy diet for their children. The approaches these sets of parents used to encourage their children to eat would seem to be quite authoritarian, though the cultural location of this parenting style needs to be born in mind (see Chapter 2).

Both children's parents believed that bribery worked well: as Hong put it, "The reason Xiao changes his eating habits is that he knows if he eats fruit and vegetables at home, he can go out to play".

A significant finding from these and other interviews is the level of cooperation between the kindergarten teachers and the parents. It would seem that both kindergarten teachers were very happy to work with the parents whatever their

parenting style, to reinforce food acceptance messages. This would seem quite different from a Western model where a kindergarten may be more inclined to use strategies it thought appropriate and even reject parents' opinions if it was thought they did not fit the kindergarten's philosophy.

The next section presents the data in the form of three concept maps. This mode of representation attempts to show the interconnectedness of the factors concerning food acceptance behaviour.

The Concept Maps

The first two concept maps (Figures 5.1 and 5.2) display the factors relating to food acceptance behaviour for the same two families (Ren and Xiao) as presented in the narratives. The third map is a composite concept map (Figure 5.3) which attempts to include all identified factors relating to food acceptance behaviour from all the parents in this study.

Individual Concept Map

In this concept map, the main factors that appear to influence Ren's food acceptance behaviour are his early caregiver, his mother, his kindergarten teacher and television programs. Ren's mother and kindergarten teacher are the most significant persons in changing his food acceptance behaviour.

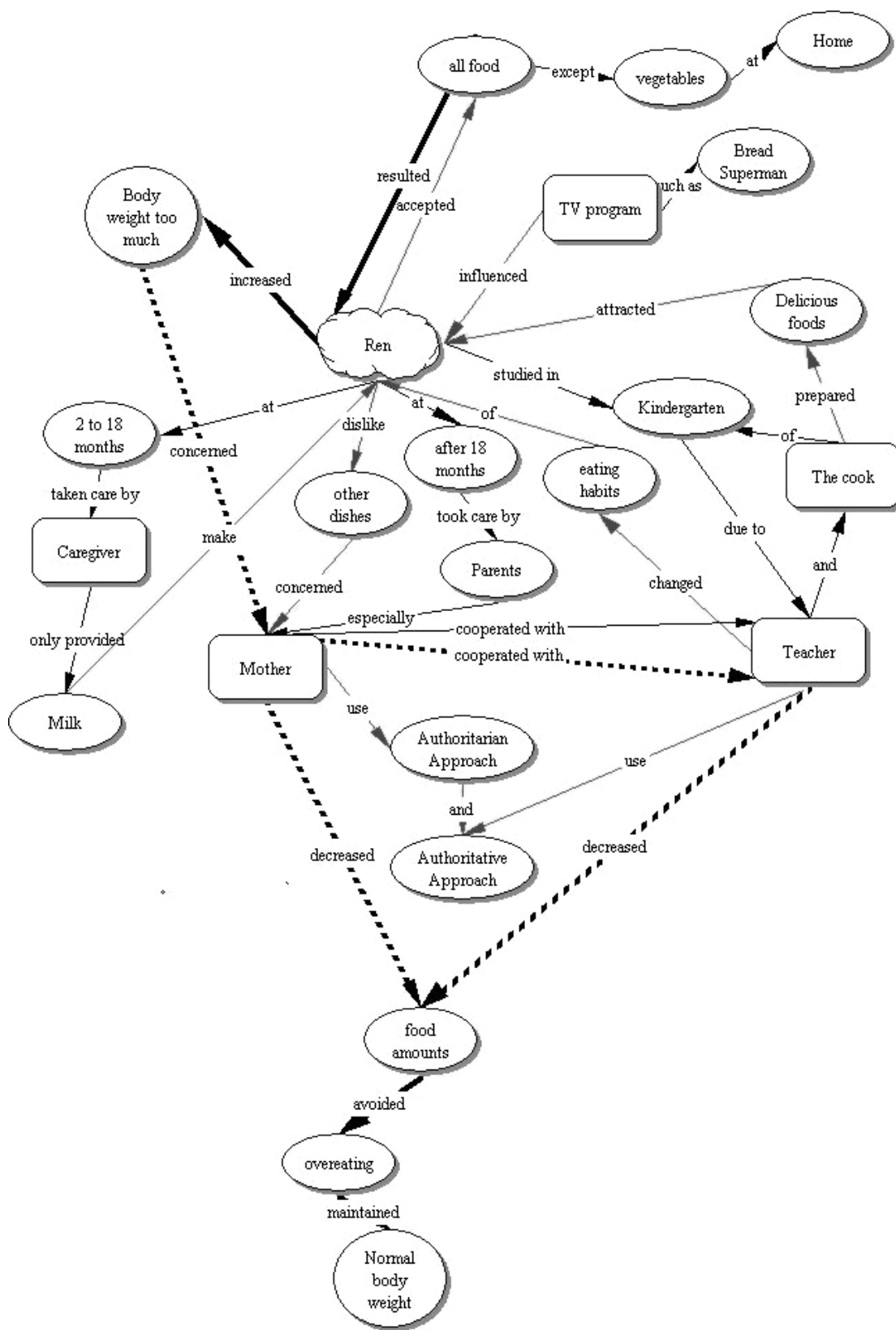


Figure 5.1 Concept Map 1: Ren

Xiao's concept map shows that his food acceptance behaviour has been most strongly influenced by his father Hong and his kindergarten teacher. Due to his father's insistence Xiao changed from a fussy to a good eater. Xiao's case demonstrates the success of cooperation between parents and kindergarten, and also the importance of the parents' own knowledge that enabled them to educate their son about good nutrition.

All Participants' Concept Map

The third concept map (Figure 5.3) represents the relationships between factors affecting all participants' food acceptance behaviour, which includes four themes - food preferences and aversions, parents' beliefs about preschool children's food acceptance, parents' concerns about preschool children's food acceptance and parenting rearing styles.

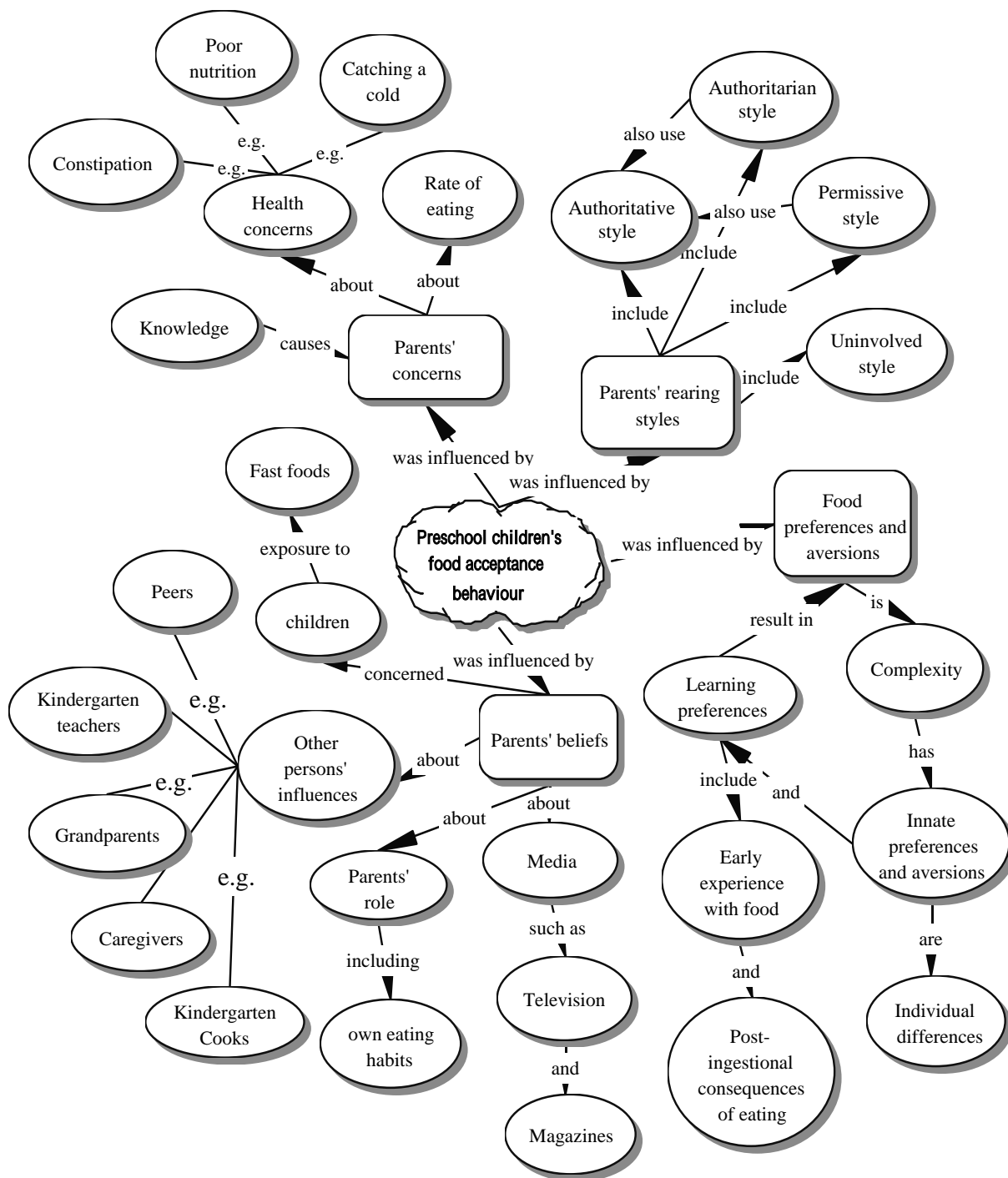


Figure 5.3 Concept Map 3: All Participants

Discussion

While the use of a concept map enables very complex interrelationships to be made clearer, the fact remains that they are complex. The composite map (Figure 5.3) is intended to give the reader a sense of this complexity, at the same time demonstrating that each child is unique in his or her behaviour in relation to food acceptance.

Through the themes, narratives and concept maps I have attempted to tease out some of the factors that relate to preschool children's food acceptance behaviour, preferences and aversions as related to me by their parents. As noted earlier, though some behaviour may be innate, it is clear that the significant adults in the child's life play a critical role in fostering good behaviour, and that behaviour is able to be changed for better or worse through the efforts of parents, teachers and others.

Towards Chapter 6

In the final chapter of this thesis I show how the analysis of the data has provided answers to the research questions. I then discuss their implications, and provide recommendations for a range of areas associated with early childhood nutrition. Finally, I provide my own reflections on the study itself.

CHAPTER 6

REVIEW, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This study, set in south Taiwan, has examined the beliefs and understandings of parents of 20 families, mainly mothers, about their preschool children's food acceptance behaviours. The study was undertaken because of the recognition of the need for good nutrition for young children, and the critical role of parents in the development of appropriate food acceptance behaviour (Klesges et al., 1991; Olivera et al., 1992; Ray and Klesges, 1993; Contento, et al., 1993; Wardlaw et al., 2004). As a qualitative interpretive study using semi-structured interviews, it appears to be the first of this kind in Taiwan. The few previous studies have tended to use quantitative approaches. In this study I have attempted to describe the interwoven nature of the factors relating to food acceptance behaviour in three ways. Firstly I have developed themes that emerged from the interview data. Secondly I have constructed two narratives based on the interviews. These give a sense of the lived experience of two of the families as they struggle to develop good food acceptance behaviours in their children. Thirdly I have shown the interconnected nature of food acceptance behaviours through use of concept maps.

Summary of the Main Findings

1. Parents have a range of beliefs and concerns about food acceptance in their children.

2. Each child is unique, with different food preferences, and different children may well respond to different parenting styles.
3. Food acceptance behaviours are established early in a child's life.
4. If parents have accurate knowledge about children's nutrition and food acceptance behaviour, they will be in a better position to encourage them to eat properly.
5. If parents make the effort to provide nutritious and well-prepared food, and establish some simple rules for eating in an appropriate environment for preschool children to enjoy food, they are more likely to be able to enable good food acceptance behaviour.
6. If the kindergarten provides delicious and nutritious food, preschool children would learn to eat a variety of food to meet their nutrition requirements.
7. Cooperation between kindergarten and parents can result in remarkable and effective changes in eating habits.
8. Television advertisements and programs can directly influence preschool children's food acceptance behaviour.

Answering the Research Questions

The above summary derives from answers to the research questions which were:

1. What do Taiwanese parents describe as their preschool children's food preferences and aversions?
2. What are parents' beliefs and concerns relating to their preschool children's food acceptance behaviour?
3. What strategies do parents use to encourage food acceptance behaviour in preschool children?

Research Question 1

What do Taiwanese parents describe as their preschool children's food preferences and aversions?

As would be expected, parents have a deep and intimate knowledge of their children's food preferences. Even within this small sample, these preferences are diverse, and demonstrate the uniqueness of each child and child-parent relationship. These findings support the results of a number of key researchers in this field including Birch and Marlin (1982); Pipes and Trahm (1993); Roth and Townsend (2003) and Holden and MacDonald (2000). Parents variously mentioned that food preferences include cereals, meat, fish, milk, fruit (particularly sweet fruit), vegetables, biscuits, chips, sweets and soft drinks. Fast food is a favourite for some children but certainly not all. Most of the parents in the study reported that they did not take their children to fast food restaurants very often, and although the child might ask to go, it was more for the play facilities and toys than the food itself. This is an interesting finding given the popularity of fast food with children in the West, and may warrant further research. It may be that parents were reluctant to admit to me (as a nutritionist) that they allowed their children eat fast food. That grandparents were nagged to take their grandchild to McDonald's as reported by one mother may add weight to this possibility.

Food aversions tended to be mainly towards vegetables and less often, fruit. As well as the foods themselves, children's food preferences are influenced by characteristics such as colour, flavouring, texture, shape and preparation method. Also, preferences may vary temporally, such as time of the day, the season or the age of the child. Food preferences may differ even between siblings within the same family. These results

are consistent with the findings of Williams (1995); Walsh et al. (1990); Pipes and Trahm (1993); Carruth et al., (2000); Lin and Chen (2001) and Roth and Townsend (2003).

Research Question 2

What are parents' beliefs and concerns relating to their preschool children's food acceptance behaviour?

Like parents all over the world, these Taiwanese parents have their own beliefs about how their preschool children's food preferences and acceptance develop. The study found a range of such beliefs, some of which are supported by the literature, others not. Some parents considered that their own food preferences and eating habits directly influenced their children's eating habits, and have observed that they and their children have similar food preferences and eating habits, echoing the findings of Cheng (2000); Carruth et al. (2000) and Wardlaw et al. (2004). These parents are concerned for their children's health, and have a reasonable level of education about what represents a good diet.

A number of parents felt that some children's food preferences are innate, such as a liking for a sweet taste. Indeed research has shown that innate preferences do exist, somehow 'hard-wired' into the child's brain at birth (Birch & Marlin, 1982; Whitney et al., 1991; Mela, 2000). However parents also recognised that their children's food acceptance behaviour could be directed or changed through their own efforts or through cooperation with others such as caregivers or the kindergarten, as was clear from Ren and Xiao's narratives (Chapter 5).

Many of the parents in the study understood that their child's food acceptance behaviour was influenced by others such as siblings, grandparents, caregivers, the kindergarten teacher, peers and the kindergarten cook. As discussed in Chapter 1, it is common in Taiwan to place a young child with a caregiver for long periods of time. If the child had developed poor eating habits, parents tended to blame the caregiver.

Parents also observed what a number of researchers have found in other settings, that is, peer and role-modelling are powerful influences on preschool children's food acceptance behaviour (Birch, 1980b; Crockett & Sims, 1995; Williams, 1997; Mela, 1999; Bull & Solity, 1987). Parents recognised that the kindergarten teacher, peers and the cook had an influence on their child's food acceptance behaviour. As noted above, Ren and Xiao's parents in particular used this influence to modify their children's eating habits, especially towards vegetables, in cooperation with kindergarten teachers.

Parents also noted the role of the media, in particular television, in influencing their preschool children's food acceptance behaviour (Way, 1983; Swadener, 1994; Crockett & Sims, 1995). As mentioned above, parents noticed that their children were attracted by television programs and advertisements. Lin and Ming like to watch the cartoon program 'Popeye', then they modelled their behaviour on 'Popeye' by eating spinach and other leafy green vegetables. Xiao liked to eat Qoo juice due to the attractive advertisement on television. Fun liked to help her mother cook and liked the food from the program on the children's channel *Tung-Sen*.

Regarding the parents' concerns, the study found that a number of the parents interviewed expressed some anxiety about their child's food acceptance behaviour,

supporting Sidebotham's (2001) findings. In particular, parents were worried if their child was a slow or fussy eater which they related to him or her being poorly nourished, and hence to health issues, especially constipation and catching a cold. Most parents understood that vegetables and fruit in the diet were important for preventing these and other health problems, so as noted in chapter 4, went to considerable effort to change their preschool children's food acceptance behaviour.

Research Question 3

What strategies do parents use to encourage food acceptance behaviour in preschool children?

Theme 4 described parents' rearing styles and strategies they employed to encourage their children to eat. The rearing styles referred to are authoritarian, authoritative, permissive and uninvolved (Berk, 2003) However, as discussed in Chapters 2 and 4, caution is required when relating these styles to Chinese notions of parenting. The study found that while parents do not use only one rearing style, the overall dominant style appeared to be a unique combination of authoritative and authoritarian. Parents report a range of strategies from praise and rewards to threats and punishments or adaptation of food towards the children's preferences. At other times parents use their authority to educate their children rather than force them or leave them to their own devices. This is consistent with the Chinese concept of *chiao shun* or training as described by Chao, (1994), and discussed in Chapter 2. So while some parents may employ an authoritarian rearing style as their dominant way of instructing their children to accept food, this seems to be successful, as they report that their children have developed good eating habits. These parents in the main are concerned for their

children's health, and have a reasonable level of nutrition knowledge. This is in contrast to Western research that has demonstrated that an authoritarian approach results in negative outcomes for children (Berk, 2003; Mayseless et al., 2003).

Further, the study points to a tentative relationship between parenting style and children's food acceptance behaviour. Parents whose dominant style is *chiao shun* appear to have children who are developing good food acceptance behaviour. On the other hand parents whose dominant style is permissive appear to have children with poor eating habits who eat slowly. Further research is needed to establish whether these relationships do in fact exist.

The role of the father requires further study too. While in traditional Taiwanese families fathers tend to be very strict with their children, many are frequently absent from the family for long periods, so are uninvolved in child rearing. Their impact on the child's food acceptance behaviour is not clear. Further, a number of families report that their children receive mixed messages from their parents. Again this may need to be interpreted differently from a Western interpretation, as a fundamental philosophy within Chinese culture is one of balance (yin yang) as opposed to consistency.

Research questions 1, 2 and 3 have demonstrated the complex nature of developing food acceptance behaviour. Further, it is clear that the child does not act in isolation. The microsystem of the child exists within the mesosystem of the family and school, which in turn exists within the exosystem of society, culture and tradition. All these are contained and shaped by the macrosystem influences of current global conditions on Taiwan (Bronfenbrenner, 1979). Food acceptance is in a constant state of flux

because of the rapidly changing nature of global society. While parents struggle to establish healthy eating patterns, they are challenged by competing interests such as television advertising and the growth of the fast food industry in Taiwan (Tsai and Smith, forthcoming).

Implications and Recommendations

The findings of this thesis point to useful directions and recommendations for further enquiry. These directions include research, education, and public policy.

Directions for Further Research

This thesis has opened up many areas for further enquiry relating to food acceptance behaviour in Taiwan, as little such research has been carried out in the past. Some possibilities are:

- More detailed case studies of children's food acceptance in the home and the relationship between parents and kindergarten teachers in establishing good eating behaviour, especially longitudinal studies;
- Parenting styles in Taiwan and their relationship to food acceptance patterns;
- The influence of tradition and culture (the mesosystem). How cultural factors mediate food acceptance behaviours;
- The role of other caregivers such as early caregivers and grandparents in developing a child's food acceptance behaviour;
- The role of the father in influencing food acceptance behaviour.

Education

The study points to the need, for some caregivers, for education about nutrition as well as the impact of their rearing styles on the children in their care. Early childhood educators, kindergarten teachers and principals, and other education and health professionals can use the findings of this research to develop programs for use in their workplace such as the development of teaching materials and approaches for nutrition and early childhood educators.

Parents and Other Caregivers

Education at school before people become parents is important so that they understand the importance of parents' eating habits and good nutrition on children's health and eating habits.

For the parents themselves, it is important that they understand the developmental process, nutrition requirements and eating habits of preschool children. Caregivers should be properly trained in nutrition before they are allowed to practice.

Nutrition Experts: Nutritionists and Nutrition Educators

Early childhood educators and other education and health professionals can use the findings of this research to develop programs for use in their workplace for early childhood nutrition education.

Clinics, hospitals, kindergartens and other educational channels can provide information on:

- Food acceptance issues
- Healthy childhood nutrition
- Healthy cooking techniques
- Strategies that encourage healthy eating
- Materials that can assist in encouraging children to eat healthily e.g. electronic media, texts.

Preschool Teachers

Preschool teachers can benefit from the findings of this research to develop programs designed to incorporate nutrition knowledge to cultivate the healthy eating habits through modelling and peers while at the same time acknowledging individual differences between children.

Teachers might consider promoting parent-teacher meetings to discuss issues of food acceptance and nutrition, as well as the importance of continued communication. The experience of Ren's and Xiao's parents clearly points to the benefits of teachers and parents working together.

Preschool Principals

Principals of preschools can benefit from this research by ensuring the ongoing professional development of their staff (teachers and cooks) in nutrition and child food acceptance behaviour provided by government and higher education institutions.

Principals might also engage in further professional development themselves and or develop training programs for their staff. Principals might also consider adopting and adapting successful programs such as the Australian "Start Right-Eat Right" scheme.

Preschool Cooks

It is recommended that all cooks have a national cooking licence that includes aspects of nutritional requirements of preschool children and cooking methods that stimulate their appetites. Like teachers, cooks can benefit from ongoing professional development.

Print and Electronic Media

In Taiwan, the range of books promoting healthy eating for young children is relatively limited. If there is an increased focus on early childhood nutrition, as recommended by this thesis, publishers might consider producing interesting picture-books or other media relating to the development, nutrition and eating habits of preschool children for both parents and the preschool children themselves.

The role of television in shaping children's food choices has been discussed at length in the literature, and remains an ongoing area of concern for parents throughout the world. While there are programs that promote healthy eating, such as *Sesame Street*, the overwhelming message children receive is to consume mass marketed fast food. Public broadcasting has an important role to play in countering this by promoting and designing attractive programs about the food and nutrition requirements of preschool children. Familiar cartoon stories and characters such as *White Snow Princess* and *Popeye* can promote nutritional knowledge in the hope that preschool children will imitate them (however the children in this study showed different reactions to eating spinach – see Chapter 4).

Public Policy

In order for much of the above to take place effectively, clear policy directions are required. Government policy has the potential to make an important impact on nutrition in Taiwan by working with educators to develop policy and best practice. While some work is already taking place, the government has the power to place a heightened emphasis on nutrition education through collaboration with sector stakeholders. Policy decisions determine whether training is to be made available, for whom and at what levels. Policy for caregivers and cooks working with young children can be developed that ensures a level of knowledge is attained, through the introduction of short training courses, and establishing of licences to practice. Government websites are a useful tool for communication of policy.

Policy directions could include the provision of funding for effective award programs that promote training programs in every city to increase the level of nutrition knowledge of preschool teachers, cooks, parents and other caregivers. As noted above, an excellent model that can be adapted to the Taiwanese situation is the kindergarten award scheme implemented in Western Australia “Start Right-Eat Right Award Scheme: Implementing Food and Nutrition Policy in Child Care Centres”. Government could also fund the promotion of nutrition information in an interesting and easy way to read way through advertising on television, through the website or postal system.

In addition, labelling food is a critical part of nutrition education, but food manufacturers are reluctant to do so unless there is firm government policy forcing them to.

The above are just some of the many areas that can enable a healthier diet and understanding of food acceptance behaviour for Taiwanese preschool children. I now conclude with some personal final reflections.

Final Reflections

I have taught nutrition for many years and have two daughters that have grown up to be healthy young women. When I look back on their early childhood, I remember that at mealtimes everyone was happy and rushed to the dining room to see what was on the table. The girls always enjoyed the food my husband or I cooked for them. If the meal did not have any vegetables and fruit, one of my daughters used to ask, “Mummy, can you cook vegetables in the next meal” or “Can I eat fruit before going to bed?” So I made sure I provided vegetables and fruit everyday. I believe that my family’s good health is due to the variety of food I prepared for them, and that they have been accustomed to it from a very young age. When I see that other children, my students or even my friends do not like vegetables or fruit, I find it very strange and wonder why. They tell me there are many different reasons to dislike them. These issues have been the impetus for this thesis. Thus, I began my research with the parents of preschool children, and sought to understand their beliefs, concerns and strategies concerning their children’s food acceptance behaviour.

Through reading the literature, I began to understand the complexity of this issue, that there are many factors affecting children’s food acceptance behaviour - the family, the school, and the society. My own experiences were confirmed as I read of the importance of early experiences with food as a critical factor that influences children in later life. Through the interviews, I learned an enormous amount. I understood the

uniqueness of every child and his or her interaction with the family and the community. I realised for the first time the powerful influence of the kindergarten in changing food acceptance behaviour and the role of the early caregiver. Out of this I realised the importance of knowledge of nutrition and food preparation for caregivers, whether professional caregivers, parents or grandparents, as the primary source of children's food, and hence their responsibility for the health of the next generation.

The study also confirmed my own recognition of the importance of being a role model to develop good eating habits for children. This is what my husband and I had been for our own daughters. Nutrition education is necessary for everyone to cultivate good food acceptance behaviour, from kindergarten to adulthood. In addition, the media is a strong influence on preschool children's food acceptance. It is necessary to have accurate and easy to understand television programs to help parents or caregivers and preschool children to learn about good food acceptance behaviour. In the process of interviewing, I have made friends with the parents, and found their stories fascinating.

Through the process of researching and writing this thesis, I have been able to enter into the field of qualitative research, in which I am now very interested, but had not been exposed to before. So this has been an intense learning experience for me in a new research methodology, and I intend to use both the findings and the methodology in my professional life. My dream is now to work for the establishment of good food acceptance behaviour in young children in Taiwan. I will start by working with the principal and teachers at my local kindergarten to help them design appropriate nutrition education for the children, teachers, parents and other caregivers. I will do my best to help preschool children establish good food acceptance behaviour and I am convinced this will be enjoyable and worthwhile work for me into the future.

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APPENDIX A
INFORMATION LETTER TO PARTICIPANTS



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INFORMATION LETTER TO PARTICIPANTS

Title of Project: Bringing Up Children in Taiwan: Parents' Beliefs, Concerns and Coping Strategies Relating to Preschool Children's Food Acceptance Behaviour

Researcher: Shu-Fang Tsai

Co-Researcher: Dr. Caroline Smith

Dear Participant (*name of parent*)

You are invited to participate in research on parents' understanding of early childhood nutrition in Taiwan.

Aims of the Project

The major aim of the research is to determine parents' views on early childhood nutrition, in particular food acceptance patterns. This research will assist early childhood educators to better understand and plan education for parents and kindergarten teachers for improved nutrition for preschool children.

Your Involvement

If you agree to participate in this study, your involvement will entail an interview on one or more occasions to discuss your understandings and practices in nutrition with your preschool child in a setting convenient to you. We believe the inconvenience you will experience will be minimal, and estimate that this should take up no more than one hour. The interview will be recorded on audiotape and transcribed for analysis purposes.

Participation in this research project is voluntary, and there will be minimal risk to you or your children. All participants will be given a pseudonym and names will not be retained with the data. You will not be able to be identified from data collected other than by the investigators. All data will remain confidential. There will be no exposure to physical, psychological or social risk above the everyday norm, and the methods of data collection are all non-invasive.

You will be free to withdraw consent and discontinue participation in the study at any time without giving a reason.

We believe that participation in this project will enable the early childhood education community to develop a greater understanding of the issues associated with early childhood nutrition and food acceptance in Taiwan, and that society in general will



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benefit greatly from having improved education in this vital area of child development. We hope you will be able to participate in this study.

If you are willing to participate, please sign the attached informed consent forms. You should sign both copies of the consent form and keep one copy for your records and return the other copy to the Researcher. Your support for the research project will be most appreciated.

At this stage you are free to ask any questions regarding the project. If you have any questions either before or after participating, please contact the University Supervisor, Dr Caroline Smith, Trescowthick School of Education, St Patrick's Campus at Australian Catholic University, 115 Victoria Parade, FITZROY 3065, Australia. Ph: 9953 3281. You will also have the opportunity to discuss your participation and the project in general before and after completing the interview.

This study has been approved by the Human Research Ethics Committee at Australian Catholic University. In the event that you have any complaint or concern about the way you have been treated during the study, or if you have any query that the Researcher and University Supervisor have not been able to satisfy, you may write to:

Chair, Human Research Ethics Committee
C/o Research Services
Australian Catholic University
Locked Bag 4115
FITZROY VIC 3065 Tel: 03 9953 3157 Fax: 03 9953 3315

Any complaint will be treated in confidence and fully investigated. The participant will be informed of the outcome

Sincerely,

Shu-Fang Tsai

APPENDIX B
CONSENT FORM



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CONSENT FORM

TITLE OF PROJECT: Bringing Up Children in Taiwan: Parents' Beliefs, Concerns and Coping Strategies Relating to Preschool Children's Food Acceptance Behaviour

PRINCIPAL RESEARCHER: SHU-FANG TSAI

UNIVERSITY SUPERVISOR: DR CAROLINE SMITH

I have read and understood the information provided in the Information Letter to Participants. Any questions I have asked have been answered to my satisfaction. I agree that the interview with me can be audiotaped. I agree to participate in this research activity, realising that I can withdraw my consent at any time.

o I agree that research data collected for the study may be published or provided to other researchers in a form that does not identify me in any way.

Name:.....

(block letters)

Signature:.....

Date: :

Researcher: Shu-Fang Tsai

University Supervisor: Dr. Caroline Smith

Signature:.....

Signature:.....

Date:.....

Date:.....

APPENDIX C
REN'S INTERVIEW DATA

Ren's Interview Data

Interview with Ren's mother (Jean)

1. Which food does Ren like and why?

Ans: Ren likes all kinds of fruit. He likes pork, beef, chicken and eggs. His favorite meats are chicken with chilli sauces and steamed beef with rice, because he likes the flavor served in the kindergarten. I find he likes the smell of these foods. Ren also likes to eat rice with meat sauce because he tells me it is delicious.

2. How about other foods?

Ans: Ren likes to drink milk. He drinks 3 cups of milk when he was 2 to 3-years-old. He only drinks 1 cup of milk now because he is overweight. He does not like fast food except chicken at McDonald's.

3. What foods does Ren dislike and why?

Ans: Ren dislikes any vegetables at home, but he eats vegetables at kindergarten. Vegetables are left after the meal at home. He does not like sugar-rich beverages because he feels cola is hot.

4. How do you instruct Ren to eat vegetables?

Ans. Ren likes to eat steamed eggs very much. I put vegetable juice into it. Ren unknowingly eats it with vegetable juice. But he still does not like to eat visible vegetables.

5. What is Ren's dietary history since he was born?

Ans: A caregiver raised Ren from the age of two months until he was two and a half. My husband and I went to see him everyday for a short time as we are very busy. I think I do not have enough experience to take care of the child. In addition, I must take care of Ren's younger sister. Sometimes we took Ren home for a short time. After I took him home permanently from the caregiver's, we always ate meals at my parents' house. My mother usually cooked. When I took Ren home

and fed him the first day, I was surprised to find Ren did not eat any food cooked by his grandmother. Ren told me, "I do not want to eat rice. I want milk". I asked Ren why he did not like to eat rice. He told me, "I only drink milk at the caregiver's home". I finally knew the caregiver did not prepare rice for him. I thought Ren could drink milk for a while because he had just come back.

Then, I thought, "If Ren does not eat rice and other dishes, he will become malnourished which will influence his health". I forced Ren to eat, but my husband did not agree. I initially went along with my husband, but I found that Ren did not respond. I began forcing him to eat rice with us, but he still did not eat and he was bad tempered. I told him, "If you do not eat rice, I will punish you". Ren began eating a small amount of rice and other dishes. In the meantime, I attracted him with the flavor of food, for example, chocolate bread and stewed chicken. He liked to eat food with strong flavors. He began gradually accepting the food prepared by his grandmother, but he still did not like to eat vegetables.

When Ren started at H kindergarten, he cried at lunchtime and refused to eat. Ms. Wu informed me, and I told the teacher that Ren had the same problem at home and asked her to help him to accept the food supplied by the kindergarten. Ms. Wu and I took the same approach to correct Ren's eating habits. In the classroom, Ms. Wu used positive encouragement to help him make progress in eating at kindergarten. When I collected Ren to take him home, Ms. Wu would tell me about his eating habits that day. If Ms. Wu were not available to talk to me, we would discuss this by phone later in the day or even at night. I kept Ms. Wu informed about progress at home. I would tell her, for example, if Ren had eaten carrots that day. Then the next day Ms. Wu would single out Ren and praise him in front of the other children. He was proud when this happened. When Ren came home, he told me happily, "Wu says that I am a good child!" And then, I

considered, "In order to obtain his teacher's admiration, Ren would try to eat the food provided by me as quickly as he could".

In addition, I remember there was one thing that influenced Ren's appetite when he began to study in the kindergarten. I took him to the kindergarten in the morning and told him, "If you can eat all your food at kindergarten, I will take you home earlier". On that day, Ren ate his food fast, slept quietly and managed to pack up quickly. It seemed as if Ren thought that "If I am ready for everything, mother will take me home earlier as a reward". I thought, "His expectation caused Ren to have a good appetite and do everything quickly".

Ms. Wu and I worked together and Ren ate all food served in the kindergarten within 3 months. When Ren came home, he told me, "Ms. Lin, the cook in the kindergarten, cooks delicious food!" He also made progress in eating food at home, other than eating vegetables. Finally, a big worry was resolved. I still made an effort to instruct him to eat vegetables. Ren could eat vegetable juice within steamed eggs. But he still did not like to eat vegetables cooked by his grandmother.

After Ren began to like to eat food, I found he had the same habits as I did. Both of us liked to eat hot white rice. He liked to eat rice with meat sauces. He even could eat the same quantity as an adult could. At the same time he began to ask for an extra bowl in the kindergarten. Because he ate too much food, his body weight increased too quickly. I began to control the quantity of his food. For example, when Ren's father took him to buy "steamed rice cakes", he told the storekeeper, "My son wants to eat a lot, please loosen it so it looks bigger in the bowl". Then Ren was satisfied and did not ask for more food.

In addition, I also forbade Ren to eat any food before going to bed after dinner. He ate a lot of food after swimming. I prepared fresh fruit juices for him rather

than snacks to fill him up. He could accept this. Ms. Wu also controlled the amount of Ren's food at kindergarten. Ren's body weight has increased steadily by the cooperation between the teacher, Wu and me.

6. In your view, how do your own eating habits influence Ren's food acceptance behaviour?

Ans: For example, I like to eat hot white rice and do not like noodles and Ren has the same habits.

7. In your view, how have family members and others influenced Ren's food acceptance behaviour?

Ans: I find parents' attitudes influence the child's food acceptance behaviour. Ren's father does not agree with forcing Ren to eat food. When I ask Ren to eat food, his father always maintains that if Ren does not like something, parents should not force him to eat it. This difference between my husband and me caused Ren to miss some nutritious food.

8. What strategies do you use to influence Ren's food acceptance behaviour? Do they work? Why?

Ans: I tell Ren, "If you eat carrot, your eyes will be brighter". Ren once found our car in the parking ground before anyone else. I praised him, "The reason why you can do that is that you eat carrots". He has liked to eat carrot since then. I always teach Ren to recognize the names of food from encyclopedias and storybooks. I teach him both the Chinese and English names of food. If Ren recognises the food on the table and tells us the name, we will praise him. After this he started tasting the food.

9. How do you plan the menu of your family?

Ans: I always obtain the cooking methods from my colleagues. Sometimes I watch videos about cooking. We always eat dinner at my parents' house. My mother

usually uses the following cooking methods - fry, stew, cook and steam. Ren can accept food cooked in this way.

10. In your view, what other factors influence Ren's food acceptance behaviour and why?

Ans: I think peers influence Ren's food acceptance behaviour. Ren always eats vegetables at kindergarten but not at home. The other reason is the teacher, Wu instructs the children before they eat. Ren cares about his teacher's admiration in front of his classmates. I think he is so proud of it. Besides, When Ren was aged between 2 to 3-years-old, he did not eat anything because he was unhappy. Now, when he feels sad, he still eats a lot. Food, especially rice, usually persuades him to eat a lot. In addition, Ren does not like other physical exercise except for swimming. After swimming, he eats a lot of food. To avoid his overeating, I prepare fresh fruit juices for him.

11. In your view, how does the media influence Ren's food acceptance?

Ans: I find that television has an influence on Ren's food preferences. He prefers the television program - "Bread Superman". After he watches the program, he likes to eat bread, sandwiches and chilli chicken, just like Bread Superman. I think Ren models himself on this character. Ren thinks if he eats the same food as Bread Superman does, he will have the same superpower as him.

12. In your view, which factors influence your children's food acceptance directly?

Ans: I think the factors influencing Ren's food acceptance behaviour include caregiver, parents, teacher, peers, flavor of food, cooking methods and affirmation.

13. Do you seek nutrition information about preschool children's nutrition?

Ans: I find there is not enough information about preschool children's nutrition from the media or through newspapers.

14. Do you have any suggestions for instruction good food acceptance of preschool children?

Ans: I have not had any opportunity to attend a program about children's nutrition. I would like to have the opportunity to learn how to cook tasty and nutritious food for my child. I suggest that all caregivers should acquire some knowledge of preschool children's nutrition and how to cook appropriate food for a healthy diet.

APPENDIX D
XIAO'S INTERVIEW DATA

Xiao's Interview Data

Interview with Xiao's parents, Hong (F) and Ling (M)

1. Which food does Xiao like and why? (F)

Ans: Xiao likes to eat every kind of meat except beef. We do not eat beef at home. He is carnivorous. He has liked to eat fish very much since he was young. He can eat a whole piece of mackerel. He does not eat the meat whole, so my wife cuts the meat into small pieces and fries it with vegetables. He likes to eat spareribs in his lunchbox. But I have to cut them into small pieces. He does not like to eat pork stewed with soy sauce. He is stubborn about the food he does not like to eat. Xiao likes to eat every kind of egg. Xiao particularly likes to eat porridge. In addition, Xiao was ill with Otitis media and vomited when he was younger. He did not drink milk from that time on. I gave him formula milk with chocolate flavor last year, which he could accept. He likes the flavor of chocolate. I order yoghurt at kindergarten for him. He likes to eat it very much. Xiao likes to eat sweets very much, but I give sweets to my children only for rewards.

2. How about fast foods? (F)

Ans: We go to McDonald's about once a week. If I take Xiao home, he does not ask me to go to McDonald's. But if my mother takes him home or on a holiday, Xiao asks to go to McDonald's. He always eats the children's meal including French fries and chicken nuggets with a lot of ketchup. I do not buy cola for him. I seldom let my children drink sugar-rich beverages. Xiao drinks cola only when my parents take him to McDonald's. He likes to play at McDonald's. He likes their toys.

3. How about sweets? How do you instruct your children? (F)

Ans: There are a lot of sweets at our home. Xiao is very fond of sweets. I tell Xiao, "If you behave well, you can have sweets to eat. But you must finish your meal, then

you can have them.” I give Xiao two pieces of vitamin C everyday to supplement the lack of vegetables and fruit.

4. Which food does Xiao dislike and why? (F)

Ans: Xiao does not like to eat vegetables. Xiao also did not like to eat fruit before. He only drank pure orange juice, such as Kuan-Chung fruit juice without including any piece of fruit. He even did not like to drink the fresh fruit juice I made for him. He also did not eat any fruit at kindergarten. He cried and rolled on the floor when he was asked to eat fruit at kindergarten, so the teacher Hu dared not force him to eat it.

5. In your view, how does the nature of food itself influence Xiao's food acceptance behaviour? (F&M)

Ans: The shape of food influences Xiao's food acceptance behaviour. If the food's shape attracts him, he will feel the food is delicious. In order to encourage him to eat green vegetables, I cut green pepper into small pieces and fried it with egg. He can not pick out the small green pepper, so he eats them. He gradually accepts various vegetables using this method after several times. (F)

The flavor of food also influences Xiao's food acceptance behaviour. If he felt the food was delicious, he would eat a lot. For example, he likes to eat minced meat and stewed eggs with soy sauce cooked by his grandmother. He likes the salty taste, so he eats a lot in his grandmother's home. I cook plain tasting food, so he eats less. Xiao's teacher could influence his food acceptance behaviour.(M)

6. Do you seek nutrition information about children's nutrition? (F)

Ans: My wife likes to watch cooking programs on the television. If the menu is suitable for our children, she will cook it for them. There are few books about diet and preschoolers in Taiwan. Most books on preschooler's education are translated from Japanese.

7. What has been Xiao's dietary history since he was born? (F)

Ans: When Xiao was born, he was taken care of by a caregiver. The caregiver was experienced in taking care of children. However, she always fed him with porridge instead of rice. When Xiao was two years of age, we took him home. And then, my mother in law and my wife took the responsibility of taking care of him. They also fed him with porridge because he ate little rice. Xiao did not like to eat unless he was very hungry. If his mother fed him, he could eat quickly. If he ate food himself, he always played when he was eating. He spends into long eating. My wife and I think, "We do not know whether eating porridge for a long time has influenced Xiao not to chew textured food like vegetables and fruit".

When Xiao was young (1 year old), he did not like to eat vegetables and fruit. Sometimes, I put sliced vegetables into porridge to feed Xiao on Sunday. Xiao will eat this. Xiao did not reject fruit paste ground with very expensive apples. But when he was one and a half years old, he did not like fruit. His maternal grandmother prepared 3 kinds of fruit for him after meals, but he rarely ate them. When he was forced to have fruit in his second and third years, he always said, "I have a stomachache and am going to vomit". When he saw that my wife and I ate honey dew melon sometimes, he wanted to eat it. Xiao only had a mouthful of it. He immediately said, "It is disgusting". I considered it was his psychological response, because he insisted, "I don't like to eat any fruit". Xiao drank iron-fortified milk, so his stool is always harder and sometimes he has painful constipation. Xiao could not sleep well at night. He cried and woke up many times because of constipation. I always tell him, "You must eat food rich in fiber, such as vegetables and fruit to avoid constipation". But he still does not like to eat them.

When Xiao went to kindergarten, he dared not to refuse the food supplied in the

kindergarten in the beginning. After two days, he told his mother, "I do not like to go to school because there are vegetables and fruit in the school's lunch". His mother did not listen. Xiao cried and rolled on the floor the first time because he did not want to eat fruit, which shocked the teacher. The kindergarten teacher, Ms. Hu dared not force him to eat because his response was so strong. She told Ms. Wei (Xiao's mother's younger sister) about his behaviour. Ms. Wei told Ms. Hu that Xiao had the same problem at home and asked the teacher not to force Xiao to eat vegetables or fruit at school.

Xiao always caught colds and his body weight was lighter than the other children's. Xiao's mother and I considered the necessary means to correct his eating habits. We parents and the teacher worked together to find some way to change his habit of unwillingness to eat fruit and vegetables. I told Xiao, "If you don't eat fruit and vegetables at kindergarten, you cannot go to the slide (his favourite activity) after school. And you cannot go out playing on Saturday and Sunday". Ms. Hu knew the agreement between Xiao and me, and, insisted that he had to eat fruit and vegetables in spite of his crying. Xiao could accept most of the vegetables in the kindergarten within three months. The procedure of persuading Xiao to accept fruit was rather difficult. Xiao can now eat fruit from 1 cm in length and longer due to the efforts of his parents and his teacher. He is trying to accept tomato now because he had diarrhea when he ate it the first time. I told Xiao, "If you eat fruit and vegetables, you will have a healthier body". In order to ask him to eat apples at home, I struggled with him for an hour and even punished him. Later my wife and I suggested the same agreement we made in the kindergarten. He gradually found the taste of apple was good and began to eat other kinds of fruit. My wife cut the fruit into small pieces which could be eaten by him. He accepted every kind of fruit at last.

Xiao knew what he wanted to do and he also did not do the things he did not like. He is an intelligent, willful child who can read an adult's expressions. Under the conditions I described, I insisted that he must eat vegetables and fruit because it is good for his health. The reason for Xiao changes his eating habits was that he knew if he ate fruit and vegetables at home, he could go out to play. At the same time he felt the taste of fruit is good, so he changed his bad habit of not eating fruit and vegetables.

In contrast, Chin (Xiao's younger sister) likes to eat everything, especially fruit. She has a nickname "fruit girl". She cries if we do not give her food.

8. What strategies do you use to influence Xiao's food acceptance behaviour? (F)

Ans: My wife emphasises keeping the body healthy. She tells our children, "You must eat all nutritious food. You are growing up now, you must eat fruit". I majored in Biology and Chemistry. I tell Xiao, "You must eat food rich in fiber, such as vegetables and fruit to avoid constipation". I also threatened Xiao to eat vegetables and fruit. I believe this works.

9. In your view, how have parents' eating habits influenced Xiao's food acceptance behaviour? (F & M)

Ans: I come from a farmer's family. My father was a farmer; he grew cereals and fruit.

We usually ate the bad quality fruit because our father must sell good quality fruit to earn money. Sometimes, I did not like that. Now, I have the ability to buy the best fruit, but I do not like to peel the fruit. I only eat peeled fruit and banana. Sometimes, I think Xiao may be similar to me regarding the eating of fruit. (F)

Xiao takes after his father in his food preferences. Both enjoy meat and salty food. Xiao likes spare-ribs from lunch-boxes if they were cut small enough. And neither will touch even a small piece of food they do not like. My husband does not like fruit. He will not peel fruit himself, but he eats the fruit I have cut into

slices. So he does not like to eat any fruit except banana, orange and peeled fruit.

(M)

10. In your view, how have family members and others influenced Xiao's food acceptance behaviour? (F)

Ans: When Xiao's grandparents pick him up from kindergarten, Xiao asks them to take him to McDonald's and asks for cola, which they buy for him because they love him and want to please him.

11. In your view, what other factors influence Xiao's food acceptance behaviour and why? (F&M)

Ans: I think peers can influence Xiao's food acceptance behaviour. The admiration of the teacher and training also influence Xiao's acceptance of food. (F)

Xiao's individuality influences his food acceptance behaviour. I think Xiao does not like to eat vegetables and fruit by nature. In addition, toys influence Xiao's food acceptance behaviour. The kindergarten teacher told me: 'I let Xiao play with the only special toy in the kindergarten first as a reward, he can eat lunch quickly. And I encouraged Xiao with candies and words when he ate fruit and vegetables' I find the kindergarten teacher has the ability to instruct Xiao to accept the food provided by the kindergarten. (M)

12. In your view, how does the media influence Xiao's food acceptance behaviour? (F & M.)

Ans: I think television advertising partly influenced Xiao's food acceptance behaviour. Xiao likes McDonald's, Qoo fruit juice and Popeye advertisements on television. Xiao knows about Qoo fruit juice from a television program; the advertisement was lovely, touching and interesting. Qoo fruit juice becomes the most fashionable beverage among the children. It is a kind of sub-culture among the kindergarten's children. I bought Qoo once, Xiao liked it very much, especially

the orange taste. On the other hand, Xiao likes to watch 'Popeye' on the TV but will only eat a small amount of spinach. I do not think 'Popeye' could influence him to eat spinach. (F)

The television program only has some recipes for preschool children; they do not influence Xiao's food acceptance. (M)

13. In your view, how do parents' attitudes influence your children's food acceptance behaviour? (F&M)

Ans: I was born in a large family. My parents told the children if we did not eat meals on time, we would not have anything to eat later. So we ate meals on time, which became a habit. I insist Xiao must eat his meals on time, but my wife does not agree. My wife majored in preschool children's education. She does not force Xiao to eat food. She lets Xiao do anything according to his own will. If Xiao eats snacks in the afternoon, she permits him to eat dinner later. Sometimes he likes to play when he is eating, so my wife feeds him. I consider that our different attitudes toward our child sometimes influences Xiao's food acceptance behaviour. (F)

Now, Xiao is 4 years old, he is not quarrelsome. He listens to his father's words more than mine because he feels his father will not compromise easily. He eats food when his father asks him to. I have different opinions from my husband. I feel if Xiao is hungry, he can eat quickly by himself. Sometimes, he is not hungry, so he only eats a little. Then, he begins to play and he does not eat again. I would feed him, or he would forget to eat. (M)