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Millennial Parents and their Children (≤6 Years Old) in Fast Food Restaurants

A series of experiments exploring nudging millennial parents into ordering healthier food options for their children in fast-food restaurants.

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Declaration

The information contained in this thesis is a record of work carried out by the author on an original line of research. None of this work has been presented in any previous application for any degree or qualification.

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Abstract

The goal of the research was to better understand millennial parents and to investigate options to nudge millennial parents towards the selection of healthier food choices for children (≤ 6 years old), a demographic which to date has had minimal research attention. The focus was on the in-restaurant experience through a series of experiments, which included:

- Quantitative survey-based research on nudging opportunities through food design, calorie visibility, and pricing.
- Qualitative cart-sort research on how branding of healthy food options is perceived by children.
- Multi-country online quantitative research on the mindset of the millennial parent and food motives (Australia, Canada, the UK, and the US).
- Quantitative observational studies of the family fast-food dining experience and window of influence.

Key findings include the following:

- The in-restaurant window of opportunity to nudge food choice decisions is very short. With millennial parents' growing use of technology for ordering food outside of the restaurant environment, technology-based nudging, rather than in-restaurant nudging tools, may prove to be more effective in altering behaviours.
- Pricing is a possible nudging tool. Punitive rather than incentive pricing appears more financially feasible for restaurant implementation.
- Increased menu transparency, such as posting calories, may play a role in the development and selection of lower calorie menu items.
- Toys included in child meal bundles appear to have limited value as an incentive for driving healthy food choices.
- Children have an early awareness of branding and of what constitutes nutritious food choices.
- The current fast-food family dining experience includes high levels of technoference, staged eating, and the use of fast-food restaurants as a 'third place' (home-away-from-home).

Keywords: children, fast food, millennial parent, nudging, restaurants.

Statement of publications

During the period of study, the author had the following papers accepted for publication:

Kellershohn J., Walley, K. and Vriesekoop, F. 2017. Healthier food choices for children through menu pricing. *British Food Journal,* 119 (6), pp.1324-1336.

Kellershohn J., Walley, K., West, B. and Vriesekoop, F. 2018. Young consumers in fast food restaurants: Technology, toys and family time. *Young Consumers*, 19 (1), pp.105-118.

Kellershohn J., Walley, K. and Vriesekoop, F. 2018. Branding and healthy food choices for children. *British Food Journal,* (accepted 29 January 2018).

Kellershohn J., Walley, K. and Vriesekoop, F. 2018. Ontario menu calorie labelling legislation: Consumer calorie knowledge six months post-implementation. *Canadian Journal of Dietetic Practice, and Research,* (accepted 13 March 2018).

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Chapter 1 - Introduction

1.1 Background

There has been much interest recently in how millennial parents are feeding their young children. Who would be considered a Millennial parent in 2018?

There is currently no clear agreed upon age definition for this Millennial age group. Howe and Straus (2009), who coined the term Millennial, defined Millennials as the generation born after 1982 (born between 1983 - 2004). More recently, The Pew Research Centre (2018) published a new definition (born between 1981- 1996) to highlight that Millennials were the first generation to come of age in the new millennium.

Recent studies have shown that despite stated good intentions from Millennials in terms of health, there has been little uptake of healthier options in fast-food restaurants when food orders are placed. With more children eating more fast food more regularly, the growing number of Millennials now becoming parents, and the global rise in obesity in children (and its associated health implications), there is a gap in our understanding on how millennial parents are choosing food for their children in fast-food restaurants and how these choices may be influenced.

1.2 The gap

Although there are studies of parental food ordering, very little has been carried out with children under the age of 6, in relation to fast-food dining. Since Millennials are now becoming the largest group of new parents, studies that focus on the motivations/drivers/beliefs of this group are needed as they may well hold views that are different from previous generations. The role of parental gender and away-from-home food orders for children, has also been given little attention. Past studies have focused on mothers as the primary food gatekeeper but with millennial fathers taking a more active role in food choices, and the knowledge that food consumption role modelling by male parents is especially important for children, this area merits exploration.

Significant research has been carried out in-restaurant by private corporations. The studies are expensive to conduct, are most often considered proprietary, and are typically not shared in the public literature to avoid offering an advantage to competitors. An in-depth examination of the window in which decisions are made by parents (and children) once they are inside of a fast-food restaurant, and their behaviours inside of that restaurant, are therefore valuable and largely lacking in the published literature.

1.3 Focus of the research reported in this thesis

This research explores a very specific area within family away-from-home dining, which is millennial families ordering and dining in fast-food restaurants, with a particular emphasis on families with children 6 years old or younger. The researcher worked in the Canadian research department of McDonald's for a number of years, before leaving industry for a career in academia. During her tenure at McDonald's, a portion of the job involved work on healthy menu options from both consumer and product point of views. In addition, with two young children of her own, the area of healthy nutrition for them and frustration at the lack of uptake by the public on healthy options became an area of personal interest, resulting in the choice of this topic as an area of academic research.

Opportunities to nudge changes in behaviour within the fast-food restaurant ordering process, so as to encourage choices of healthier options amongst parents ordering for young children, was the focus of the research.

The thesis is structured to look at a number of possible nudge opportunities in terms of pricing, calories, visuals, branding, and family time. To understand the environment, studies examine the window of opportunity within the fast-food restaurant as well as the perspectives of future millennial parents.

Both qualitative and quantitative methodology was employed. Much of the study was based on on-line surveys, using a commercial survey company, allowing for the targeting of specific populations across four different countries (Australia, Canada, the UK, and the US) to make the results more widely applicable. Using online surveys allowed for the collection of quantitative samples, so that statistical analysis of cross-country responses could be explored. Qualitatively, in-restaurant observational research was used to explore the family dining experience, and qualitative interviews with children age 4- 6 years old, were used to explore some current perceptions about family fast-food dining.

This study evaluates a number of proposals for nudging desirable food health behaviours and suggests new opportunities based on a better understanding of the millennial parent's perceptions of fast-food dining.

The study has not attempted to measure whether what the consumer says they would do reflects what they actually do in specific fast-food scenarios (stated versus actual). Rather the focus has been on their perceptions and intent (with no subsequent consequences). Only data from on-line surveys and observational studies of families inside of a fast-food restaurant and observational studies of young children presented with fast-food branded foods are included in this thesis research.

1.4 An overview of the 'big picture' – the literature

The current literature in the area of food and children is vast and expansive. To illustrate, from 2014 on, using the search words 'food' and 'children' in the 'google scholar' search engine, there were over half a million journal papers, abstracts, conference papers, technical reports, and book citations. Limiting the search to more recent publications from 2017 to May 2018, still yields over 81,000 publications. Reducing it further with the addition of the word 'fast food', rather than just the word 'food' narrows the list to over 24,000 publications, and addition of the search word 'obesity' to the terms 'fast food' and 'children', yields 15,000 publications (from 2017 to May 2018).

In 2018 alone, with the search words 'fast food' and children' there are already over 7000 new publications. Although a 'google scholar' search is a crude counting tool, directionally it shows the vast scope of the literature available to researchers. Yet, despite this abundant and growing area, where there is so much interest by the scientific community, there are still very few publications describing successful interventions in terms of shifting what children eat in a Quick Service Restaurant (QSR) or fast food environment.

The literature review in this thesis has been limited to the relevant background of the areas explored by the experimental work conducted, specifically within the QSR environment. In the first section of this literature review, the global rise in fast-food consumption and QSR visits is described, followed by what has changed in adult and child eating habits in the past years. The next section relates to understanding the consumer, especially the millennial consumer, with a focus on how they view nutrition and health in relation to QSR visits for themselves and their children. Next there is a discussion on how healthier choices for children could be encouraged, with a focus on nudging. Nudging is a technique, which when used in concert with other interventions, is the basis of many of the experiments conducted in the thesis. Lastly the role of technology in fast-food choices/consumption is explored as this is a relatively new area where there is rapid change and challenges as well as new opportunities.

1.4.1 The global rise of fast food consumption and QSR visits

Over the past 20 years (Nielsen *et al.,* 2002; Kearney, 2010; Pew Research Centre, 2016) consumers have changed where and how they eat their meals and consumption of fast food has been on the rise. Globally, the proportion of meals eaten outside of the home has grown exponentially and particularly in the markets focused on in this study (Australia, Canada, the UK, and the US) with consumers shifting meal consumption away from the home, and increasing visits to fast-food restaurants (Statistic Brain, 2016; Janssen *et al.,* 2017; Kraak *et al.,* 2017a). In the largest population market, the US, 70% of mothers now

work outside of the home and 40% of these mothers are the primary breadwinner (US Department of Labor, 2013). Lack of time is given as one of the main reasons why so many meals are consumed at fast-food restaurants (Byrd-Bredbenner and Abbot, 2008; Slater *et al.,* 2012; Pinho *et al.,* 2017).

In all four countries included in this thesis, there are reported unacceptable levels of obesity both in children and in adults (Table 1.1). The OECD (Organisation for Economic Co-operation and Development) of which Australia, Canada, the UK, and the US are all members, define obesity as a Body Mass Index (BMI) ≥30kg/m². In 2015, the adult member levels of obesity in the US were at the highest level to date, with Australia, the UK and Canada also all within the top 10 for obesity versus the two lowest levels of obesity in Korea (5.3%) and Japan (3.7%) (OECD, 2017). Childhood obesity measurements require different metrics (e.g., overweight or obese in the US is defined as a BMI at or above the 85th percentile of the CDC growth charts for age and gender), but despite the exact method of measurement as can be seen in Table 1.1 childhood obesity is at a high level (Kaiser Family Foundation, 2016). Globally the latest reports indicate that the childhood obesity is rising faster than the adult obesity rate (GBD2015 Obesity Collaborators, 2017) and the link between obesity and later life health issues for children is not something that can be ignored.

Table 1.1 Comparison of adult and childhood obesity in Australia, Canada, the UK, and the US.

Country	**Adult Obesity**	**Childhood Obesity**
Australia	27.9% (OECD, 2017)	25% aged 2-17 (AIHW, 2018)
Canada	25.8% (OECD, 2017)	33% aged 2-17 (Heart and Stroke, 2017)
UK	26.9% (OECD, 2017)	20% aged 4-5 years (NHS, 2017) 33% aged 10-11 years (NHS, 2017)
USA	38.2% (OECD, 2017)	14% aged 2-5 years (Hales et al., 2017) 18.5% aged 6-11 years (Hales et al., 2017) 31.2 % aged 10 -17 (Kaiser Family Foundation, 2016)
Global	10% population is obese and 30% are overweight. In many countries childhood obesity is rising faster than the adult obesity rate (GBD2015 Obesity Collaborators, 2017)	

The fast food industry globally has sales revenue of $570 billion USD (Franchisehelp, 2018). To put this number into context in terms of other global product sales in 2016, the global market revenue for Coca-Cola was $41.9 billion USD (Coca-Cola Company, 2018), global wine market sales generated $287 billion USD (Mordor Intelligence, 2017) and

Apple, one of the largest companies in the world, generated sales of $215.6 billion USD (Apple, 2017).

Table 1.2 shows the sales revenue of fast food by country and the significant portion that the US holds of that over $570 billion USD global market. There was rapid growth of the market in the US from a $6 billion-dollar market in 1970 to a market of over $200 billion today.

Table 1.2 Fast food revenue by country.

Country	**2016 Population* (millions)**	**Revenue ($USD)**
Australia	24.1	In 2015 >$23 billion USD (Bankwest, 2015)
Canada	36.3	In 2015 >$20.6 billion USD billion (GE Capital Franchise Finance, 2015).
UK	65.6	In 2016 >$26 billion USD (MCA, 2016)
USA	323.4	In 2015 >$200 billion USD (up from $6 billion USD in 1970) and expected to reach expected to reach $224 billion USD by 2020 (Mazzone and Associates, 2015; Franchisehelp, 2018)
Global	7,466.9	Currently >$570 billion USD (Franchisehelp, 2018)

*World bank

As seen by the rise in revenue from fast food sales in the US (Table 1.2) from $6 billion USD in 1970 to the expected $224 billion within two years, the number of visits QSR's is on a similar incline (Table 1.3).

Table 1.3 Frequency of visits to fast-food restaurants by country.

Country	**Frequency of visits to fast- food restaurants**
Australia	Fast food visits in 2016. Average of two to three visits a week by adults (Future Food, 2017) and 41% of children in NSW eat fast food at least once a week (NSW Government, 2017)
Canada	Fast food visits in 2016. One to three times per week (38%), visits of 4 to 6 times per week (5 %), visit once per week (45%) and do not eat fast food (8.5 %) (Cint, 2017)
UK	Fast food visits in 2017. Weekly or more (19%) and monthly or more (48 %) by consumers age 16 or older (Borda Bia, 2017)
USA	Over 44% Adults eat out at least once a week and 34% of children between the ages 2 and 19 years consume fast food daily. (CDC, 2015)

The frequency of fast food visits is high in all four countries. Clearly QSR visits are no longer just a 'treat occasion' for many consumers in these four countries. In the US, one in 7 people now eat a form of fast food every day. The US fast food visits can be further

categorized: 44% visit a fast food restaurant at least once per week, 20% twice per week, 14% three or more times per week,> 6% daily, and 28% never.

The most worrisome statistic is that over one-third of the children in the US eat fast food daily. With this high level of fast food consumption by children and adults and the obesity percentages shown in Table 1.1, this reinforces the need for action in terms of addressing nutrition and fast food choices as fast-food outlets continue to proliferate across the globe and become part of the daily diet rather than the occasional treat.

The top US restaurants visited in 2015 (regardless of the generational cohort), were Macdonald's >60%, Subway >40%, and Burger King >40% (Morgan Stanley Research, 2015). Identifying the top QSRs frequented can guide researchers as to where the educational nudges may have the most rapid and meaningful effect.

1.4.2 Global rise in obesity

Obesity in adults and in children is a complex area with many factors interacting not only food consumption but physiology, social psychology, and individual psychology all playing a part. The original Foresight map was published by the UK Government Office for Science as a qualitative, conceptual model with relationships between the variables with the core of the map called the "engine" being "energy balance" (energy intake vs. energy expenditure) to illustrate how very complex the relationships are regarding obesity. Many of the areas are far beyond the scope of this literature review. Figure 1.1 is a simplified version of the Foresight map put forward by Finegood *et al*. (2010). The Finegood model shows the key elements of the complex interactions on obesity. Compared to adults, children have much less capacity to comprehend and deal with the extremely complex environment that surrounds the factors underpinning obesity. As such childhood obesity cannot be blamed just on the presence of fast food in the child's environment. Figure 1.1 illustrates the many factors that impinge on obesity, despite that in this thesis, the concern is with fast-food and the focus is on the in-restaurant choices made by parents and young children.

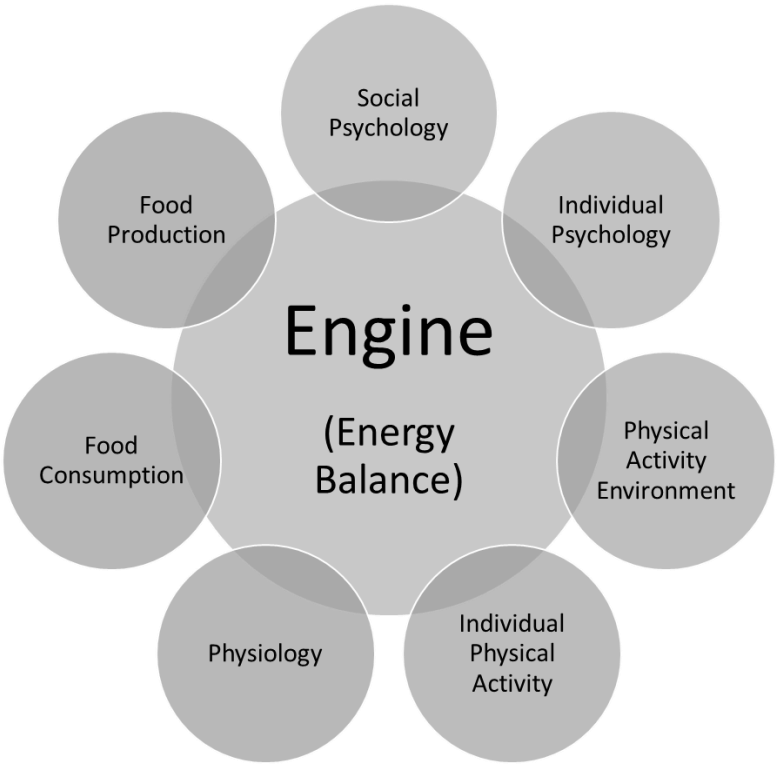


Figure 1.1 Key factors affecting obesity in children and adults. Adapted from Finegood *et al.* (2010).

Strategies to combat childhood obesity include promoting the consumption of fruits and vegetables and restricting or discouraging the consumption of sugary soft drinks and foods that have high energy density and that are deficient in micronutrients. A recent evaluation of the US restaurant sector indicates that limited progress has been made in terms of the nutrient profile of food since 2006 (Kraak *et al.,* 2017b; Speakman and Mazidi, 2018). There was little reduction in the total calories to meet the ≤600 Kcal/child meal. Few restaurants met the target of ≤35% of calories from fat with ≤10% from saturated fat (USDA, 2015). Similarly, in regard to sodium content there was no reduction or at best only a slight reduction (REF). Overall, by 2013 the criteria for a healthy child's meal was met by <11% of meals. National data from the QSR industry in the US revealed a 126-calorie net increase with fast food consumption for US children's daily intake (Powell and Nguyen, 2013). All of the above results suggest that the restaurant industry must do more to promote healthy options.

1.5 Changes in adult and child eating habits – the literature

Research around the role of fast food ranges from studies that suggest that fast food may not necessarily be as harmful to the diet as it has often been implied depending on the choices and occasion (Rice *et al.*, 2007), to studies that argue quite the opposite (Stender *et al.*, 2007; Lobstein *et al.* 2015, Close *et al.,* 2016). Fast food consumption has shown

linkage to total energy intake but not always to resulting obesity in adolescents (French *et al.,* 2001). However, supersizing of food orders has been linked as an obesogenic factor (Young and Nestle, 2002; Young and Nestle, 2007; Steenhuis *et al.*, 2010). In some fast-food restaurants, french fries and soft drink portions are now 2-5 times larger in size than in the past (Bucher *et al.*, 2018; Almiron-Roig *et al.*, 2018). Such poor nutritional choices result in health implications, such as obesity in adults and children, and there are numerous studies that show *why* careful choices need to be made (Puder and Munsch, 2010; Marcus *et al.,* 2012; De Coen *et al.,* 2014; Poti *et al*., 2014; Sabin *et al.,* 2015; Cawley and Wen, 2018) but there has been little focus on *how* parents decide what they will chose from a QSR menu. With the substantial literature about parental feeding habits, very little of it is in the context of the decisions made when the family is in the fast-food environment (i.e., inside of the restaurant).

One of the key reasons *why* parents state that they take their children to fast-food restaurants is "lack of time" to prepare meals (Byrd-Bredbenner and Abbot., 2008; Slater *et al.*, 2012) but *who* makes the decisions and *how* are the decisions are made once the family is *inside* the restaurant, as to which menu items to select for the children, requires further exploration, as there are many factors influencing such food decisions (Cohen and Babey, 2012).

1.5.1 Child meals, nutrition knowledge, and labelling

Nutritional gatekeepers (parents, grandparents, and other caretakers) are those who acquire and prepare food for the family. The gatekeeper, directly or indirectly, controls a large percentage of the food eaten by his or her children, both inside and outside the home (Wansink, 2006). Although children see their parents as the key education influencer in food choices and food education, the parents do not necessarily see themselves as alone in that educational role and suggest that the school that their child attends has a much wider role to play (Copperstone *et al.,* 2018). Sources from which parents of young children want to receive nutritional information was examined in a recent Canadian survey (Dexter *et al.,* 2016). When given 8 options the overwhelming parental choice was online reading at home (79%) or handouts (39%). Social media as a learning source for nutrition was ranked as a third choice (19%). With Canadians having high internet access (99.4% of the respondents in this survey), online educational reading appears to be a promising route for further investigation of nutritional education. However, the survey only indicates what they state that they prefer. Whether this preference results in visits to an educational website where they use the resources requires follow up. Although social media did not rank very high as a choice of nutritional education, its

influence in terms of social group pressure or modelling what peers are feeding their children is an area that deserves more attention in the future.

1.5.2 The gatekeepers

In early childhood, food decisions are not made autonomously by young children; instead their food gatekeepers shape their nutritional ecosystem (Dallacker *et al.,* 2018). Parents, grandparents, child care workers, and teachers, will all have an influence (Hendey and Raudenbush, 2000; Nicklas *et al.,* 2001; Coall and Hertwig, 2010). Ensuring that these gatekeepers have adequate nutritional knowledge to guide choices for children's nutrition will be a key success factor.

Mothers are traditionally viewed as the gatekeepers of children's food intake (Contento *et al.,* 1993; Hannon *et al.*, 2003) and foods preferred by the mother impact what a child is fed. The gatekeeper is unlikely to introduce their children to foods that they themselves dislike (Skinner *et al.,* 2002; Howard *et al.*, 2012). However, as a consequence of both parents/custodians being in regular employment and often working full time, fewer at-home meals are being prepared and consumed during family mealtimes (Neumark-Sztainer *et al.,* 2003; Bava *et al.,* 2008; Slater *et al.,* 2012; Walsh *et al.,* 2014). While there is substantial literature about parental feeding habits (De Bourdeaudhuij *et al.,* 2008; Wang *et al.,* 2011; Blissett and Bennett, 2013; Vollmer and Mobley, 2013; Collins *et al*., 2014; Larsen *et al*., 2015; Shloim *et al.,* 2015) very little of it is in the context of the decisions made when in the fast food environment.

In a 2006 food coping strategy study, mothers expressed satisfaction when they could achieve a work family balance because of their own flexible work schedule and the family schedules, while fathers were satisfied when they had a personal stable schedule that allowed them to participate in regular meals with the family. Fathers wanted to be included as a part of the family meal, to be able to sit down and converse with the family, while mothers more often considered themselves as responsible for preparing the meal (Blake *et al.,* 2009). Mothers in the past reported greater perceived responsibility for feeding their children than fathers (Blissett *et al.,* 2006; Bava *et al.*, 2008; Blissett and Haycraft, 2008) reflected in the time spent preparing meals and clean up after meal preparation. As illustrated in government surveys that capture time of meal preparations (Australian Bureau of Statistics, 2014, 2015; UK National Statistics, 2015; BLS, 2017; Statistics Canada, 2017) the situation is slowly changing. In the US (in 2016), in terms of hours per day, spent working on food preparation and clean up, women spent 1.17 hours and men spent 0.77 hours (BLS, 2017).

Differences in perceptions of mother and father child feeding practices were examined and it was observed that parents used more pressure and felt more responsible for feeding younger children, compared to feeding older children, perhaps an example of primeval parental behaviour (as seen in the rest of the animal kingdom). Mothers however reported using higher levels of monitoring and responsibility than fathers, but the fathers and children reported higher levels of paternal pressure related to feeding compared with mothers (Pulley *et al.,* 2014). One older study yielded a surprising result when looking at factors that influence food choice for the mother and how this was related to the mother's food choice for their children (ages 5-11 years). The mothers tended to feed their children in a less healthy way than they fed themselves, although they ranked health important when making child food choices. Specifically, they fed their children more sweet products and more unhealthy breads and dairy products (Alderson and Ogden,1999).

1.5.3 The changing role of fathers

The role of fathers regarding their influence on children's food choices is also changing. However, there is very little in the literature that looks specifically at the role of fathers. This is well illustrated in the paper by Khandpur *et al.* (2014), who surveyed the literature to examine what studies were available in regard to father's influence. Their meta-analysis indicated that out of 865 child feeding studies only 44 studies incorporated father data. Their review of the published literature identified 20 key studies. Of the 20 key studies identified, only 14 addressed feeding under the age of 6. Of these studies one was a US focus group of just 6 fathers (Horodynskie and Arndt, 2005), two were observational studies, one in the USA with 98 fathers (Orrell-Valente *et al*., 2007) and one from the UK with 23 fathers (Blissett and Haycraft, 2011). Ten studies utilized a survey, nine of which were the CFQ/CFPQ and one utilized the Parent Mealtime Action Scale (PMAS) (Khandpur *et al.,* 2014). Although these particular surveys had over 1000 respondent fathers, none focused on food selection for children in a fast food environment indicating a large gap in the literature in terms of father QSR feeding practices. Since this study four years ago, there has been some additional research in this area, but it is still very limited despite the importance that is becoming clear in terms of fathers modelling eating behaviour for their children. Conflicting feeding practises with mothers, such as fathers allowing more access to unhealthy snacks are a concern expressed regarding the role of fathers (Fielding-Singh, 2017). Quick *et al.* (2018), who recently examined differences in mothers versus father gatekeeper behaviours, also stressed the lack of literature in this area of gender differences and of studies with families with young children.

In a study, which did not include eating in QSR restaurants, but rather in the home, the results suggested that fathers as gatekeepers were laxer in terms of family meals in front of the TV and that they offered more salty/fatty snacks and sugar-sweetened beverages than mothers (Quick *et al.,* 2018) to young children (< age 9). However, like other studies in this area, the number of fathers surveyed was low (*n* = 48) compared to the number of mothers (*n* = 570). Father's modelling of healthy behaviours has been associated with lower nutrition risk (Waterworth *et al.*, 2017) and has not received the attention it should in past studies in terms of how to use father's influence as a nudging mechanism.

With more parents relying on grandparents for child care, how grandparents influence food choices for young children is an area of possible leverage. A review of the literature indicates that there were only 16 studies on the influence of grandparents on the dietary intake of young children (age 2-12 years) published between 2000 and 2017 (Young *et al.,* 2018). Results were mixed in terms of positive or negative influences since there was wide variation in the studies regarding culture and measurement tools. There are no specific studies examining fast food consumption and grandparents, however the possibility of grandparents being a target for nudging healthy food choices for their grandchildren should certainly be considered.

1.5.4 Family dining rituals, habit and QSRs as a 'third place'

The selection of healthy food choices in a QSR, as these become more widely available, could make the concept of a healthy family meal, consisting of fast food, feasible (Kraak, 2018; Leschewski *et al.,* 2018). Sitting together to eat a family meal offers benefits of fellowship and a chance to model healthy eating behaviour for young children (assuming that is what they see and not the modelling of a poor diet) (Fieldhouse, 2015). Our ideal image of this family meal at home is often far removed what occurs (conflict, bickering, family hierarchies, pressures, and divides, all brought to the table) (Phull *et al.,* 2015). With the rise in number of QSRs, eating together in the future may well take different forms and take place in different locations, but intentionally eating together has been shown to have clear health benefits (Larson *et al.,* 2013; Dallacker *et al.,* 2018). The concern with children and eating a large quantity of fast foods is that these foods are often high in saturated fats, carbohydrates, and sodium, three factors associated with a higher risk of obesity and other health problems such as asthma, cardiovascular disease, hypertension, and type 2 diabetes have been well documented in the literature (James, 2009; World Health Organization, 2013; Bahadoran *et al.,* 2015). Healthy eating patterns and behaviours established in childhood form the foundation of life-long healthy eating and the role of family in curbing obesity is key (Brug *et al.*, 2008; Rao *et al.*, 2017). Modelling healthy eating behaviour and family meals in a QSR where the family interacts

with each other during the meal and there is parental modelling of healthy food and portion choices is the goal as more and more meals, often breakfast, lunch, and supper, are now being consumed in the QSR.

When children and parents were surveyed regarding the reason they made the food choices they did – the second most often expressed reason by the children was habit (Anzman-Frasca *et al.,* 2017). Many aspects of dining with children and family fast-food dinners can be considered a family ritual and habit and rituals are strong drivers of behaviour (McIntosh *et al.,* 2011). Food rituals could perhaps be a leverage point when looking for healthy eating opportunities to nudge.

The term 'third place' refers to a place where people can visit and where they can experience social interaction and sociability with others. The term was first used by Oldenburg (1982). The role of QSRs as a third place for senior citizens was already explored over 16 years ago (Cheang, 2002) and seniors have been using fast-food restaurants as a third place not only for convenience but also for companionship (Rosenbaum *et al.*, 2007). The trend to use QSRs as a third place has accelerated over the past years and QSRs serve as third places for the entire family (Jeffres *et al.,* 2009). It is where families can enjoy meals together on a very regular basis, rather than on a treat basis, and where a new ritual of eating healthy meals together is possible.

1.6 Statement of research aims

The overarching goal of the research is to better understand the motivations behind Millennial parent food choices for their children in fast-food restaurants and how those choices could be influenced towards selection of healthy food choices for children under the age of 6. This is an age group that has had minimal research focus to date in terms of fast-food consumption. Insights will be sought both from direct observations of the parent/child interactions inside of fast-food restaurants, as well as exploring stated perceptions of those interactions/intents using surveys and vignettes. Children's perceptions of branding and what foods parents might want them to eat will be explored by card sorts. The various approaches will work towards creating a more complete understanding of what levers might be important in terms of nudging healthier choices.

Specific areas of study:

- Investigate **in-restaurant** - Decision making in-restaurant (what is the time window, peer perception and self-perception?).
- Investigate **pricing** - Can pricing be used as a lever/nudge to influence healthier choices in fast food restaurants?
- Investigate **product design** - Can listing calories or changing menu food graphics influence healthier choices in fast food restaurants?
- Investigate **branding** - Can the use of a popular/child appealing brand influence product perception and nudge healthier fast food choice.
- Investigate **toy options/technology** - Can the toy, or can technology, be used to influence healthier choices in fast food restaurants?

Figure 1.2 illustrates the connections between the areas of study.

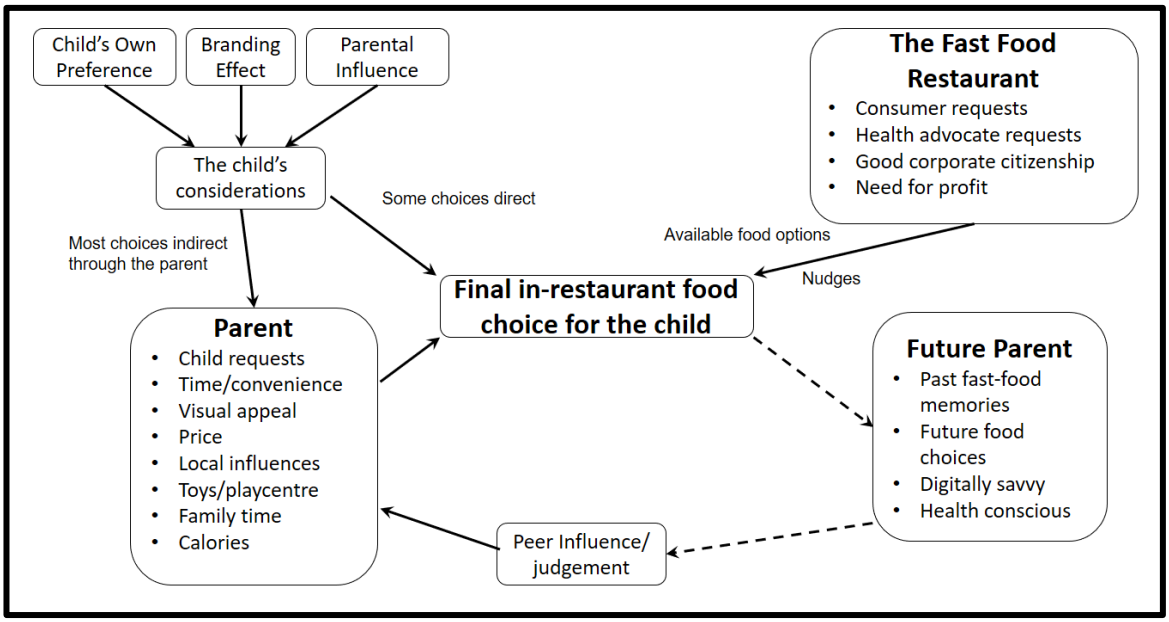


Figure 1.2 Potential influences on in-restaurant fast-food choices for young children.

1.7 Outline of thesis

In this chapter I have provided background on the study, noted my personal interest in the topic and why it was selected, and indicated what I set out to achieve in the study.

The remaining chapters are organized as follows. Chapter 2 contextualises the literature and studies underpinning this thesis. Chapter 3 is an account of the research methodology discussing the researcher's epistemology approach (the method and materials used in the various studies are provided in the respective chapters). Chapter 4 is a four country comparison of food motives using the food choice questionnaire (FCQ). Chapter 5 encompasses current millennial parent perspectives on family dining and fast food, as well as looking to the future by probing the perceptions of Millennials who are not yet parents. Chapter 6 examines peer perceptions using a family dining vignette and the window of opportunity to influence food choice within the fast-food restaurant. Chapter 7 investigates menu design in terms of both calorie visibility and food design. Chapter 8 explores nudging opportunities in-restaurant such as pricing and branding opportunities. Chapter 9 reports an observational study of the in-restaurant dining behaviours of families. Chapter 10 discusses the implications of the overall thesis findings to arrive at various conclusions and offers recommendations for the future. Finally, Chapter 11 summarizes the conclusions.

Figure 1.1 is a graphic representation of the issues addressed in Chapters 4 to 9 of the thesis.

Figure 1.3 The in-restaurant ordering experience and a series of experiments.

The in-restaurant ordering experience was explored with a series of experiments examining the following:

1) The mindset of the millennial parent: thoughts on food choice, fast food dining, and parenting peers (Chapters 4 and 5)

2) The window of influence: How long is the in-restaurant family ordering time? (Chapter 6)

3) Nudging through pricing (Chapter 8)

4) Nudging through calorie visibility (Chapter 7)

5) Nudging through food design (Chapter 7)

6) Nudging through branding (Chapter 8)

7) The family dining experience (Chapter 9)

8) Future nutritional gatekeepers (Chapter 5)

Chapter 2 – Literature review

2.1 Understanding the consumer – the literature

2.1.1 The Food Choice Questionnaire (FCQ)

The Food Choice Questionnaire, also known as the FCQ, uses a 36-item instrument to assess the importance of a number of factors that may influence food choice. Originally published in 1995 (Steptoe *et al*., 1995), the FCQ has since been used in over 40 different countries and translated into more than 20 languages (Cunha *et al.,* 2018). The FCQ allows for a comparison of similarities and differences among consumers across cultures and focuses on the motives that consumers take into consideration when choosing food on what the survey describes as “a typical day”.

Understanding culture-specific differences in food motives can be used to inform and guide proposed nudges and interventions. A culture focused on price as a primarily food motive would likely require a different consumer nudging approach than a culture focused on sensory appeal as a primary food motive.

The original Steptoe, Pollard and Wardle paper, using the 36-item instrument on a heterogenous UK population, found that the results groups into 9 factors, which the Steptoe authors labelled as *Health, Mood, Convenience, Sensory Appeal, Natural Content, Price, Weight Control, Familiarity* and *Ethical Concern* (Steptoe *et al*., 1995). As the FCQ has been used over time, adaptations have been suggested and tested to expand the FCQ including questions regarding *Ecological Values, Political Values*, and *Religion* (Lindeman and Väänänen, 2000). However, the *Ecological Values* and *Political Values* are most often used in research focused on the sustainability of foods while the *Religion* additions are most often used in research on Asian populations, where it stands out as a valued factor (Cunha *et al.,* 2018). As this research did not focus on sustainability or Asian populations, these additions were not included in the FCQ questionnaire used for the thesis research.

The original paper used a 4-point scale, however, Cunha *et al.* (2018) highlights that in the FCQ use over the last 20+ years, 60 percent of authors have suggested and used scale adaptations, increasing the number of points, and most often using a scale with a neutral middle. Using a 5-point scale was often highlighted as key to avoiding forced agreement or disagreement of respondents, through the introduction of a central middle point (Milošević *et al.,* 2012). A 5-point scale was used throughout this thesis research, both within the FCQ research and with a 5-point Likert scale in survey questions in other experiments in this thesis.

How the FCQ data is collected has also changed over time. Studies from the 1990's, typically used postal surveys (e.g., Pollard *et al*., 1998), while more recent studies have demonstrated a web-based survey is an effective means of collecting FCQ data (e.g., Sosa *et al.,* 2015). One of the keys to the cross-country comparisons is similar data collection procedures across the countries under study (Ares, 2018). Today, the use of online survey tools and commercial companies that allow for a global selection for the population characteristics of interest (e.g., parents, millennials, seniors), with the same demographic questions and recruitment tools, allows the FCQ to be an even more effective tool for probing food motives.

2.1.2 The Millennials and food preferences

Knowing that Millennials are the largest group of consumers now entering parenthood (Barkley, 2018), understanding how they think about which foods they shop for and which foods they order when eating out is key to understanding what would motivate their food choices in a QSR, both for themselves and for their children. Millennials' perception of what is a healthy food, their attitude towards organic products and vegetarian diets influence both what is in their grocery shopping carts and what will garner their interest from a QSR menu.

Millennials define healthy food as those foods that fit the following terminologies (in order of priority): fresh, less processed, fewer artificial ingredients, natural, low calorie, organic, fat free, local, smaller portion, sugar free, and good for the planet (Morgan Stanley Research, 2015). Low calorie, in the fifth position, is an indicator of how the Millennial consumer perceives low calorie; it is important but not the key priority when selecting food.

Millennials with children form the largest group of organic shoppers in the US at 52%, while organic purchase behaviour is much lower for GenX parents (35%) and Baby Boomer parents (14%) (OTA, 2016). The percentage of Millennials in the US population in 2016 was at 25% and it is forecast that in the next 10 to 15 years, 80% of current Millennials will be parents (OTA, 2016).

In overall vegetable consumption, consumers (under the age 40) are increasing their fresh vegetable consumption (by 52%), while Baby Boomers age 60 are decreasing their fresh vegetable consumption (by 30 %) (NPD, 2016).

In Australia, Canada, the US, and the UK, over 5% of the general population self-identify as vegetarian and for Millennials, vegetarianism is a growing food trend (Forbes, 2018). In Canada, 50% of consumers who identify as vegetarians, are under the age of 35, with

Canadian women 0.6 times more likely than men to be vegetarians (The Canadian Press, 2018). The high number of Millennials looking for specialized meal options, such as vegan, will pose a challenge to the QSR industry, as well as other out of home meal providers. It would be expected that the concern with their own diets will translate into a similar concern regarding the healthiness of choices for their children's diets, especially plant-based foods when eating out of home.

Millennials as a group dine out more on fast foods than Gen X or Baby Boomers. Fast-casual, a newer category (an intermediate concept between fast food (McDonald's) and casual dining (Frankie & Benny's, Denny's, The Outback Steakhouse) is even more popular with Millennials than other generations (Morgan Stanley Research, 2015). Millennials devote the smallest share of their food expenditures to grains, white meat, and red meat; instead they allocate more to prepared foods, pasta and sugar and sweets than the other generations (Kuhns and Saksena, 2017). The current Millennial interest in fresh, organic, and more plant-based foods offers promise that if QSRs can incorporate those options into their menus, with well thought out marketing promotions to alert consumers to the availability of these options, healthy eating in QSRs could become a trend.

Food choices by millennial parents in limited service restaurants, full service restaurants, convenience stores, and grocery stores, were not included in this review but could add valuable additional insights. The research area of this thesis was limited to fast-food decisions made in-restaurant, but it is important to consider what the drivers are that prompt the initial trip to a restaurant for an out-of-home meal. A recent study by Ferrante *et al.* (2018), of parents with children age 4-12 (*n*=349), found that they identified time, convenience, health, and the experience, as the most important factors in their decision to eat out (survey questions were not specific to fast-food restaurants). It was of interest to note that parents stated that they limit their child's food options (64%) and that most order the child's food from the children's menu (67%). Although there was no follow up to see if the stated intent matched the restaurant ordering experience, it was interesting to see that 'experience' was one of the important factors in making the decision for the trip.

Lee-Kwan *et al.* (2018) in a similar survey (*n*=1147), but focussing on visits specifically to fast-food or chain restaurants, reported that over half of the parents had purchased a child meal in the past month and that younger parents (Millennials) purchased more of these child meals and also expressed more interest in purchasing child meals that offered healthier options, but again this was stated intent, without in-restaurant follow-up. Nevertheless, this high purchase number of child meals suggests that much more attention should be paid by both sellers and purchasers of these meals, in terms of content and healthy choices.

Areas not covered in this literature review but that can have a significant influence on food intake as well as food choice include ambiance (e.g., the presence of other people, sound, temperature, smell, colour, and lighting (Stroebele and De Castro, 2004).

2.2 Who, what, and how: Nudging to change behaviour – the literature

2.2.1 Background

Nudging has been popularized by the best-selling book '*Nudge'* written by Thaler and Sunstein (2009). They define a nudge in the following manner:

> *"A nudge is any aspect of the choice architecture that alters people's behaviour in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid. Nudges are not mandates."*

Nudging can be seen as the path of least resistance or the path that requires the least effort when it comes to default options (Thaler *et al.,* 2012), which is *why* people take this path (i.e., when given a choice – the chooser does nothing; goes with the default option, which is both ubiquitous and powerful).

The work on nudging theory by Thaler has inspired a magnitude of studies on the topic as the concepts can be applied in so many areas (e.g., donor cards, magazine renewals, environmental behaviour, introduction of regulatory/government changes). The notion of nudging in the context of consumers making choices when it comes to food or beverages has been investigated numerous times (Wansink and Hanks, 2013; Thorndike *et al.,* 2014). However, much of the existing literature that covers nudging in the context of food choices has been criticized for lack of quality and depth (Wilson *et al.,* 2016). Most of the studies have been conducted in cafeterias with adult diners (Rozin *et al.,* 2011; Jue *et al.,* 2012; Levy *et al.,* 2012) or in sandwich shops or snack bars (Wisdom *et al.,* 2010; Olstad *et al.,* 2014). There is a lack of nudging studies carried out in chain fast-food outlets, the location where large amounts of high energy intake foods are consumed on a daily basis by both adults and children.

Much more research is required on the reasons behind the 'when and why' nudges work as the nudge concept is pertinent in many areas – including public policy (Wilson *et al.,* 2016; Szaszi *et al.,* 2017). Nudging has captured the imagination of policy makers since it allows for inexpensive low cost and unobtrusive solutions but some of these interventions may well be controversial in areas such as health care policy (Vlaev *et al.,* 2016). The public concern regarding a nudge towards a healthy diet with a smaller size soft drink as a default option, when eating a fast food meal will be very different from the concern of a

default option that allows for organ donation unless one has specifically previously opted out.

Nudging concepts discussed in the thesis include the following areas: making information more visible (e.g., calories on menu boards or branding); changing the choice of defaults (e.g., making healthier food options the default - apple slices rather than french fries); changing option consequences (e.g., incentive pricing/premiums such as toys for selecting healthy items).

The use of incentives that encourage the easier nudge of ordering a smaller sized meal portions of the desired food, rather than a different healthier food, is a viable option for both adults and children (Reimann *et al*., 2015; Reimann and Lane, 2017).

2.2.2 Calorie labelling

Supersizing (especially french fries and soft drinks), an attractive purchase incentive for consumers, along with lack of calorie knowledge, has been identified as one of the probable factors contributing to obesity (Young and Nestle, 2007) including in young children (Fisher and Kral, 2008; Small *et al.,* 2013). Since portion size is usually not clearly defined, it makes it very difficult for consumers to understand and control calorie intake (Reimann *et al.,* 2015; Reimann and Lane, 2017; Bucher *et al.,* 2018). Consumers have difficulty estimating calories, as illustrated by the example where consumers were presented with a very small portion of chocolate and a very large portion of bread and asked to estimate calories. Almost half of survey respondents indicated that the portion of chocolate had many more calories than the portion of bread (Rozin *et al.,* 1996).

Calorie labelling interventions, on cafeteria type menus/settings of university age students, have shown some positive nudging effects on the calorie content of food purchased (Hammond *et al.,* 2015, Nikolaou *et al.,* 2016; Rising and Bol, 2017). However, the settings of these studies were very different from what is encountered inside of a fast-food restaurant and the results might well not be applicable in the QSR situation. One study that examined nutritional labelling in a QSR, using replicated McDonald's menus (although still not in-restaurant), suggested that menus that disclosed calorie and sodium information could help parents make better food choices (Hobin *et al.,* 2016).

To date, a major issue with the studies conducted on calorie labelling is the lack of high quality studies in real world situations. A review of the literature, on menu labelling and food choices for children and adolescents, concluded that although hypothetical purchases in artificial environments suggest positive nudging results, more real-world

studies are required. In the artificial environment, menu label impact may well be overestimated (Sacco *et al.,* 2017).

A systematic review and meta-analysis examined publications on the influence of menu labelling on calories selected and concluded from the published papers that calorie menu labelling alone did not have the intended effect of reducing calories selected or consumed. However, with the addition of contextual information/interpretive information on the menus a positive effect could be seen, but more research is still needed in this area (Sinclair *et al.,* 2014) Although menu labelling may act as a driver to increase knowledge of the availability of healthy menu choices, it may only indirectly influence the actual selection of the food was the conclusion by Lassen *et al.* (2016). Clearly there are differences of opinion on the value of calorie labelling. Each situation has a variety of other factors impacting on the study and affecting the outcomes.

It is important in the real-world situation to capture the influence of the contextual factors such as convenience, price, social context, hunger as well as the in-restaurant factors of visuals and aromas. In Ontario Canada, in an attempt to nudge consumers towards better choices through increased calorie visibility, legislation was passed, which has led to the calorie counts being displayed much more prominently (Ontario Healthy Menu Choices Act, 2015). There is now an opportunity to study in a real-world situation if the presence of fast-food calorie menu labelling has had an effect in terms of consumers now having a better grasp of how many calories fast-foods contain and this was explored in the thesis in Chapter 7.

2.2.3 Default options

Mothers of children (age 3-8 years old) have indicated that they were in favour of automatic healthy defaults. They felt that it made the ordering process more efficient and that it would result in less parent-child conflict. Proof of concept experiments have shown some promising results (Henry and Borzekowski, 2015).

In a breakfast study with children age 3-8, the power of the various defaults was clearly shown. When the unhealthy breakfast option was the default, 82% of parents stayed with that breakfast for their child. When the healthy option was the default, 97% stayed with the default option with only one parent opting for the less healthy breakfast choice for their child Loeb *et al.* (2017). The study also evaluated educational priming as a nudge, where a 15-minute video was shown to the parent (while the child played in an adjacent room). The priming (a doctor presenting an educational health video on childhood nutrition) did not affect the later selection of the default breakfast, despite the numerous empowerment primers in the video including statements such as “The most important part to learn is that

you as a parent-have the power to implement changes for your child that will help him or her become healthier".

The above described experiment suggests that if one can convince the QSR to offer a healthier default that will be much more effective than trying to educate the consumer to request a heathier default, at least in the short term. McDonald's changes to the child meal bundle default serves as a good example for how effective this can be. In 2013 McDonald's US removed soda from the menu board for child meal bundles (i.e., the Happy Meal) and replaced soda with water, milk or juice. As a result of this the number of happy meals that no longer contained soda as the beverage choice went from 38% of happy meals in 2013 to 52 % in 2017 (McDonald's, 2018a).

2.2.4 Pricing and taxes

Pricing as a way of nudging consumers to select healthier fast food choices is an area that has been under consideration for a number of years (Waterlander and Zenk, 2015). With the prevalence of overweight and obesity among children and adults, as one of the leading contemporary global public health issues, the use of government policy as an intervention tool using price and taxed based measures is currently being widely considered (Heise *et al.,* 2016).

Direct taxes (paid in the store by the consumer) on a food can have a mixed effect, often with unintended consequences (Frew *et al.,* 2018). However, when food producers/restaurants reformulate products to be healthier to avoid a food tax, this has a positive health effect on a much larger segment of the population (Johnson, 2018).

One of the key interventions discussed is how to limit the intake of added sugars to products such as sugar-sweetened beverages. The goal is to reduce sugar intake and thereby ultimately improve health outcomes.

There is still significant debate on the use of artificial / alternative sweeteners, however, there is little debate that 'excessive' consumption of high sugar products can lead to weight gain and diabetes over time for a segment of the population. Karalexi *et al.* (2018) in their review on non- nutritive sweeteners concluded that more research is needed before definitive conclusions can be drawn on health outcomes from their use.

Taxation can be used to influence consumer behaviour, usually as a disincentive as illustrated by 'sin taxes' on alcohol and tobacco. Not only do taxes raise revenue for governments but it is hoped that they will reduce public health harm (Blecher, 2015). Health-related taxes (e.g. fat and sugar taxes) that raise the price of food have been attempted as a policy instrument in a number of countries, in an effort to encourage

healthier food choices (Bødker *et al.,* 2015; Smed *et al.,* 2016). Results to date have provided mixed outcomes. To encourage healthier eating, Niebylski *et al.* (2015) suggest a 10-15% minimum amount is needed for food taxes and food subsidies, which need to be used in tandem for a measurable effect. Others have suggested that the tax must be over 20% to be effective (Mytton *et al.,* 2012). There can also be unexpected and undesirable consequences as a result of taxation, such as increased consumption and unexpected substitution effects, which outweigh the anticipated beneficial effects on health outcomes (Hanks *et al.,* 2013; Maniadakis *et al.,* 2013; Wansink *et al.*, 2014; Bødker *et al.,* 2015). As one would expect, there is less uptake if the price is higher for the healthier food item (Basch *et al.,* 2013) and a 'fat tax' may well cost the poor more than the middle class (Muller *et al.,* 2016). The reaction to the amount of 'fat tax' required to change behaviour appears to be consistent over a number of countries where implementation was tracked (Muller *et al.,* 2016). The saturated fat tax, introduced in Denmark in 2011, was removed after 15 months as it was having unexpected negative effects due to consumers switching to less healthy substitutes, thus partly negating the original benefits envisioned (Smed *et al.,* 2016).

Taxing unhealthy food is much more difficult than taxing beverages, such as high sugar sodas, where there is clearly little nutritional benefit outside of sugar and sugar levels are easily ascertained. To date there has been little success with taxing 'junk food' as it is more difficult to determine how that could successfully work and how one could avoid unforeseen consequences of such taxes (Pomeranz *et al.,* 2018; Smith *et al.,* 2018). Smith *et al.* (2018) state that the taxation of highly sugared beverages does appear to be resulting in reducing high sugar beverage purchases, but further work is needed to determine if better health outcomes are also occurring.

In 2016, the UK government announced a two-tier sugar tax to become law in 2018 (UK Government, 2017). The primary goal of the legislation was to reduce sugar consumption for children. Proceeds of the tax are also to go to schools for healthy eating initiatives and physical education facilities (The Food Foundation, 2017).

By setting two levels of tax for 5% and 8% added sugar (naturally occurring sugars in a product are exempt), and a two-year warning period before the taxes implementation, drink manufacturers have had time to consider options. Many have been reformulating their recipes to have 20-50 per cent less sugar before the tax, which will be effective April 2018. The hope was that the nudging via a tax would result in lower soft drink purchases as has been seen in some countries were a sugar tax has been applied but it appears that a much bigger nudge has been successful in terms of the soft drink industry reducing the sugar content (BBC News, 2018).

2.2.5 Branding and imagery

Branding of fast-foods in terms of young children is an area of interest as the branding of the fast foods could influence (positively and negatively) the perceived nutritional elements of the healthier side choices (Kraak and Story, 2015). Branding in fast-food restaurants and with foods (i.e., McDonald's golden arches) carries with it certain expectations. Young children under the age of 6 are exposed to fast-food branding through television commercials. Children watching child TV programming in the US are on average exposed to more than three food related advertisements per day (Harris and Kalnova, 2018). Most of the foods advertised are nutrient poor and energy dense foods and beverages. Due to a child's more limited cognitive abilities at this young age, they do not yet understand the concept of advertising. This exposure via television advertisements is believed to increase the child's preference for these nutritionally poor advertised brands (Bernhardt *et al.,* 2015; Kelly *et al.,* 2015). In an Australian study, children (age 3-5) although not yet able to read were able to identify which logos corresponded with which brand. Nearly 93% of the children could correctly identify the McDonald's brand by it golden arches (McAlister and Cornwell, 2010). Arrendondo *et al.* (2009) found similar results in the US with brand recognition at 89% for McDonalds and 86% for Burger King.

In a study conducted in Ireland, it was noted that it was at age 3-4 years food brand knowledge was advancing significantly but that children's understanding of healthy foods does not advance until between age 4-5 years (Tatlow-Golden *et al.,* 2013, 2014).

A study that presented pre-school children with child-oriented food wrappers (Gunnarsdottir and Thorsdotti, 2010) showed that the children had a significant preference for the food wrapped in the special branded wrapper, similar to the findings of a 2007 study that indicated that children thought food would taste better that came in McDonald's wraps vs white wraps (Robinson *et al.,* 2007).

However, the goal of the Gunnarsdottir and Thorsdottir (2010) study was to test if the wrapper could be used as a nudging factor for wrapping healthier food items in branded wrappers. Their results from a limited population (n = 66) suggests that this is an avenue worth pursing further. Although the branded food and unbranded food was identical, 27-42% (depending on the particular food) was identified as tastier by the children. Other studies with pre-school aged children have shown that they preferred foods presented in a popular brand's packaging (Tim *et al.,* 2014; Ogle *et al.,* 2017), but with the caveat that wrapper branding might not be applicable to all children. It appeared to increase selection by younger children (Ogle *et al.,* 2017), which suggests that careful attention needs to be paid to the targeted demographic for this nudge to be successful.

Brand equity characters were displayed on food packaging were found to promote choice of unhealthy options (Roberto *et al.,* 2010; McGale *et al.,* 2016) resulting in warnings that there should be restrictions on the use of brand equity characters for promotion of unhealthy fast foods. Another study that explored a different aspect of branding, showed that children preferred the taste of the foods in the more decorative wrapping but it was the decorative aspect rather than the branded aspect that was appealing to the pre-schoolers (Elliott *et al.,* 2013). The use of imagery to encourage selection of healthy foods has been explored (Lagomarsino and Suggs, 2018). Children showed a strong preference for photos over drawing or cartoon characters of food. This suggests that when considering the promotion of healthy foods to children, cartoon characters may not be the optimal route, despite one of the nudging concepts other researchers have suggested is the use of branding with cartoon characters to make healthy foods more appealing (De Droog *et al.,* 2010).

In a branding of grocery store packaged food products, it was noted that parents placed greater weight on healthiness when choosing products for themselves than when choosing for their children (Levin and Levin, 2010). This counterintuitive finding has also been reported by Alderson and Ogden (1999). It is speculated that this may be due to parents selecting what they think their child will eat and giving in to 'nag factor'.

When children (age 5-8 years old) in a camp were exposed to daily to TV advertisements featuring snack choices, the children who viewed the candy commercials selected significantly more candy over fruit as snacks (Gorn and Goldberg, 1982). However, a promising aspect of this experiment was that just by eliminating the candy commercials, this proved to be as effective for encouraging the selection of fruit snacks. This suggests that both reducing the exposure to unhealthy food advertisements and foods, along with using positive advertisements for healthy choices, may be an effective strategy to further explore.

2.2.6 The free toy in fast-food meal bundles

Toy inclusion in child meal bundles is a polarizing topic with little agreement between the various factions on whether the inclusion encourages higher consumption of unhealthy foods and more frequent visits to QSRs. In this thesis work it was hoped that the toy might be seconded as a vehicle for nudging. The history, attempts at regulation, and most recent findings on the effects of the toy in fast-food meal bundles are summarized below.

2.2.6.1 History

The concept of toys being provided to children in chain fast-food meal bundles originated in June of 1979, when McDonalds in the US launched the first Happy Meal. It was circus wagon-themed and it included a hamburger or cheeseburger option, French fries, cookies, a soft drink, and a toy. The original toys were a choice of a "McDoodler" stencil, a "McWrist" wallet, an ID bracelet, a puzzle lock, a spinning top or a McDonald character eraser (Webley, 2010). In the nearly 40 years since, additional food options, which vary by country, have been added to the Happy Meal. These include grilled cheese sandwiches, chicken wraps, and chicken McNuggets. The individual food items were mimicked by many competitors, and large chains such as Burger King, Wendy's and Subway also launched children's meals with toys. Five of the top 10 fast food restaurants (based on annual sales) offered toy premiums with their meals (QSR Magazine, 2016).

Adding a toy to a meal became so popular, that McDonald's even experimented with a short-lived adult version, introducing the 'Adult Happy Meal' in 2004 (CNN Money, 2004). The 'Adult Happy Meal 'had a focus on healthier eating and included a salad, a bottle of water, a booklet with fitness tips and a pedometer. However, this offering lasted only a few weeks before it was discontinued.

The popularity of the toy has varied over the decades, reaching its peak in 1997, when McDonald's introduced the Ty's Teenie Beanie Babies, selling more than 100 million toys that year (Webley, 2010). Despite the apparent popularity of toys in children's meals, the inclusion of toys has many critics. With over one billion Happy Meals sold by McDonald's globally on an annual basis, McDonald's outsells the company 'Toys R Us' in the number of toys sold annually and it is now the world's largest toy retailer (FTC, 2012). Child meals with toys sold globally to children aged 12 and under in 2009, accounted for 18% of all child QSR visits (FTC, 2012).

Knowing this, it is worth examining the role that the toy plays in the purchase decision of children's meals, and whether this could be a potential lever of influence in 2018.

2.2.6.2 Toys and TV toy advertising to generate interest

The fast-food meal TV advertisements aired in the US (2009 - 2010), which were child-direct ads frequently featured premiums such as toys and were less likely to emphasize food, as compared with adult-directed advertisements (Bernhardt *et al.,* 2013). When 100 children (aged 3-7 years old) were interviewed as to their recall of fast-food advertising, it was observed that the children were equally as likely to notice the premiums, as notice the food, after they had viewed a child-directed fast-food meal advertisement (Bernhardt *et*

al., 2015). Other reports on links with advertisements and QSR visits found that taste of the food far outweighed the child's interest in a toy (Herédia *et al.,* 2017).

Although many older studies had demonstrated a positive link between a child's overall television viewing, their food preferences, and requests to visit a QSR (Hastings *et al.*, 2003; Institute of Medicine, 2006; Cairns *et al.*, 2013), a recent study by Emond *et al.* (2016) of child directed fast-food advertisements did not detect a statistically significant correlation between increased commercial television viewing and more frequent child requests (child age 3-7 years) to visit the restaurant, however the study suffered from a limited sample size (*n*=100). Yet, Longacre *et al*. (2016), looking at children aged 3-5 years (*n* = 583) found there was a relationship between children's toy knowledge and their intake of fast food, however, the results were mixed depending on the QSR chain (Longacre *et al.,* 2016).

A major issue with the television and toy studies is there is no true control group where the child has had no exposure to television advertisements or other advertisements such as billboards. However, since the fast-food industry spends significant sums of money on television advertising to young children, the assumption would be that there is an uptake of fast-food meal bundles due to the appeal of a toy seen on television.

2.2.6.3 Attempts at regulations/bans and perspectives

In 2010, there was increased controversy over the role of toys in child meals. San Francisco politician Eric Mar introduced an effort to ban toy giveaways that he felt these enticed children to eat food that was "unhealthy". When San Francisco introduced the ban prohibiting the inclusion of *free* toys with child meals, the large fast-food restaurants responded by continuing to include the option of toys with child meals, but now they charged 10 cents for the addition of the toy, thus circumventing the ban (Otten *et al.*, 2012; Otten *et al.*, 2014).

The impact of the free toy ban in San Francisco was studied to determine if there was an impact in what children ordered and their caloric intake. However, at the same time, McDonald's changed the nutritional content of the Happy Meals, changing the default beverage to milk instead of soda, offering apple slices as an alternative to French fries, and changing the chocolate milk to a low-fat chocolate milk option (Strom, 2011). In addition, some fast-food chains began to refer to toys more frequently as self-liquidating premiums, such that the price of the toy covered the cost of the toy, and as such, the toy was no longer recorded as a marketing expense (FTC 2012, page A-8). Based on these additional changes, the effect of the free toy ban was not a controlled impact study and drawing conclusions was difficult, however the ban had clearly drawn attention to the

nutritional content of child meal bundles and may well have been a factor in encouraging corporations to consider changes to child meal bundle content.

The scepticism about the role of the toy is not unique to lawmakers in California. A focus group study was conducted with Australian mothers to examine their perspectives on the impacts that toys included in fast-food meals had on their children (Pettigrew and Roberts, 2006). The mothers viewed the offerings as predatory in nature, noting that they felt that fast-food companies used toy giveaways to form a bond with the child that is stronger than a parent's influence over the child's food preference. Indeed, so great was the parent's perception of the role that the toy has in driving children to pester their parents, that for over 10 years, McDonald's Australia won the dubious honour of the 'Pester Power' award, as voted by a panel of parents (VicHealth, 2015). While the mothers expressed displeasure at the addition of toys to food orders, there was also a positive aspect. They noted that the toy made their child happy and distracted the child, allowing the mother time to enjoy her meal as well.

While the popular press has criticized the role that toys play in the purchase decision (The Telegraph, 2010; Scientific American, 2013; ABC News Australia, 2017; Vice, 2017; Los Angeles Times. 2018), not all of the published research supports the negative role of toys. When examining the role that toys might play in an increase in the caloric intake of children, although not fast-food industry specific study, it was found that the toy inclusion did not lead to any increase in the caloric intake of children (aged 3-10) (Gregori *et al.,* 2013), suggesting that the role of the toy may be of less significance in food choice than what might have been speculated. Rather than the presence of a toy, a main driver behind why the families purchase fast-food child meals for their children has been reported overwhelmingly as convenience. Parents have indicated that the inclusion of a toy in the child meal bundle was not one of the top reasons to buy that meal, and for 49% of the parents, it did not enter into their decision "at all" (Boutelle *et al.*, 2011).

A study that had the benefit of reporting on actual consumer behaviour at the point of purchase rather than just intended behaviour, differentiated the study from many of the other studies. Customers were intercepted post-purchase and data was collected on their meal purchases, the presence of a toy purchase, and their recent visit frequency to the QSR (Lambert and Mizerski, 2011). The presence or absence of a child did not have a significant impact on whether the toy was purchased, the toy premium did not increase loyalty or frequency of visits to the restaurant, and lastly there was insufficient evidence that offering toys with child meals could be causally linked to an increase in fast food consumption by the children.

In summary, the controversy over the role of the toy with the child meal bundle and whether there should be bans on its inclusion/advertisement, will not be easily resolved in the near future, although if the toy was used as a nudge premium for healthy options there might be acceptance of its inclusion by many current detractors.

2.2.6.4 The toy as a nudge premium for healthy options

Perhaps the toy could be used as a nudge for healthier food choices by allowing it to be used as an incentive for healthy child meal choices.

Testing this in a QSR restaurant would be difficult but testing it by recruiting children from a day camp, where the children were assigned to either a control or an intervention condition allowed for a controlled setting for such an intervention (Hobin *et al.* 2012). Children were given a choice of four meal options, however, in the intervention condition, a toy premium was included in the two healthier meal options. Children would choose their meals in the morning at camp and were served the meals the same day at lunch. The researchers saw that in the intervention group, the proportion of children who ordered healthier meals was 39.5%, statistically higher than the 19.5% in the control group. They also noted that the younger the age of the child, the more likely they were to be influenced into choosing the healthier option if a toy was offered, although, this may be reflective of the age target of the toys that were included in the research. They also noted that the parents of the children were not present during the food choices or food consumption, and that the presence of parents may have resulted in different behaviours.

Fast food restaurants carefully track what is sold rather than what is eaten, however products that do not sell eventually will disappear from the menu. Observations in restaurants indicate that parents often finish food from the child's meal that the child leaves and that mothers often put the yogurt and apple slices into purses for consumption at a later time. Due to the complexity of measuring actual child intake within a fast food restaurant, the published studies tend to be conducted in more controllable environments such as the one described in the study above.

Both McAlister and Cornwell (2012) and Dixon *et al.* (2017) showed in their studies that that there is an opportunity to use the toy as a tool for nudging children into selecting healthier fast-food choices. Anzman *et al.* (2017) used some of the same questions as in the study by McAlister and Cornwell (2012) but they carried out additional extensive probing on toy perceptions. Their survey in terms of attitudes/perceptions towards toy inclusions was unique in that it examined the topic from the point of view of children, parents, and industry executives. However, no clear path forward emerged from their

study, only mixed views from the groups reinforcing the divergent viewpoints and complexity of this particular subject.

Lastly, even agreement on what toys should/could be included in a child meal bundle elicits controversy. When children (ages 5-12) are asked what kind of toys they would like there was a divergence of opinion. The children said that they preferred action toy items or dolls, while the adults said that they preferred the inclusion of discovery type items such as telescopes and magnifying glasses (Field Agent, 2016). In 2017 in Canada, McDonalds started to offer the option of free Canadian written children's books, rather than the traditional toy, and this offering has been embraced enthusiastically by both children and parents (McDonald's, 2018b). A book replacing a toy has also been offered in the past in the US in 2013, 2015 and 2016, with a total giveaway of 50 million books. But again, not without controversy, as when introduced in Australia in 2015 parents complained that if the child wanted a toy and the parent the book there could be conflict on the topic between parent and child. In September of 2017, McDonalds in the US included books in the Happy Meal offering to promote literacy nationwide for a one-month period. Studies have shown that 6 out of 10 low-income families in the US had no age appropriate children books in their homes (McDonald's, 2017), so despite controversy on Happy Meals and toys, this particular promotion should benefit children.

The nudge for ordering a child's meal that free books provide promotes literacy, a significant child benefit (*Evans et al.,* 2014). It might be expected that the offer of a free book, for some parents, would nudge them to order the 'happy meal' benefiting the child (versus an adult size order for the child of foods probably higher in calories and often accompanied by a high sugar beverage).

2.2.7 Technology

In the past five years, how consumers use technology in fast-food restaurants has rapidly evolved. When the research for this thesis began, mobile ordering was in its early stages of consumer acceptance, and food decisions were still largely made in-restaurant. However, today the role that technology plays in the consumer experience and in consumer expectations should not be underestimated.

Millennials are the most engaged mobile user group for food apps (Okumus *et al.,* 2016; ACCEO, 2017). Although this technology is still in the early adoption phase, its development is moving at a very fast pace and is likely to have a major impact on food choices. Consumers are increasingly using food smartphone apps for health applications, with over half of US mobile phone users in 2015 reporting that they had downloaded a health-related app, with fitness and nutrition as the most used health apps (Krebs and

Duncan, 2015). Respondents in the survey commented that they wanted apps that would help them with how many calories to consume in a day and ideally to be able to take a photograph of a food and have the app count the calories for them. Food apps on mobile phones offer consumers a very user-friendly way to understand the nutritional implications of each food choice on their daily food intake.

The importance of visuals becomes a high priority in mobile ordering technology. When ordering in-restaurant, customers are exposed to the visuals on the menu and also to the sights, sounds, smells, interactions with the order taker, and memories of previous visits within the restaurant, all of which have an impact. When ordering via mobile technology, the visuals on the screen become much more important as the other common sensorial inputs are not present. Whether that visual is an appealing picture of the food (cheeseburger with french fries) or a pop-up discount coupon for a special food item, or the ability to select ingredients to customize a food (e.g., Domino's pizza app), visuals are likely to play a role in the decision process that is unique from the in-restaurant ordering experience. There is a hunger for shareable content, which can overshadow taste (Shah and Tewari, 2016; Lupton, 2017; Hu *et al.,* 2018). In the past, taste appeal has been a driving force in selecting a fast-food product. However now with Millennials ritually taking photographs of their food and sharing it on social media (Hu *et al*., 2014) before ever taking a first bite (Kloek *et al.,* 2017), the visuals of a food product have taken on much greater importance for the millennial consumer (Kim *et al.,* 2018). This is due in large part to the access of convenient smartphone apps such as Instagram (launched in 2010), Snapfish (launched in 2012), and Platter (launched in 2014); ways to share food pictures not available to previous generations, and now still not used as much by less tech-savvy generations.

A search on 4 August 2018 for the hashtag #bigmac showed 377,153 posts of 'Big Mac' pictures on Instagram. Not all would be posted by Millennials, but a high percentage of that number would be Millennial postings. Millennials love to post pictures (Jones and Nash, 2017).

The millennial generation with their comfort with mobile food ordering technology for fast food and their increasing reliance on home food delivery services for nutritious home cooking (e.g., Blue Apron, Chefs plate, Dropchef, and HelloFresh) will be choosing their meals for their families in a very different way from how their parents ordered food for the family when they were children, including when and where that food is consumed. Smartphone penetration, especially with Millennials, for mobile application ordering is becoming ever more prevalent (McNab and Scheible, 2017). What constitutes a typical family meal will continue to evolve, as will the role of fast food in terms of healthy options

offered by QSRs for children and adults. While this thesis research focused on in-restaurant opportunities to nudge millennial consumers, in the next 5-10 years, the role of nudging through technology will likely increase in relevance as consumer behaviours evolve.

2.3 Summary

In summary, work by earlier researchers has shown that although the body of work on fast food and health is very large, there are also gaps. It is some of these gaps that will be explored with the thesis experiments. Developing a better understanding of the food motives of the millennial parent can help to identify potential areas that could be leveraged to influence behaviours. The millennial generation includes both consumers who have recently entered parenthood and consumers who will become parents in the next 5 – 10 years. For a group highly concerned with their peers, understanding their current peer perceptions and current knowledge base is key to influencing their behaviour. Insights into how young children of millennial parents perceive certain foods in terms of their parents' choices for them are also valuable to identify possible points of consumer leverage. Nudges, whether healthier default items, punitive pricing, toys as incentives, or mobile ordering, all could have significant effects on behaviour if used not as a single nudge but rather as a suite of nudges.

Chapter 3 - Methodology

3.1 Overview

This chapter examines the research methodology adopted in this thesis. It first outlines the various social science philosophies and then discusses why the particular approaches that underpin the research were chosen. It discusses the researcher's epistemology approach (pragmatism) and subsequent use of quantitative and qualitative approaches including mixed use. It further delves into the use of pragmatism and use of inductive reasoning.

Although the headings of 'methodology' and 'methods' are used interchangeably in some fields (Hussey and Hussey, 1997), for this thesis 'methodology' refers to the overall approach and the theoretical basis of the researcher's work and 'method' refers to the means by which the data was collected and then analysed.

The approach taken in this thesis chapter is to present and discuss the theoretical basis for the research methodology, followed by the specific approach taken, the overall data collection methods and means of data analysis, concluding with the ethical considerations. In addition, an overview on statistical analysis and online surveys is included in this chapter.

In terms of 'specific methods', these are described in detail for the particular studies along with limitations in the experimental chapters.

3.2 Research philosophy

A world view is described by Guba (1990, p.17) as 'a basic set of beliefs that guide action'. Ontology and epistemology act as the foundations to research approaches. The beliefs are basic in that they are accepted on faith as there is no way to establish their ultimate truthfulness (Guba and Lincoln, 1994). Guba and Lincoln argue that researchers must be clear about which paradigm informs their approaches and that new paradigms will emerge over time.

Ontology relates to the nature of 'reality' as seen through the lens of the individual (Kalof *et al.,* 2008; Saunders *et al.,* 2012). The existence of reality is external and independent of social actors. The interpretations of it are termed realist (Neuman 2011) or objectivist (Saunders *et al.,* 2009). Ontology is concerned with the question "what is there?". There are two perspectives to ontology: subjectivism and objectivism. Both are concerned with the nature of social entities.

Epistemology is concerned with the questions "What do you know?" and "How do you know it?" (Crotty, 1998; Creswell and Poth, 2017). Epistemology is the philosophy of how one acquires knowledge. It is about the beliefs on the route to generate, understand, and use knowledge in a way that is acceptable and valid (Wahyuni, 2012). Epistemology is comprised of differing, but sometimes complementary philosophies such as pragmatism, interpretivism/ constructivism, post-positivism/ critical realism, and positivism (Saunders *et al.,* 2012).

3.2.1 The research process model and research paradigms

Figure 3.1 is a diagrammatic representation of the research process using an onion model. Decisions in relation to the outer layers provide the context and boundaries for the inner layers (i.e., the data collection techniques and analysis procedures).The outer layers show encompassing philosophy (e.g., pragmatism), the next layer the approaches (e.g., inductive), then methodological choices (e.g., mixed methods), to strategies (e.g., surveys and ethnography), to time horizons, and finally in the core of the onion, to data collection and analysis (Saunders *et al.,* 2012).

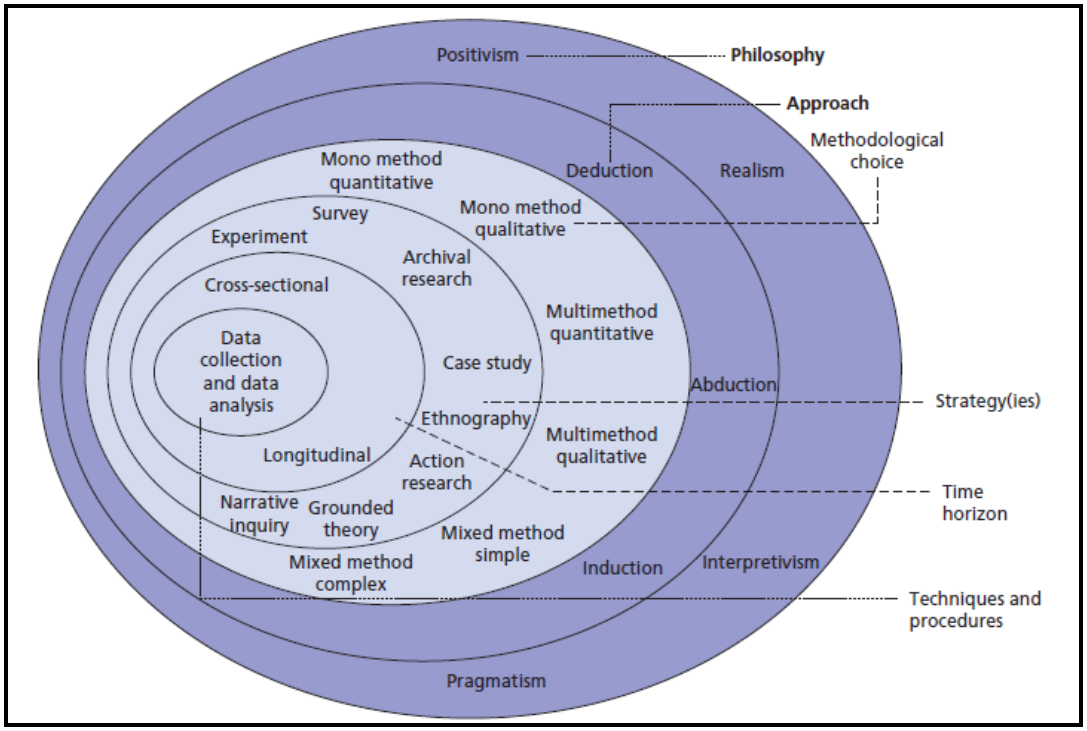


Figure 3.1 The research process onion diagram. Reproduced from Saunders *et al.* (2012).

The pragmatic world view arises out of situations or actions rather than antecedent conditions. It focuses on the consequences of actions. It is oriented to world practice, is pluralistic, and problem centred (Creswell, 2009). The view is that the importance of

research is in the findings' practical consequences. It is considered that no single viewpoint can ever give the entire picture and that there may be multiple realities (Saunders *et al.,* 2012). Pragmatism is discussed in further detail in Section 3.3.

The interpretivist/constructivist basic belief is that the world is socially constructed and subjective (focuses on meanings and trying to understand what is happening, and there is the use of multiple methods to establish different views) (Easterby-Smith *et al.,* 1991). It is an approach commonly used in the area of the social science research (Denzin and Lincoln, 2011, Saunders *et al.,* 2012; McManus *et al.,* 2017). Social constructionism places emphasis on everyday interactions between people and the focus of inquiry is on the social practices of people. The term was first coined by Berger and Luckmann (1991). Social constructiveness seeks to understand the world we live in and the research relies on participants' views of particular situations with the intent of interpreting their views and shared assumptions about reality (Andrews, 2012).

The post-positive world view, is sometimes called the scientific method and it looks to identify causes that influence outcomes, such as those in experiments. Numeric measures are important and the research begins with a theory; after which the data is collected, and the data then either supports or refutes the theory. The positivist basic belief is that the world is external and objective (focuses on facts and causality and measures) (Phillips and Burbules, 2000).

3.2.2 Inductive and deductive reasoning

Reasoning can be inductive, based on the accumulation of facts or deductive (Gray, 2013). A deductive approach tends to start with a hypothesis, while an inductive approach uses research questions to narrow the scope of the study. Inductive studies are looking at new phenomena or ones that have been researched previously but are now being examined from a different perspective and often use qualitative techniques, whereas deductive approaches are often associated with quantitative research. Grounded theory is one such specific inductive approach.

Grounded theory is a general methodology that was developed by the sociologists Strauss and Corbin (1990). It is a way of thinking about and conceptualizing data. It is defined by Creswell (2009, p. 13 & 229) as "a qualitative strategy of inquiry in which the researcher derives a general, abstract theory of process, action, or interaction grounded in the views of participants in a study". Aspects of ethnography can be used in grounded theory studies. Ethnographic studies end in a rich description of cultural meaning, whereas grounded theory ends in a theory that explains a pattern and helps the

researcher understand participants' behaviour from a social interaction perspective (Aldiabat and Le Navenec, 2011).

Grounded theory is useful to address research questions about changes within social groups by conducting studies about phenomena as they occur in real life. The goal is to collect information where the data provide meaning and interpretations of culture (Chenitz and Swanson, 1986; Strauss and Corbin, 1994; Charmaz and Mitchell, 2001). In grounded theory, there is the pragmatic view that the empirical truth of reality can only emerge when the researcher visits the research field, observes the participants, and then analyses actual meanings in the real setting (Glaser, 1992).

3.2.3 Qualitative research approach

Qualitative research, a primarily exploratory approach, involves collecting, analysing, and interpreting what people do and say. It looks to capture the underlying explanations for certain social behaviours (Kothari, 2004; Denzin and Lincoln; 2011). It prefers an interpretation (hermeneutics) approach (Remenyi and Williams,1998). Data collections can be either unstructured or semi-structured, and often provide the groundwork for potential follow-up quantitative research. Sample sizes are typically small and examples include focus groups, individual interviews, and participant observations (Creswell, 2014).

3.2.4 Quantitative research approach

Quantitative research aims to quantify the answers to a research question by applying a natural science approach (Johnson and Onwuegbuzie, 2004). Sample sizes are typically large enough to generate numerical data that can be transformed into usable statistics. This allows for the generalization of the results to a larger population and is typically structured in its approach (Nardi, 2016). Examples of quantitative research approaches include surveys (paper or online) and systematic observations (Creswell, 2014). Quantitative research tends to seek law-like generalisability (Wahyuni, 2012)

3.2.5 Mixed methods research approach

Creswell and Creswell (2017) point out that qualitative and quantitative research should not be viewed as distinct categories, but rather that they represent different ends on a continuum and that a study 'tends' to be more of one than the other. They suggest that the mixed method sits in the middle of this range and incorporates elements of both and when both quantitative and qualitative data are assembled (integrated), they can provide more information than either of the methods alone. Another way of describing mixed methods is the use of qualitative and quantitative methods in a manner where they complement each other. Onwuegbuzie *et al.* (2009) argue that by the use of more than one method, it helps

ensure that discrepancies in the research are not merely a function of the method and that this provides strength to the process.

3.3 Examination and justification of research strategy and design

3.3.1 The history of pragmatism as a philosophical movement

Pragmatism as a philosophical movement originated in the United States during the latter quarter of the nineteenth century. Charles Sanders Peirce (1839–1914), an American philosopher is often called “the father of pragmatism”. William James (1842–1910) and John Dewey (1859–1952) are credited with the popularization and refinement of the philosophy. Peirce saw pragmatism as more of a technique one could use in finding solutions, rather than as a philosophy or an actual solution to problems. James argued that the purpose of philosophy was to understand what had value to us and that ideas and beliefs have value to us only when they work. Dewey attempted to combine aspects of both Peirce's and James’ philosophies of pragmatism.

Pragmatism is the only major philosophical school originating from the United States and it challenged the major philosophical systems of the time. Recently the pragmatism movement, which had previously not been well known in Europe, has re-emerged and been reconstructed and has gained a strong foothold. In continental Europe, there is rising interest and increasing prominence in the application of pragmatism philosophy in the social sciences.

3.3.2 What is meant by pragmatism in the social sciences

Pragmatism can be considered a world view (ideology), as well as a philosophy, or even a method. When seen as a method, the value of a certain way to solve a problem is justified only by its success.

Pragmatism as a research paradigm underpins most mixed methods research and is very relevant to the social sciences, where a mix of quantitative and qualitative methods are often used to examine a research problem. Mixed methods are chosen to explore a concept from more than one perspective (whether that is world view, philosophy, or method/design). It is about looking at ‘practical’ in terms of overall impact and outcome.

Pragmatism can serve as a philosophical program, however the appeal of pragmatism when working with mixed methods research is more about its practicality than the broader philosophical basis. Pragmatism shifts the study of social research to questions such as “how and why” researchers select their research choices and what is the impact of those choices (Morgan, 2014).

Pragmatic research does not require a particular methods mix or method; it does not exclude but rather aims to interrogate with the most appropriate research method. Pragmatism is a commitment to uncertainty and acknowledges that due to the unpredictable human element, the researcher must be open and flexible to the emergence of unexpected data. In pragmatic research, different modes of analysis and continuous cycles of abductive reasoning are employed (i.e., using incomplete observations to seek the simplest and most likely explanation/prediction that may be true), with the process guided by the researcher's wish to produce socially useful knowledge (Yvonne-Feilzer, 2010).

As a process philosophy, pragmatism has appeal to those interested in superseding rigid and dualistic approaches and pragmatism as a philosophy offers useful critical tools to make sense of social practices (Frega and da Silva, 2011).

Pragmatist research does not question ontology or epistemology to start but rather starts off with the research question to determine the research framework. Objectivist and subjectivist perspectives are not considered mutually exclusive and research philosophy is viewed as a continuum rather than an option that must be chosen. The emphasis is on what works the best and pragmatists espouse that using both quantitative and qualitative data leads to a better understanding of social reality (Wayhyuni, 2012).

3.3.3 Pragmatism and other research paradigms

Table 3.1 summarizes the fundamental beliefs of pragmatism and details how they differ from the research paradigms of interpretivism/ constructivism, post-positivism/ critical realism, and positivism.

Table 3.1 Fundamental beliefs of research paradigms in the social sciences. Adapted from Wahyuni (2012).

	Research Paradigms			
Fundamental Belief	***Pragmatism***	***Interpretivism/ Constructivism***	***Post-Positivism/ Critical Realism***	***Positivism***
Ontology: nature of reality What is there? What is reality? How can we understand existence? e.g., What is a stone?	External, multiple subjective and object realities. View chosen to best achieve an answer to the research question	Socially constructed, subjective, may change, multiple	Objective. Exists independently of human beliefs or knowledge of their existence. Is interpreted through social conditioning	External, objective, independent of social actors
Epistemology: knowledge How do we know what we know? What is valid knowledge? How can we obtain it? e.g., Why is that a stone? How do we know that is a stone?	Either or both observable phenomena and subjective meanings can provide acceptable knowledge dependent upon the research question. Focus is on practical applied research. Integration of different perspectives to help interpret the data. Accepts paradigm conflicts between quantitative and qualitative epistemologies. Anti-philosophy.	Subjective meanings and social phenomena. Focus is on details of situation, the reality behind the details, subjective meanings and motivating actions	Only observable phenomena can provide credible data, facts. Focus is on explaining within a context or contexts	Only observable phenomena can provide credible data. Focus is on causality and law-like generalisations, reducing phenomena to their simplest elements
Methodology: research process	Quantitative and qualitative (mixed or multi- method design) Constant modification loop.	Qualitative	Quantitative or Qualitative	Chiefly Quantitative
Chart is based on Saunders *et al.* (2009), Guba and Lincoln (2005), Hallebone and Priest (2009), and McManus *et al.* (2017).				

3.3.4 Why choose pragmatism?

Pragmatism is a research paradigm suitable for this thesis' research since it is a world view that today underpins most mixed method research. Mixed methods research does not easily fall within the world view of positivism/post-positivism or constructivism/interpretivism (Yvonne-Feilzer, 2010). The approach focuses on the problem to be researched and on the consequences of that research. With the desire to use a mix of quantitative and qualitative methods to answer the research questions, the problem-oriented philosophy of pragmatism, takes the view that the best research methods are those that help to answer the research question most effectively.

Quantitative, qualitative, and mixed methodologies can be used to answer the questions of 'what', 'why', and 'who' (Bryman and Bell, 2007). In this thesis work, these questions are concerned with 'what' can be done to encourage healthy choices for children inside of fast-food restaurants. The 'why' is because increasing childhood visits to fast-food restaurants are no longer a treat but for many are now a part of the weekly, and in some cases daily, food intake. The 'who' is the QSR industry, who can nudge in multiple ways (e.g. default choices and labelling); the 'who' is the government, who can nudge (e.g., labelling legislation, sugar taxes); and the 'who' are the parents, who both need to be nudged and must themselves nudge (e.g. modelling eating, teaching children nutritional knowledge). In this thesis, quantitative, qualitative, and mixed methods were used as appropriate, to determine answers to the various questions posed.

According to Patton (1990), the philosophical approach of pragmatism matches the best method with the specific research questions, as opposed to universally advocating a specific approach, which is well aligned with the use of both qualitative and quantitative methods for the research performed in this thesis. Roy (1995) indicates that the approach of philosophical pragmatism allows for the possibility of creatively combining philosophies, epistemologies, and methodologies. In order to influence change, the importance of both internal and external validity within the research design should not be underestimated. For the nudges, concepts explored in this research should be both internally valid by controlling major variables as best as is reasonable, as well as externally valid, such that the research results from the study of a variety of nudging approaches could reasonably be implemented in-restaurant, with the expectation that they would work in a similar manner in the 'real' environment. Validity criteria include the applicability of findings to broader contexts, being able to demonstrate the truth value of multiple perspectives, the dependability of findings amid variability, and that there is freedom from bias in the research process (Guba and Lincoln,1989). Whittemore *et al.* (2001) formulated specific questions to ensure validity based on assessments in terms

of primary and secondary criteria. Primary criteria for validity include credibility, authenticity, criticality, and integrity, while secondary criteria include explicitness, vividness, creativity, congruence, and sensitivity.

The data collection methods and analytic approaches were chosen based on the aforementioned pragmatic approach, with a focus on both the consequence of action, and on how the individual research questions being explored influence the tool selection for each experiment, as opposed to a single data collection or analytic approach for all of the experiments in this thesis. For example, in-restaurant dining times were collected through observational research and not through consumer surveys, and for topics such as individual food motives that have a large number of variables, factor analysis was used to both reduce the number of variables and to detect structure in the relationship between the variables.

3.4 Data Collection

3.4.1 Card sorts

Card sorts are used to explore how people organize and map objects and ideas (Fincher and Tenenberg, 2005). It is a user-centred technique, where a relatively small sample (20-30 participants) can yield insights (Wood and Wood, 2008). When working with young children, who are not yet of an age when they can read or write fluently, a card sort exercise is easy to administer, has a short learning curve, does not require the child to have literacy skills, and can be an engaging process for the child (Wiseman and Harris, 2015). While this technique limits participants to the items depicted in the card deck, including an open sort (no structured categories) and closed sorts (structured categories); it allows children to freely categorize items into their own perceived groupings, providing grounded insights into how the cards cluster.

For food research with children, a card sort is one approach to understand how children categorize foods (Weller and Romney,1988; Beltran *et al*., 2008; Sepulveda *et al*., 2009). By using card sorts, for the specific population of interest in this study (i.e., children under the age of 6), it was possible to explore how young children categorized some foods, how they evaluated and described their choices, and their perspectives of branded and unbranded foods.

3.4.2 Survey questions and scales

Both open-ended and closed-ended questions are used in consumer surveys (Reja *et al.,* 2003). Since surveys are a quantitative technique they are most often based on closed questions. Close-ended questions usually have fixed, pre-set option for answers from

which the respondent can choose – hence ‘close-ended’. Open-ended questions require longer answers than simple pre-set answers, such as ‘yes’ versus ‘’no, and therefore are ideal for qualitative rather than quantitative research.

Advantages of open-ended questions include an infinite number of possible answers, where one can gain unexpected insights, as the respondent’s opinions and feelings can come through in the response. A disadvantage is that a longer time is needed for the questions, leading to a limited number of questions that can be asked before survey fatigue sets in.

Closed-ended questions have the advantage that they can more easily be coded (with a number) for statistical analysis. Less articulate respondents can still easily answer the questions, and close-ended questions are easier and faster to answer. However, there are a number of disadvantages such as forcing simplistic answers to complex questions, and the respondents desired answer may not be presented as a choice. Both open-ended and closed-ended questions were used extensively in surveys designed for this thesis work.

A commonly used scale for close-ended questions is the Likert scale. Scales such as the Likert Scale, named for the psychologist who created it, Rensis Likert (Likert, 1932) are commonly used in social science research. The Likert Scale is a forced response scale and one of the most widely used scales in social science research (Carifio and Perla, 2007; Joshi *et al.,* 2015).

Other options for scales include the Bogardus Social Distance Scale (measures the willingness of people to participate in social relations with other kinds of people and examines how accepting people are of other groups); the Thurstone Scale (measures attitude); the Semantic Differential Scale (on a questionnaire choosing between two opposite positions); binary scales (two answer options); and the Guttman Scale (where questions increase in specificity – agreement on any one item implies agreement with the lower-order items) (DeVellis, 2003; Friborg *et al.,* 2006) .

3.4.2.1 The Likert scale

The Likert Scale was chosen as the most appropriate scale to use for this thesis work, as it is one of the most widely used marketing research scales, as the scales are simple to construct, are likely to produce highly reliable data, and respondents find surveys with Likert scales simple to complete and questions can be easily listed (Joshi *et al.,* 2015). There are also some disadvantages, including a central tendency bias, a social desirability bias, and an acquiescence bias (Johns, 2010).

The Likert scale has been in use for over 50 years and ratings generated from it can be confidently used not only for means and standard deviations, but also for parametric techniques such of analysis of variance, calculating Pearson correlation coefficients, and as the basis for various other multivariate analytical techniques (Carifio and Perla, 2007).

The Likert Scale is a commonly used scale for closed-ended questions. The respondent is presented with a statement and then asked for their level of agreement (or disagreement) with the particular statement (by selecting a point on the scale). By allowing for degrees of opinion, quantitative data is obtained and can be analysed. Each level on a Likert Scale is assigned a numeric value or coding, usually starting at 1 and incremented by one for each level. The most commonly used scale and the one used in this study is the attitudinal Likert scale of five degrees, starting from strongly agree, agree, neutral, disagree and strongly disagree. There are variations such as the use of 7 and 9-point Likert scales that add additional granularity, as well as 4-point (or other even-numbered) scales to produce a forced choice (i.e., an indifferent option is not available as a choice) (Dawes, 2008). The 5-point Likert Scale was employed for the study factors in Chapters 5, 6, and 7.

3.4.3 Observational research

Observational research can be considered as a subset of techniques within qualitative research. It can strengthen quantitative or qualitative data, allowing for a comparison of what people say they do, to what they are observed doing (Sherman and Strang, 2004, Travers, 2014). It is usually thought of as a study of people in their own environment.

Ethnography has its roots in the discipline of anthropology and now is used widely in the social sciences. For marketing studies, ethnography helps companies understand the consumer in areas such as attitudes and lifestyle factors. It is about observing consumer actions and behaviours associated with their everyday lives (Ladner, 2014; Sunderland and Denny, 2016). Hammersley (1983) describes ethnography as a qualitative method that allows for the research of naturally occurring behaviours using descriptive accounts of first-hand observations of the social or cultural features of a particular society. The comprehensive field notes taken during ethnographic research are a fundamental element of this methodology (Wolfinger, 2002).

The methodology lends itself well to observing behaviours of children and was therefore used to covertly observe family behaviours/interactions in the fast-food restaurant setting.

3.4.4 Vignettes in research

Vignettes are short stories that describe hypothetical characters in a specific set of circumstances, which can be used to elicit normative data and attitudes towards a set of social circumstances (Finch, 1987; Barter and Renold, 1999). Alexander and Becker (1978) suggest that the use of vignettes produces more valid and reliable feedback than surveying respondents using 'simpler abstract questions'. It is a cost-effective and practical method, useful in both evaluative and explanatory studies, and can be considered a middle of the road epistemology. The method is a combination of a systematic structured approach with the expression of 'personal meanings' (Miles, 1990). Grønhøj and Bech-Larsen (2010) suggested the use of vignettes as a means to access family topics for examining preconceptions.

In designing a vignette, stories must appear plausible and real to respondents (Hughes and Huby, 2012). They must be readily understood and not too completed, with sufficient context for respondents to have an understanding about the situation being depicted, but be vague enough to 'force' participants to provide additional factors that influence their decisions. Finch (1987) notes that there is strength in the 'fuzziness' of vignettes, as it forces participants to provide additional factors. The respondent's engagement with the vignette increases further, if the respondent has personal experience with the situation described (Barter and Renold, 1999).

Using a vignette approach, it was possible to qualitatively explore perceptions (deeper truths using inductive analysis) about a parent with a child eating in a fast-food restaurant.

3.4.5 Secondary sources of data

Secondary sources of data can include high quality surveys conducted by commercial firms and the government as well as the traditional journal research articles and books. These secondary sources were used for the literature review to identify where the literature gap was in the areas of investigation.

3.4.6 Strength of the data

A concern with validity is whether there were a sufficient number of perspectives included. For reliability, the concern is whether there is transparency in terms of data collection and interpretation and would similar results be obtained by others. For generalizability, the concern is whether the sample is diverse enough to allow inferences in other contexts (Barlett *et al.,* 2001; Hulland *et al.,* 2018). These concerns on the specific experiments are discussed under limitations.

3.4.7 Ethical approval of the complete research programme

Umbrella ethic approval was obtained from the Harper Adams University Research Ethics Committee for all aspects of this study, with the exception of the study reported in Chapter 8. The Chapter 8 study, unlike the others, involved direct interaction (i.e., face-to-face contact) with children and therefore separate and specific ethical approval was obtained for this study. In addition, no identifying information (names, photographic, audio or video recordings) of the children was taken or detailed in any publication. Child anonymity was maintained at all times. No inducements were paid for participation in the child card sort exercise.

3.5 Statistical software and tests

3.5.1 SPSS version 23, 24 and 25

SPSS (abbreviation for 'Statistical Package for the Social Sciences') is one of the most popular Mac and Windows based statistical packages. It can perform highly complex data manipulation and analysis. Version 23 and 24 were used in the beginning of the research work and later Version 25 (released in 2017) was used.

3.5.2 NVivo 11

This is qualitative data analysis software (produced by the company QSR International) that allows one to interrogate data and examine relationships in the data. It is used for qualitative and mixed methods research. For example, it is used extensively for text searches on social media and web content. For the thesis, it was a tool used to examine open-ended survey responses and interview data.

3.5.3 Microsoft Excel (V16) in Office 2016

The Excel software was used for basic data management (with SPSS used for most of the statistical analyses).

3.5.4 The p-value

The *p*-value of a statistical test gives the probability of the results of the sample data occurring by chance. A *p*-value of 0.05 indicates that there was a 5% probability that the data did not occur by chance. For statistical analyses in this thesis, the *p*-values were set as 0.05 for statistical significance.

3.5.5 Levene's F-test

The Levene's test is used to check the assumption of equal variances (when the data comes from a non-normal distribution) before running a test such as a *t*- test. It can also be used to determine whether two subsamples in a given population have equal or different variances. Levene's test is included in the SPSS package.

3.5.6 The t-test (Student's t-test)

Three types of *t*-tests can be conducted: the independent to compare the means for two groups; the paired-sample *t*-test to compare means from the same group at different times, for example comparing the means from the same sample population regarding the same variable at two different times, such as in a pre/post- test. The one-sample *t*-test that tests the mean of a single group against a known mean, for example comparing the means across different populations, such as men vs woman.

3.5.7 Analysis of Variance (ANOVA) and Bonferroni

The one-way analysis of variance (ANOVA) is used to determine if there are statistical differences between the means of two or more independent groups. A one-way ANOVA is often followed up with a post-hoc test.

The Bonferroni post-hoc reveals which specific groups differ (as the ANOVA only reveals whether you have an overall difference between groups). Both of these tests are included in the SPSS package and were used for analyses in the thesis for the following reasons.

While an ANOVA test can identify if results are significant, a post-hoc test is required to identify where the differences are. Fisher's Least Significant Difference (LSD) test is an alternative pairwise comparison method to the Bonferroni, however the Bonferroni post-hoc does control the family-wise error rate. In addition, the Bonferroni was chosen instead of the Tukey, as it is slightly more conservative than Tukey, and while the Tukey post-hoc test also does a pairwise comparison, the Tukey procedure was designed for equal sample sizes (and the sample sizes in the research were not always equal in size).

3.6 Online surveys and survey companies

3.6.1 Online surveys

There has been an increase in the use of online surveys, and the accessibility of online resources in the English-speaking Western world, which has led to unprecedented access to online populations, both representative of the general population, as well as providing

new access to what used to be ‘challenging to reach’ sub-segments of the population (Llieva *et al*., 2002; Andrews *et al*., 2003; Konstan *et al*., 2005). Although at one time the telephone was the primary collection mode for commercial surveys, over 60% of commercial studies were conducted online in 2015, with a projected growth rate of 8% per year (CASRO, 2015 cited by Hulland *et al.,* 2018).

English-speaking nations have some of the highest rates of internet access [Australia (88.2% internet penetration), Canada (90.1% internet penetration), the UK (94.8% internet penetration), the US (87.9% internet penetration)]. This pervasiveness of internet access allows for internet-based research in the Western World on a level previously not available globally (Internet World Stats, 2017). The expanded reach not only allows for a broad geographic representation of a population, but it also allows easier access to target populations.

While traditional research methods find it challenging to reach a large number of demographically similar people (e.g., mothers between the ages of 25-34 years, with children between the ages of 2-6 years), concentrated groups of specific demographically similar consumers are easier to access online through commercial consumer research companies, virtual communities, newsgroups, chat rooms, and message board communities.

Computerized surveys allow for the easy introduction of randomization within the question order (where appropriate). This helps to prevent order bias (i.e., when a consumer is asked to respond to a series of similar questions in a row), as well as ensuring that all participants have a consistent and controlled survey experience. While no research methodology is perfect, some of the challenges with online surveys such as self-selection bias or respondent validation can be addressed through the use of a robust sample size and thoughtful programming logic (Nardi, 2016).

A portion of the research was conducted using respondents in Australia, Canada, the UK, and the US. These four countries were used to compare and contrast trends and were chosen as all four are English-speaking countries, with populations that consume large quantities of fast-food. Similar global fast-food restaurants are found in all four of these countries, and there is a familiarity with the McDonald’s brand. With fast-food consumption on the rise over the past several years, there is a growing concern in these countries around children’s healthy eating practices (WHO, 2016)

3.6.2 Survey sample

With a target sample size ranging from 100 to 400 respondents depending on the survey, and an internet access rate of over 87% in the four countries of interest, the research should be able to access a representative group of parents with children under the age of 6, such that the results of the research can be applied to the larger population. Samples beyond 400 respondents per country were not targeted, due to diminishing returns (Barlett *et al*., 2001; Pew Research, 2018).

For example, in Canada, where the national population is approximately 35 million people, there are over 2 million parents with a child aged 6 or younger (Statistics Canada, 2015). With a population size in the millions, it is expected that the target population is large enough that it will not be difficult to make electronic contact.

The thesis research focused primarily on the mothers and fathers of children aged 6 years and younger. Millennial parents were of particular interest as a subgroup, as were Millennials who are not yet parents, but who are the future nutritional gatekeepers. Research subjects included the direct observation of parental interactions with children in fast-food restaurants. Children (age 4, 5 and 6) participated in the card sort exercise.

The online survey methodology used for this thesis research allowed for a number of key research objectives to be met, including:

(i) The data collected was demographically diverse and large enough in sample size to allow for testing of population level hypotheses.

(ii) The data set collected allowed for subset comparisons within the populations to be examined for statistically significant differences.

(iii) The survey, by being fielded in 4 countries, allowed for cross-country comparisons of the data sets.

3.6.3 Commercial survey technology and respondent panels

Using commercially available survey technology minimizes the computer programming resources required to develop, launch, and analyse a broad survey (Andrews *et al*., 2003). An additional benefit of these online panels is that they allow the respondents time to answer the surveys at times convenient to them, hopefully resulting in better thought out responses.

There are now numerous global companies that offer these commercial products with pre-screened global populations. Examples of such companies are FocusVision, GfK, Mindfield Online Internet Panels, SSI (Survey Sampling International), and Toluna. For the majority of the surveys fielded, the company Toluna was used.

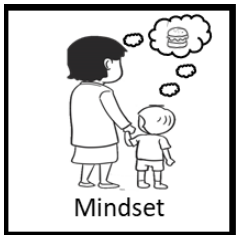
3.6.3.1 Toluna survey software

Toluna (www.toluna-group.com) is an established online market research company, which provides paid access to consumer panels in over 68 countries. They provide on-demand access to an online population of 21 million+ consumers. Panel sizes for the four countries under study were as follows: Australia - 224,700; Canada - 357,000; the UK- 672,400; the US: 3,057,300. Members of their panels register and create an extensive profile, which is then used to determine if the criteria match the survey demographics requested. Researchers submit the questions using the Toluna framework and pay a fee to perform the survey. The fee is dependent on the number of questions and respondents. Respondents are paid by accumulation of points, which they can convert into cash or gift cards. The average survey takes 15 to 20 minutes.

The inclusion of an incentive helps to create a more representative respondent population. The characteristics of the panel respondents are better able to reflect a wider population sample, as panellists are drawn from a larger pool (e.g., the UK Toluna panel is over 672,000 members). The use of a paid panel, as opposed to a convenience or snowball sampling technique, allows for increased diversity of respondents, with a cross section of geographic locations, education levels, incomes, and ages, which convenience sampling may not have provided to the same degree. This thesis research focused primarily on millennial parents, a tech-savvy demographic, with high access to the internet. As such, an online panel can provide reasonable representation of the population of interest, allowing for generalization of the findings.

3.6.3.2 Pre-test of surveys

Prior to fielding a survey, smaller trial sample sizes (15-30 respondents) were fielded to test the logistics of the software in order to have some initial data to evaluate. This allowed for further refinement prior to fielding a robust sample size. The respondents were drawn from co-workers and friends, with demographics of the participants not nationally or demographically representative of the population. The data from these initial trials was not used for any of the final analytics.



Chapter 4 - A four country comparison of food motives - The Food Choice Questionnaire (FCQ) in Australia, Canada, the UK, and the US

4.1 Research objective

The goal of this research was to explore if there were differences in motives for selection of food, between Australia, Canada, the UK, and the US; a country comparison not previously reported in the research.

4.2 Introduction

The food choice questionnaire (FCQ) is a tool to measure the motives underlying people's selection of food. The FCQ developed by Steptoe, Pollard, and Wardle, commonly referred to as the Steptoe Questionnaire (Steptoe *et al.,* 1995), consists of 36 questions, which test in a systematic way health-related and non-health related motives of food choice. The original 1995 results from the FCQ, using a paper survey instrument, resulted in nine principal factors based on groups of statements related to health, mood, convenience, sensory appeal, natural content, price, weight control, familiarity, and ethical concerns. The survey was originally designed to investigate both health and non-health related motives that influence food choice.

The FCQ has now been used with a number of different populations (Lindeman *et al. 2000,* Eertmans *et al.,* 2006, Cabral *et al*., 2017; Cunha *et al.,* 2018), with the first cross cultural study using the Steptoe FCQ in 2002 (Prescott *et al.,* 2002). The Prescott study demonstrated that different motives for food choice were highlighted for the four nationalities surveyed (Japanese, Taiwanese, Malaysian, and New Zealanders). While the FCQ factor structure may differ across cultures and attempts to modify the FCQ with additional questions have been tested, the original 36 question instrument is still widely regarded as one of the most reliable research instruments in the prediction of food selection behaviour (Fotopoulous *et al.,* 2009).

With cross-cultural comparisons, an often-cited concern is that measurement invariance is a prerequisite for cross-cultural or cross-national comparisons (Horn and McArdle, 1992; Eertmans *et al.,* 2006; Davidov *et al.,* 2008; Januszewska *et al.,* 2011). In this study, the FCQ was used for all four English speaking countries. Australia, Canada, the UK, and the US are all ranked in the top 10 countries for Quality of Life (U.S. News, 2018), have similar degrees of economic freedom (the Heritage Foundation, 2018), and have similar large national fast food restaurants with a prominent presence in their countries (e.g., Subway, McDonald's, Burger King, Starbucks), which allows for a cross-country comparison, in the context of this thesis research.

Understanding whether the food choice motives, as measured by the Steptoe FCQ, differ between the four countries (and subsets of age and gender in those countries) will be helpful in determining whether potential in-restaurant nudges could be applied across multiple countries, or if the consumer food motives are culturally unique, and therefore may require more country-specific nudging approaches.

4.3 Methods

4.3.1 The survey questions

Table 4.1 lists the statements from the 1995 Steptoe 36-question paper survey. These same questions were used for the current online survey. The statements were randomized and respondents were asked to rate their agreement on the importance of the statement to their food choice 'on a typical day' using a 5-point Likert scale, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree nor Disagree, 4 = Agree, 5 = Strongly Agree.

Table 4.1 The 36 questions listed on the 1995 Food Choice Questionnaire (FCQ) (Steptoe *et al.,* 1995).

It is important to me that the food I eat on a typical day:

1. Is easy to prepare
2. Contains no additives
3. Is low in calories
4. Tastes good
5. Contains natural ingredients
6. Is not expensive
7. Is low in fat
8. Is familiar
9. Is high in fibre and roughage
10. Is nutritious
11. Is easily available in shops and supermarkets
12. Is good value for money
13. Cheers me up
14. Smells nice
15. Can be cooked very simply
16. Helps me cope with stress
17. Helps me control my weight
18. Has a pleasant texture
19. Is packaged in an environmentally friendly way
20. Comes from countries I approve of politically
21. Is like the food I ate when I was a child
22. Contains a lot of vitamins and minerals
23. Contains no artificial ingredients
24. Keeps me awake/alert
25. Looks nice
26. Helps me relax
27. Is high in protein
28. Takes no time to prepare
29. Keeps me healthy
30. Is good for my skin/teeth/hair/nails etc…
31. Makes me feel good
32. Has the country of origin clearly marked
33. Is what I usually eat
34. Helps me cope with life
35. Can be bought in shops close to where I live or work
36. Is cheap

4.3.2 The respondents and survey demographics

The survey was fielded in Australia, Canada, the UK, and the US (~600 respondents per country). The survey was conducted in English, using an online paid Toluna consumer panel, with a total sample size of 2,592 consumers. Respondents were demographically diverse in nature and basic demographic information about the consumers was gathered (Appendix A). Table 4.2 shows the consumer panel demographics by country. For this survey Millennials were defined as being age 18-34 at the time of the survey.

Table 4.2 Four country demographics of survey respondents.

Total Sample	**Australia** ***n*** **= 612**	**Canada** ***n*** **= 612**	**UK** ***n*** **= 664**	**USA** ***n*** **= 704**
Gender %				
Female	63%	61%	61%	65%
Male	37%	39%	39%	35%
Age				
Mean (years)	42	40	45	45
% 18-34 years (Millennials)	37%	44%	31%	34%
One or more children at home	35%	40%	35%	40%

The data were entered and analysed using the statistical software package IBM SPSS Version 23.0.

4.3.3 Ethics approval

Ethics approval was obtained from the Harper Adams University Research Ethics Committee.

4.4 Results

4.4.1 Factor Analysis

The adequacy of the data for factor analysis was estimated. Table 4.3 presents the value of the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO), which amounts to 0.958 surpassing the recommended value of 0.6. (Kaiser, 1974; Cerny and Kaiser,1977), while the value of the Bartlett's Test of Sphericity (Bartlett, 1954) was significant (i.e., the significance value was lower than 0.05) indicating that the set of analysed data was adequate and/or the factor analysis was justified.

Table 4.3 Kaiser-Meyer-Olkin measure of sampling adequacy (KMO).

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)		0.958
Bartlett's Test of Sphericity	Approx. Chi-Square	54499.299
	Degrees of freedom	630
	Significance	<0.001

Factor analysis of the 36 items, using the full sample, resolved into six factors with Eigenvalues greater than 1.0. The highest loading items were selected, and six factors accounted for 64.8% of the variance.

Table 4.4 reports standardized factor loadings and reliability estimates extracted. Internal consistencies of the FCQ constructs were assessed by means of the Cronbach alpha coefficient. All of the Cronbach's alpha coefficients exceeded the threshold value of 0.6-0.7 for satisfactory scales (Hair *et al.*, 2006).

Table 4.4 Factor loadings and reliability estimates for motives of food choice (FCQ items).

Constructs and items It is important to me that the food I eat on a normal weekday…	Standardized Factor Loading	Internal Consistency
Health		
Keeps me healthy	0.794	
Contains a lot of vitamins and minerals	0.775	
Is low in fat	0.757	0.942
Is nutritious	0.750	
Is good for my skin/teeth/hair/nails etc...	0.739	
Helps me control my weight	0.738	
Is low in calories	0.729	
Is high in fibre and roughage	0.696	
Contains natural ingredients	0.675	
Contains no additives	0.674	
Contains no artificial ingredients	0.665	
Is high in protein	0.532	
Mood		
Helps me cope with stress	0.791	0.894
Helps me cope with life	0.769	
Helps me to relax	0.762	
Cheers me up	0.744	
Keeps me awake/alert	0.609	
Makes me feel good	0.550	
Sensory appeal		
Tastes good	0.763	0.840
Looks nice	0.702	
Has a pleasant texture	0.675	
Smells nice	0.656	
Convenience		
Can be cooked very simply	0.792	0.820
Is easy to prepare	0.785	
Takes no time to prepare	0.731	
Can be bought in shops close to where I live or work	0.628	
Is easily available in shops and supermarkets	0.609	
Familiarity and ethical concern		
Comes from countries I approve of politically	0.716	0.778
Has the country of origin clearly marked	0.641	
Is packaged in an environmentally friendly way	0.587	
Is like the food I ate when I was a child	0.478	
Is familiar	0.412	
Is what I usually eat	0.334	
Price		
Is cheap	0.768	0.782
Is not expensive	0.739	
Is good value for money	0.530	

All factor loadings are significant at $p < 0.001$.

While the various FCQ factors align with similar internal consistencies; it was of interest to investigate whether the various factors show any correlation to each other. Table 4.5 shows the correlation matrix of the FCQ factors displayed in Table 4.4. All correlation coefficients were significant, and while there were some weak to moderate levels of correlation (ranging from 0.36 to 0.61), the majority were below 0.50, suggesting that multicollinearity is not a concern and most of the factors may be considered to be distinct from one another. Of note, however, the *Health* factor had a correlation above 0.50 to *Mood*, *Sensory Appeal*, and *Familiarity/Ethical Concern.* This may be a result of the contraction of multiple elements into the *Health* factor, when the data was resolved into 6 factors, and not into the original 9 factors.

Table 4.4 shows the factor loading and reliability estimates, one of the steps in analysing the FCQ data, which the original and subsequent authors using this survey have used. The factors are grouped into latent variables, named by the original survey authors. Within the four countries, similar variables load together. This allows for cross country comparisons to see if the latent variables (such as *Mood*) have the same priority across countries.

Table 4.5 Correlation matrix of the FCQ factors.

	H	M	SA	C	FE	P
Health (H)	1.00					
Mood (M)	0.57	1.00				
Sensory Appeal (SA)	0.57	0.51	1.00			
Convenience (C)	0.30	0.47	0.48	1.00		
Familiarity and Ethical Concerns (FE)	0.61	0.58	0.55	0.45	1.00	
Price (P)	0.36	0.41	0.48	0.50	0.42	1.00

All correlations are statistically significant at p <0.001 (two-tailed).

4.4.2 Cross country comparisons

Mean importance ratings were calculated for each food choice factor, with each question given equal weight, across consumers in each of the four countries. ANOVA and Bonferroni post hoc tests were performed to compare means across the samples. The rank order of most to least important factors for each country was calculated (Table 4.6). The country with noted differences from the other three countries was the UK, where *Health*, *Convenience*, and *Familiarity/Ethical Concern* were statistically different in terms of the factor having a lower importance. *Price* also had a lower importance compared to Australia and Canada, but not to the US.

Table 4.6 The importance of each food choice factor in each country.

	Health (*F= 4.14)		**Mood** (F = 2.17)	**Sensory Appeal** (F = 1.02)	**Convenience** (F = 12.54)		**Familiarity/ Ethics** (F = 6.49)		**Price** (F = 8.10)	
AU	**3.62	UK (0.011)	3.40	3.97	3.72	UK (<0.000)	3.43	UK (0.001)	3.80	UK (<0.000)
CA	3.63	UK (0.022)	3.42	4.02	3.77	UK (<0.000)	3.43	UK (0.002)	3.79	UK (<0.000)
UK	**3.49**	AU (0.022) CA (0.011)	3.34	4.03	**3.56**	AU (<0.000) CA (<0.000) US (<0.000)	**3.28**	AU (0.001) CA (0.002) US (0.025)	**3.61**	AU (<0.000) CA (<0.000)
US	3.59		3.32	4.00	3.75	UK (<0.000)	3.39	UK (0.025)	3.70	

*F-values for the ANOVAs undertaken for each factor. For each factor (within column), means with different superscripts are significantly different between countries, with p-values in brackets. **Mean ratings of the importance of each food choice factor by consumers in each of the four countries, where 1 = Strongly Disagree, 2 =Disagree, 3 = Neither Agree nor Disagree, 4 = Agree, 5 = Strongly Agree.

When ranking the various factors in order of importance, *Sensory Appeal* was the most important factor in all countries; while *Familiarity & Ethics* together with *Mood* occupied the lowest rankings in all countries (Table 4.7). In most instances, *Price* was the second most important factor followed by *Convenience* in third place. However, the US respondents placed the factor of *Convenience* higher than *Price*.

Table 4.7 Rank order of most to least important factors for each country.

Importance ranking		**AUSTRALIA**	**CANADA**	**UK**	**US**
Most Important	1	Sensory Appeal	Sensory Appeal	Sensory Appeal	Sensory Appeal
↓	2	Price	Price	Price	**Convenience**
	3	Convenience	Convenience	Convenience	**Price**
	4	Health	Health	Health	Health
	5	Familiarity and Ethics	Familiarity and Ethics	Mood	Familiarity and Ethics
Least Important	6	Mood	Mood	**Familiarity and Ethics**	Mood

Food choice factors were explored by age bracket and by gender (Table 4.8). For the food choice factors based on the age bracket, *Sensory Appeal* and *Health* were placed higher by the older age bracket of 55+ than the two younger age brackets. The youngest (18-34 years) of the three-age bracket placed the most importance on *Price*. Gender differences were noted for some of the factors with a higher female focus for *Health*, *Sensory Appeal*, and *Price*.

Table 4.8 Food choice factors by age and gender.

	Health Mean (SD) (*F* = 6.10)	**Mood** Mean (SD) (*F* = 6.74)	Mean (SD) (*F* = 13.89)	**Convenience** Mean (SD) (*F* = 2.32)	**Familiarity/ Ethics** Mean (SD) (*F* = 1.64)	**Price** Mean (SD) (*F* = 11.34)
Age						
18-34	*3.53(0.82)$^{55+}$	3.43(0.77)$^{55+}$	3.93(0.68)$^{35-54,55+}$	3.74(0.67)	3.35(0.68)	**3.81(0.74)$^{35-54,\ 55+}$**
35-54	3.56(0.79)$^{55+}$	3.37(0.84)$^{55+}$	4.00(0.69)$^{18-34,\ 55+}$	3.68(0.72)	3.39(0.71)	3.68(0.78)$^{18-34}$
55+	**3.67(0.79)$^{18-34,\ 35-54}$**	3.28(0.82)$^{18-34,\ 35-54}$	**4.11(0.66)$^{18-34,\ 35-54}$**	3.67(0.72)	3.41(0.68)	3.64(0.79)$^{18-34}$
Gender						
Female	**3.64(0.81)^{Male}**	3.38(0.81)	**4.04(0.68)^{Male}**	3.73(0.70)^{Male}	3.40(0.69)	**3.74(0.77)^{Male}**
Male	3.48(0.77)^{Female}	3.35(0.81)	3.95(0.68) Female	3.64(0.70)^{Female}	3.35(0.69)	3.67(0.77) Female

**F*-values are for the age-bracket based ANOVAs undertaken for each factor. Mean ratings of the importance of each food choice factor, where 1 = Strongly Disagree, 2 =Disagree, 3 = Neither Agree nor Disagree, 4 = Agree, 5 = Strongly Agree. Standard Deviation For each factor (within column), means with different superscripts are significantly different between age groups, or between genders.

When ranked by factor importance (Table 4.9), only for the 55+ group was *Health* ranked as more important than *Convenience*. In this age group, *Price* moved, from being ranked second by the other age groups, to fourth. Also, of note was the gender difference, where *Health* was ranked a higher priority for females, where it held the fourth spot versus males where it held the fifth spot.

Table 4.9 Rank order of most to least important factors for age brackets.

	18-34 Years (*n* = 935)	**35-54 Years** (*n* = 970)	**55+ Years** (*n* = 687)		**Female** (n=1,619)	**Male** (n=974)
Most Important	Sensory Appeal	Sensory Appeal	Sensory Appeal		Sensory Appeal	Sensory Appeal
2	Price	Price	Health		Price	Price
3	Convenience	Convenience	Convenience		Convenience	Convenience
4	Health	Health	Price		Health	Familiarity and Ethics
5	Mood	Familiarity and Ethics	Familiarity and Ethics		Familiarity and Ethics	Health
Least Important	Familiarity and Ethics	Mood	Mood		Mood	Mood

4.5 Discussion

The results indicate that for all four countries, *Sensory Appeal* was the most important factor, and this finding is aligned with the original British Population study in the 1995 Steptoe paper. However, unlike the Steptoe paper, only six key factors were identified. Several explanations may be hypothesized for the lack of convergence on the original nine factors identified by Steptoe *et al.* (1995). As the original study was published over 20 years ago, some of the item content may have acquired a different meaning, or an evolution may have occurred in the meaning attributed to the food characteristic since the development of the original FCQ.

In terms of individual scales, the *Health* factor contains items related to the prevention of chronic disease (e.g., 'high in fibre and roughage'), to general nutrition and well-being (e.g., 'nutritious'), and to weight loss (e.g., 'helps me control my weight'). Two factors from the original study, *Weight Control* and *Natural Content,* in the most recent study now load into the other items relating to *Health*. The consumer perception of the *Health*-related food motives may have changed since the original survey, with more elements now a key component of *Health*. This may be why in more recent usage of the FCQ, fewer factors are identified. The original nine factors included a factor identified as *Weight Control,* which included the three items of 'Is low in calories', 'Helps me control my weight', and 'Is low in fat'. However, in this most recent research, these items loaded onto the *Health* factor and were not a unique factor. The *Health* factor also contains items relating to *Natural Content* (e.g., 'contains no additives'), which in the original study was a separate factor, but in this study loaded onto the other *Health* items. In the original Steptoe study, the *Natural Content* factor demonstrated a high correlation with the *Health* factor, and the authors highlighted the strong connection between these two factors. In addition, in the original study *Familiarity* (e.g., 'Is familiar') and *Ethical Concern* (e.g., 'Has the country of origin clearly marked') now loaded onto a single factor.

The Steptoe FCQ, although in this study now grouping into 6 rather than 9 factors, is after more than 20 years, still a reliable tool for evaluating food motives and can offer valuable insights into where there are food choice motive differences in the four countries (and subgroups within those countries) and where there are similarities.

The goal of this research was to explore if there were differences in motives for selection of food, between Australia, Canada, the UK, and the US. Across the four countries under study, the ranking of the factors was similar. The top factor selected on food choice was *Sensory Appeal*. The factor of *Price* was selected as second and *Convenience* as third in importance, by Australia, Canada, and the UK. In contrast, the US placed *Convenience*

second and *Price* third, however *Health* still held the fourth position of food choice reasons in all four countries. Not only were the rankings very similar, but between country scores for these factors were often aligned. For the factors of *Mood* and *Sensory Appeal*, there was no statistical difference between countries on the mean scores. Indeed, amongst Australia, Canada, and the US, there were no statistical differences in country-level mean scores for any of the 6 factors. While the mean scores of the UK respondents were often statistically lower than the mean scores of the Australian or Canadian respondents, they were typically within 0.14 to 0.21 of one another. For example, on a 5-point scale, the importance of *Convenience* had a mean score of 3.56 in the UK, 3.77 in Australia, and 3.77 in Canada. For *Health*, *Convenience*, *Familiarity/Ethical Concerns*, and *Price*, while the mean UK scores were lower, the importance ranking was similar to Australia, Canada and the US, suggesting that these are still comparable countries.

Within the age groups, there were also differences in how the food motives were ranked. The 55+ age group prioritized *Health* higher than the younger groups. This is not to say that the Millennial generation does not care about *Health* but rather that at their age-related life stage, *Convenience* has a higher importance than *Health.* Understanding this age-related difference is key for the nudging approaches under study, which are focused on millennial parents.

When motives were ranked by gender, female respondents prioritized *Health*, *Sensory Appeal*, and *Price* with higher mean scores than male respondents. These differences in food motive priorities highlight the importance of exploring both mothers and fathers in research. With *Health* ranked as the fifth least important out of the six studied factors, nudging male consumers into making healthy choices will be a challenge in all four countries. However, there will also be wide applicability to the use of nudges, since the four countries exhibit very similar factor choices overall.

While the survey may have self-reporting bias, the intent was to compare cross-country food motives and all four countries under study would have inbuilt self-reporting bias. However, this does not prevent the comparison of food motives between countries and the FCQ tool has been commonly used as a tool to compare between cultures as described by Cunha *et al.* (2018). While the findings of this research are not generalizable to all countries, there are some commonalities amongst the four countries under study. There are likely findings within these that could be applied to countries other than those under immediate study.

4.6 Conclusions

Australia, Canada, the UK, and the US demonstrated similar food motives, ranking the key factors in a similar order of importance. This cross-cultural similarity helps support the other studies in this thesis research, which examine nudging techniques that may have potential to impact consumers in more than one country.

Of note, while the countries are similar, these results have also demonstrated some of the key challenges with current consumers and the motives that drive their food decisions. Knowing that *Sensory Appeal*, *Price,* and *Convenience* are key factors for millennial consumers in all four countries, may help to explain the growth in fast food consumption and the low adoption of healthier food options, which are often priced higher or are not as convenient to order. Strategies to influence these consumers must not downplay the role of *Sensory Appeal*, or overestimate the role of *Health*. Finding ways to leverage *Price* and *Convenience* may be critical in nudging millennial consumers, in all four countries, into healthier food choices.

Chapter 5 - Perceptions of current millennial parents and future millennial parents on family dining and fast food

5.1 Research Objective

Building on the knowledge from the food choice questionnaire Chapter 4, the current research explores the perceptions of dining on fast-food in terms of what current parents remember about their experiences with fast-food dining as a child as well as dining with their own children and the role of the toy. The perceptions of Millennials without children (representing future parents) were also explored.

5.2 Introduction

5.2.1 Ritual and habit

When selecting foods in a fast-food restaurant, either for themselves or for their children, consumers continue to select traditional fast-food options instead of healthier fast-food alternatives that they claim they would like to see on a menu. Anderson and Mirosa (2014) investigated this problem using laddering interviews of McDonald's customers in New Zealand. These customers had declined the option of ordering healthy McDonald's weight watchers endorsed meal items (labelled as such for a trial period) versus a regular fast-food order. One of their key findings was that consumers had ingrained perceptions that a visit to a fast-food establishment was not an occasion to eat healthy food. The researchers concluded that tradition and ritual weighed heavily in why consumers selected their familiar food options.

Researchers have examined how frequently repeated performance of a behaviour in a specific context (high degree of automaticity) leads to the development of behavioural habits and the subsequent difficulty in changing those behaviours, especially in terms of health behaviours (Verplanken and Wood, 2006; Orbell and Verplanken, 2010; Nudelman and Shiloh, 2018). Familiarity on food-options for ordering inside of a fast-food restaurant was explored by Lassen *et al.* (2016) and although the majority of respondents indicated that they wanted healthier items on menus, only 7% subsequently included healthier items with their food choices. Habit, taste, and price were identified as the drivers for the actual meal selection and '*Fast food I am used to eating'* was most frequently chosen by both genders as the reason for the actual food purchase decision.

5.2.2 The evolving role of the toy

The role of the toy in fast-food meal bundles is controversial. A 2012 Federal Trade Commission Report (FTC, 2012), looked at food marketing to children and concluded that a child's interest in a toy can generate interest in eating at a restaurant. When Emond *et al.* (2016) examined the connection between collecting children's toy premiums and children requesting that their family visit fast food restaurants, no statistical correlation between toy collecting and more frequent fast-food requests was observed. Children who collected toy premiums were more likely to have seen fast-food TV commercials and were more frequent visitors of fast-food restaurants, but the visits were not correlated to child-specific requests to visit the restaurant. This particular study also did not detect a statistically significant correlation between increased commercial television viewing and more frequent child requests to visit the restaurant. However, other studies have demonstrated a positive link between a child's overall television viewing and their food preferences and requests (Hastings *et al*., 2003; Institute of Medicine, 2006; Cairns *et al.,* 2013).

Longacre *et al.* (2016) also examined if there was a relationship between children's toy knowledge and their intake of fast food. They reported mixed results when they studied four fast food chains over a 12-month period, during which 49 unique toy premiums were sold (24 of the toy premiums were from McDonald's). Children's knowledge of the McDonald's fast food toys was correlated to greater frequency of visits to McDonald's, however, there were no statistical relationships shown between children's toy knowledge and their intake of fast food from Burger King, Subway, or Wendy's.

5.2.3 The toy as part of a family experience

Bugge and Almås (2006) discuss how family meals represent an important family ritual. Such social rituals with predictable times, places, and behaviours, are an important part of the fast-food experience for some families. The free toy may well play a role in this ritual. Television advertisements have focused on the toy premiums included in the meals and have shown the meals and toys as family activities – at home, at play in backyards, on the beach, etc. (FTC, 2012).

5.2.4. The toy as leverage for healthier food choices

Although not in a fast-food setting, an intervention of restricting toy premiums to healthier foods and effect on child meal choices was examined where the children experienced the consequences of their choices (Hobin *et al.,*2012). Within a controlled setting (a day camp) children were assigned to either a control or an intervention condition (nudge). In the intervention condition, a toy premium was included in the healthier meal options. In the intervention group, the proportion of children who ordered healthier meals was 39.5%, statistically higher than the 19.5% in the control group. An important observation was that the younger the age of the child, the more likely they were to be influenced into choosing the healthier option if a toy was offered. This suggests that the toy as a nudge was effective and even more so with younger children. However, the study only used one toy theme and that particular finding may have been reflective of the age target of the toys used in the research, a weakness of the study. Since the parents of the children were not present during the food choices or food consumption, it did not simulate the in-restaurant ordering process. Whether the presence of parents would have resulted in different behaviours could not be determined.

Using only fast-food images, presented with and without a toy, children were given the option of choosing a fast-food meal without a toy or a 'healthier' fast-food meal with a toy (McAlister and Cornwell, 2012). The toy appeared to make a healthy meal more appealing to the children. They were more likely to choose the 'healthier' option image with the toy, given the hypothetical choices. However, there was no consequence to the child's choice as there would be within an actual fast-food restaurant. Both of the aforementioned studies, although not conducted in a fast-food environment, suggest that there may be a way to use the inclusion of a toy as a nudging option.

5.2.5 Future millennial parents

Most of this thesis' research has focused on current millennial parents and explored potential approaches to nudging them towards healthier food ordering decisions, for themselves and for their children, in fast-food restaurants. Rylatt and Cartwright (2016) in their review of published studies in this area concluded that most parents have a very strong desire to feed their young children in a healthy manner, but struggle to translate this into actual behaviours. Looking into the future, it is important to understand the next cohort of parents in terms of different sets of unique expectations and challenges. Eating out is already a large part of the millennial lifestyle with the average US Millennial eating out five times per week (Bankrate, 2017) suggesting the encouragement of healthy eating behaviours, and education regarding nutritional choices, will be even more important.

Over the next 10 years, 80% of Millennials will have families (Futurecast, 2016) and this generation of parents will be the future nutritional gatekeepers. While at the moment they are only making food decisions for themselves, in the next 5 to 10 years, many will become the parents who will be making the food decisions for the next generation of children.

Millennial parents modelling healthy lifestyles for young children, while the children are still outside of the influences of school and peers is key, as once they begin school most have developed their food preferences and changing behaviour is much more difficult (Wardle and Cooke, 2008; Gibson *et al.,* 2012). The parental decisions and modelling at this early period in life provide the foundation for the child's food preferences and a lifetime of eating habits. Understanding how to nudge these future parents of young children, in terms of healthy food choices, can influence future generations of consumer eating habits.

5.3 Methods

5.3.1 Background

This research was divided into two phases. Phase 1 explores the opinions of current Millennial and Gen-X parents regarding family dining in fast-food restaurants. Respondents from Australia, Canada, the UK, and the US were asked their level of agreement with a series of statements about their childhood memories of dining in fast-food restaurants and their current experiences and expectations. Phase 2 explores the opinions of young Millennials, who do not yet have children, towards fast-food and family dining. In the next 5-10 years, they will be the group of parents making the majority of food decisions for young children. This survey explores their childhood memories of fast-food visits, their current fast-food behaviour, and how they envision fast-food visits with their future family.

5.3.2 Respondents

Phase 1 Respondents

A quota sample of 800 individuals was used. Respondents were the parents of at least one child under the age of 18 and were a diverse mix of age, education, and income level. Respondents were from Australia, Canada, the UK, and the US (200 responses per country. The sample was 50/50 male/female and included both millennial parents (age 18-35 years) and Gen X parents (age 36-54 years). The online survey tool used, did not support gender quotas by age bracket, however it did allow for gender quota based on the total sample. The intent of the overall 50:50 balance was to allow for the inclusion of

analysis of perspectives of fathers, as well as mothers, since fathers are too often an overlooked demographic in this area. The millennial age bracket was 46% men and 54% women, while Gen X was 57% men and 43% women. The limitations of the sample size did not allow for analysis based on both generation and gender. Respondents were recruited from a paid Toluna survey panel. Standard demographic questions used to select the respondents can be seen in Appendix A.

Phase 2 Respondents

The respondents were a 65/35 split of female/male, millennial university students (Ryerson University, Toronto, Canada). With an average age of 21 years old, these respondents were on the younger end of the age range of Millennials. As the study focused on future parents, participants were respondents who did not yet have children. Respondents were recruited from a Ryerson University student research panel at two points in time (Fall 2017 and Winter 2017). There were 611 students in total that participated in the study. Of this group, a later smaller subset (*n*=207) also completed a longer version of the survey with additional questions. Demographic questions asked of the respondents are given in Appendix B.

5.3.3 The survey

Phase 1 Survey of current parents

The survey explored two key themes: (1) the respondent's own childhood memories of fast-food family visits (Table 5.1), and (2) the respondent's current thoughts on fast-food family visits with their child (Table 5.2).

Phase 2 Survey of future parents

This survey explored three key themes: (1) their own childhood memories of fast-food visits (Table 5.3), (2) their current thoughts on fast-food visits (Table 5.4), and (3) their thoughts on what they would expect from fast-food visits in the future for themselves and for their child (Table 5.5).

Statements were randomized and respondents rated their agreement based on a 5-point Likert agreement scale, were 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree nor Disagree, 4 = Agree and 5 = Strongly Agree.

5.3.4 Data analysis

Statistical analysis using descriptive statistics, *t*-tests, and one-way ANOVAs were performed to explore the opinions of current and future millennial parents on fast-food family dining, using the statistical software package IBM SPSS Version 24.0. A one-way ANOVA is used for one independent variable (whereas a two-way ANOVA would be used when looking at two independent variables).

Table 5.1 Statements respondents were asked to rate on a 5-point scale - their thoughts on their own childhood memories of fast-food family visits.

Below are a series of statements about fast food restaurants, child's meals, and toys. Please indicate the extent to which you agree or disagree with the following statements.
I have good memories of going to a fast-food restaurant with my family when I was a child.
When I was a child, going out to a fast-food restaurant with my family was a special treat.
When I was a child, when my family went to a fast-food restaurant, I often ate a child's meal that came with a toy.
When I was a child, when our family went to a fast-food restaurant, I was allowed to eat whatever I wanted.
When I was a child, my family enjoyed going to fast-food restaurants together.
When I was a child, when our family went to a fast-food restaurant, my parents chose what I would eat.
When I was a child, I enjoyed playing with the toys that came with the child's meal in fast food restaurants.

Table 5.2 Statements respondents were asked to rate on a 5-point scale - their current thoughts on fast-food family visits.

Below are a series of statements about fast food restaurants, child's meals, and toys. Please indicate the extent to which you agree or disagree with the following statements.
I take my child to a fast-food restaurant as a treat.
I enjoy taking my child to a fast-food restaurant.
My child enjoys going to a fast-food restaurant.
Having a child's meal with a toy in a fast-food restaurant is an important childhood ritual.
Sharing french fries in a fast-food restaurant is an important family ritual.
A fast-food restaurant is a place that a child has the freedom to behave however they would like.
Eating at a fast-food restaurant is a treat. I do not worry about eating healthy when I am there.
When I take my child to a fast-food restaurant, I let them eat whatever they would like.
I expect that a fast-food restaurant will offer healthy meal options for children.
There should be government regulations with nutritional guidelines that children's meals in fast-food restaurants should follow.
My child asks me to take them to eat at a fast food restaurant specifically because they want the toy that comes with the child's meal.
If my child wants the child's meal with a toy in a fast food restaurant, I don't mind them ordering it.
Toys should be banned from being included in children's meals in fast food restaurants.
If a child's meal with a toy is ordered, my child typically plays with the toy inside of the restaurant.
If a child's meal with a toy is ordered, my child typically plays with the toy when we get home.
If a child's meal with a toy is ordered, my child seldom plays with the toy (in the restaurant or at home).
My child would rather play with technology (smartphone or tablet) than play with the toy that comes with a child's meal.

Table 5.3 Childhood memories of fast-food family visits.

Below are a series of statements about fast food restaurants, child's meals, and toys. Please indicate the extent to which you agree or disagree with the following statements.
As a child, going out to eat at a fast-food restaurant with my family was a special treat.
I expect that a fast-food restaurant will offer healthy meal options for adults.
As a child, our family went to a fast-food restaurant on a regular basis.
As a child, when our family went to a fast-food restaurant, I was allowed to eat whatever I wanted.
As a child, when our family went to a fast-food restaurant, my parents chose what I would eat for me.
As a child, when our family went to a fast-food restaurant, I often ate a child's meal, which came with a toy.
My family enjoyed going to fast-food restaurants together.
I have good memories of going to a fast-food restaurant with my family.
I enjoyed playing with the toys that came with child meals in fast-food restaurants.
Having a child's meal with a toy is an important childhood ritual.

Table 5.4 Attitudes and expectations on current fast-food visits.

Below are a series of statements about fast food restaurants, child's meals, and toys. Please indicate the extent to which you agree or disagree with the following statements.
I expect that a fast-food restaurant will offer healthy meal options for children.
I expect that a fast-food restaurant will offer an organic meal option for adults.
I expect that a fast-food restaurant will offer an organic meal option for children.
Eating at a fast-food restaurant is a treat. I do not worry about healthy eating when I am there.
When I am at a fast-food restaurant, I always order french fries.
A fast-food restaurant can be like a home away from home for me. I go there to do my work, or have a break, or socialize with friends.

Table 5.5 Current beliefs on future fast-food family dining visits.

Below are a series of statements about fast food restaurants, child's meals, and toys. Please indicate the extent to which you agree or disagree with the following statements.
A trip to a fast-food restaurant with a child is a special family occasion.
A fast-food restaurant is a place that a child has the freedom to behave however they would like.
If I took my child to a restaurant, I would share french fries with my child.
I would feel guilty taking my child to a fast-food restaurant.
I would not hesitate to take my child to a fast-food restaurant.
I would let my child pick what they wanted to eat at a fast-food restaurant.
I would choose the food my child would eat at a fast-food restaurant.
Toys should be banned from children's meals in fast-food restaurants.
There should be government regulations with nutritional guidelines that children's meals in fast-food restaurants must follow.

In addition, respondents were asked about their current food/beverage purchase behaviours in fast-food restaurants/ coffee shops and on their current use of fast-food/coffee shop mobile applications (apps) (Figure 5.1).

On average, how often to you buy a beverage from a coffee shop or fast food restaurant? (For example, Tim Hortons, Starbucks, McDonald's, etc...)

- More than once a day
- Once a day
- Three to five times a week
- Once or twice a week
- A few times a month
- Once a month or less often

On average, how often to you buy a food from a coffee shop? (For example, Tim Hortons or Starbucks)

- More than once a day
- Once a day
- Three to five times a week
- Once or twice a week
- A few times a month
- Once a month or less often

On average, how often to you buy a food from a fast food restaurant? (For example, McDonald's or Subway)

- More than once a day
- Once a day
- Three to five times a week
- Once or twice a week
- A few times a month
- Once a month or less often

On average, how much money to you spend per week in coffee shops? (For food and beverages that you consume yourself)

_____ Average CAD$ spent per week in coffee shops

On average, how much money to you spend per week in fast food restaurants? (For food and beverages that you consume yourself)

_____ Average CAD$ spent per week in fast food restaurants

Many coffee shops and fast food restaurants offer apps that consumers can download and use on their smartphones. Which of the following fast-food restaurant or coffee shop apps do you currently have on your smartphone? (choose all that apply)

A&W	Starbucks
Burger King	Second Cup
Dairy Queen	Subway
Harvey's	Tim Horton's
KFC	Timothy's
McDonald's	Wendy's
None	

(Respondents were shown these questions, for each of the app they identified as currently having on their smartphone. Each functionality was rated on a 3-point scale of: Frequently used the function, Sometimes used the function, Did not use this function)

Thinking about the <insert brand> apps you have on your smart phone, how have you used these apps in the past 3 months?

- Loyalty Programs
- Restaurant Locator
- Nutritional Information
- Coupons and Deals
- Mobile Payments
- Pre-order Food and Beverages
- Gift Cards
- Games and Contests
- Send gifts to other people

Figure 5.1 Current consumer behaviour and mobile app usage for QSR purchases.

5.3.5 Ethics approval

Ethics approval was obtained from the Harper Adams University Research Ethics Committee.

5.4 Results

5.4.1 Phase 1 current millennial parents

Current parents were shown a randomized series of 24 statements. The statements were based on both their own childhood and current fast-food family dining experiences and respondents were asked to rate their agreement to each statement, using a 5-point Likert scale of agreement.

5.4.2 Childhood fast-food memories

Current parents were asked to reflect upon their own childhood memories of going to eat at fast-food restaurants with their families. For most, going to a fast-food restaurant with their family was a treat and together time that their family enjoyed. They look back favourably on these visits. The majority of parents agreed that their childhood fast-food experiences were happy moments, where they often ate a child's meal that came with a toy and they were mostly allowed to eat whatever they wanted (Figure 5.2).

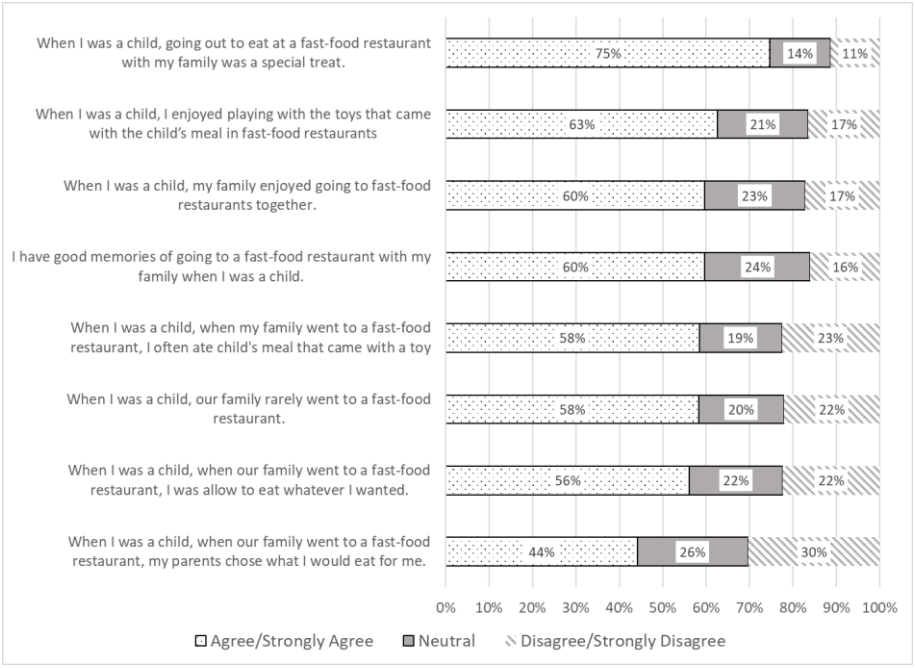


Figure 5.2 Reflecting on childhood fast-food family dining experiences (*n*=800). Due to rounding, percentages may not always appear to add up to 100%.

Responses to these statements were examined for differences between subgroups of country, age of parent (Millennial versus Non-Millennial), and gender of respondent.

Parents from the US demonstrated a statistically higher level of agreement for recalling eating a child's meal with a toy (p<0.000) and having the freedom to eat whatever they wanted at a fast-food restaurant (p=0.021). Millennial parents were more likely to agree that as a child they chose what they wanted to eat on the menu (p=0.004) and often enjoyed the child's meal that came with a toy (p<0.000) (Table 5.6). Based on gender of the parent, there was no statistical difference in level of agreement to the statements of fast-food dining as a child, with two exceptions. Women were more likely to agree that they enjoyed playing with the toys that came with the child meal bundle (p=0.001). Men were more likely to agree that their parents choose what food they would eat in the restaurant (p=0.012).

5.4.3 Current fast-food dining experience

The parents agreed that going to a fast-food restaurant was a treat occasion. Although it was not a place for total freedom, in terms of how the children were expected to behave, they did enjoy taking their child to fast-food restaurants and their child enjoyed going to fast-food restaurants (Figure 5.3).

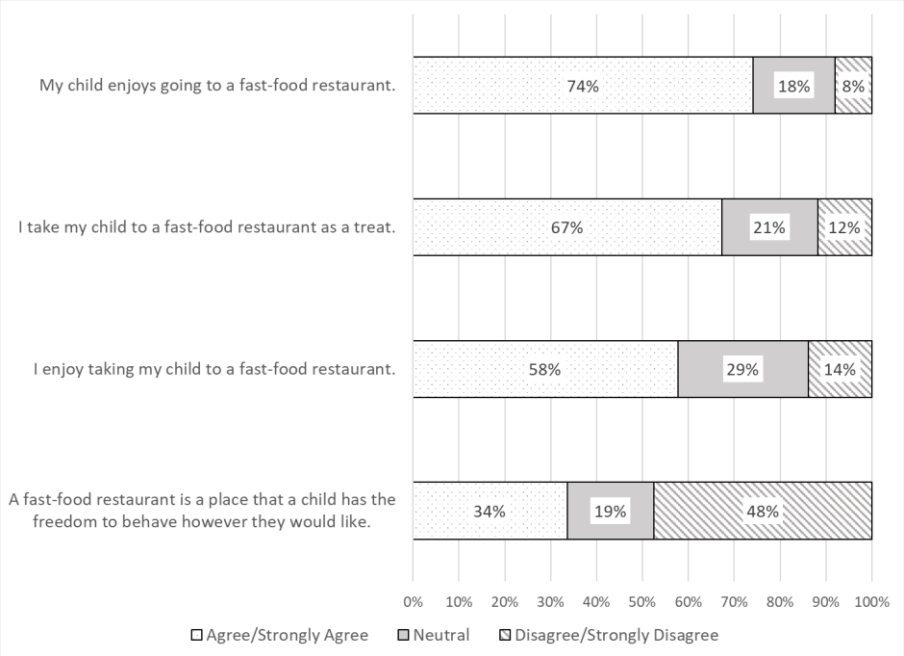


Figure 5.3 Reflecting on current fast-food family dining experiences (n=800). Due to rounding, percentages may not always appear to add up to 100%.

Table 5.6 Respondents own childhood fast-food memories.

.		I have good memories of going to a fast-food restaurant with my family when I was a child.		When I was a child, my family enjoyed going to fast-food restaurants together.		When I was a child, going out to a fast-food restaurant with my family was a special treat.		When I was a child, when my family went to a fast-food restaurant, I often ate a child's meal that came with a toy.		When I was a child, when our family went to a fast-food restaurant, I was allowed to eat whatever I wanted		When I was a child, when our family went to a fast-food restaurant, my parents chose what I would eat.	
	n	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
By country													
Australia	200	3.6	1.1	3.5	1.1	4.0	0.9	3.3	1.2	3.3	1.1	3.2	1.1
Canada	200	3.6	1.1	3.4	1.1	3.8	1.1	3.3	1.2	3.4	1.1	3.1	1.1
United Kingdom	200	3.4	1.1	3.4	1.25	3.8	1.2	3.3	1.2	3.4	1.2	3.1	1.1
United States	200	**3.8**[A]	1.1	**3.6**[B]	1.2	3.9	1.1	**3.9**[D]	1.2	**3.6**[E]	1.2	3.3	1.3
By age of parent													
18-39 years	506	**3.7**[C]	1.0	**3.7**[C]	1.0	3.9	1.1	**3.7**[F]	1.1	**3.5**[F]	1.1	3.2	1.2
40-49 years	187	3.4	1.1	3.3	1.1	3.9	1.0	3.1	1.2	3.3	1.2	3.2	1.1
50+ years	107	3.2	1.3	3.1	1.1	3.9	1.1	2.7	1.4	3.2	1.2	3.0	1.2
By gender of parent													
Female	400	3.6	1.1	3.6	1.1	4.0	1.0	3.5	1.2	3.4	1.1	3.1	1.1
Male	400	3.6	1.1	3.6	1.1	3.8	1.1	3.4	1.2	3.4	1.1	**3.3**[G]	1.1
Total	**800**	**3.6**	**1.1**	**3.6**	**1.1**	**3.9**	**1.1**	**3.5**	**1.2**	**3.4**	**1.1**	**3.2**	**1.2**

Respondents were asked to evaluate statements, based on a 5-point Likert agreement scale, were 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree nor Disagree, 4 = Agree and 5 = Strongly Agree. Using a one-way ANOVA, mean scores were compared by country and by age bracket of parents.
[A]Mean scores in the US were statistically higher than the mean scores in the UK. [B]Mean scores in the US were statistically higher than the mean scores in Australia, Canada and the UK. [C]Mean scores of parents age 18-39 were statistically higher than the mean scores of parents age 40-49 and 50+. [D]Mean scores in the US were statistically higher than the mean scores in Australia, Canada, and the UK. [E]Mean scores in the US were statistically higher than the mean scores in Australia. [F]Mean scores of parents age 18-39 were statistically higher than the mean scores of parents age 40-49 and 50+. [G]Mean scores of men were statistically higher than the mean scores of the women.

Table 5.7 Parent's attitude to fast-food experience with child.

		I take my child to a fast-food restaurant as a treat		I enjoy taking my child to a fast-food restaurant		My child enjoys going to a fast-food restaurant		Having a child's meal with a toy in a fast-food restaurant is an important childhood ritual		Sharing french fries in a fast-food restaurant is an important family ritual		A fast-food restaurant is a place that a child has the freedom to behave however they would like.	
	n	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
By country													
Australia	200	3.7	1.0	3.5	1.0	3.9	0.9	3.2	1.1	3.1	1.2	2.6	1.3
Canada	200	3.8	0.9	3.5	1.0	3.9	1.0	3.4	1.1	3.4	1.2	2.7	1.3
United Kingdom	200	3.7	1.1	3.5	1.1	3.8	1.0	3.4	1.1	3.1	1.2	2.8	1.3
United States	200	3.7	1.0	3.7	1.1	4.0	1.0	**3.7**[B]	1.2	**3.5**[C]	1.2	2.9	1.5
By age of parent													
18-39 years	506	3.7	1.0	**3.6**[A]	1.0	3.9	1.0	**3.6**[D]	1.1	3.3	1.2	**2.8**[E]	1.4
40-49 years	187	3.7	0.9	3.4	0.9	3.8	1.0	3.3	1.0	3.3	1.0	2.5	1.3
50+ years	107	3.6	1.1	3.5	1.1	3.9	1.0	3.2	1.1	3.1	1.2	2.6	1.4
By gender of parent													
Female	400	**3.8**[F]	0.9	3.6	1.0	3.9	0.9	3.4	1.1	3.2	1.2	2.5	1.4
Male	400	3.6	1.0	3.6	1.0	3.8	1.0	3.4	1.1	**3.4**[G]	1.2	**3.0**[G]	1.3
Total	**800**	**3.7**	**1.0**	**3.6**	**1.0**	**3.9**	**1.0**	**3.4**	**1.1**	**3.3**	**1.2**	**2.7**	**1.4**

Respondents were asked to evaluate statements, based on a 5-point Likert agreement scale, were 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree nor Disagree, 4 = Agree and 5 = Strongly Agree. Using a one-way ANOVA, mean scores were compared by country and by age bracket of parents.
[A]Mean scores of parents age 18-39 were statistically higher than the mean scores of parents age 40-49. [B]Mean scores in the US were statistically higher than the mean scores in Australia. [C]Mean scores in the US were statistically higher than the mean scores in Australia, and the UK. [D]Mean scores of parents age 18-39 were statistically higher than the mean scores of parents age 40-49 and 50+. [E]Mean scores of parents age 18-39 were statistically higher than the mean scores of parents age 40-49. [F]Mean scores of women were statistically higher than the mean scores of the men. [G]Mean scores of men were statistically higher than the mean scores of the women.

Table 5.8 Fast food as a treat or as a healthy meal.

		Eating at a fast-food restaurant is a treat. I do not worry about eating healthy when I am there.		When I take my child to a fast-food restaurant, I let them eat whatever they would like.		I expect that a fast-food restaurant will offer healthy meal options for children.		There should be government regulations with nutritional guidelines that children's meals in fast-food restaurants should follow.	
	n	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
By country									
Australia	200	3.6	1.0	3.3	1.0	3.6	1.0	3.5	1.0
Canada	200	3.4	1.1	3.5	1.1	3.7	1.0	3.6	1.1
United Kingdom	200	3.6	1.0	3.3	1.0	3.6	1.0	3.6	1.0
United States	200	3.6	1.2	**3.7**[A]	1.1	3.8	1.1	3.7	1.1
By age of parent									
18-39 years	506	3.6	1.0	3.5	1.0	3.7	1.0	3.6	1.1
40-49 years	187	3.6	1.0	3.3	1.0	3.7	1.0	3.5	1.0
50+ years	107	3.5	1.1	**3.6**[B]	1.0	3.7	1.0	3.4	1.1
By gender of parent									
Female	400	3.6	1.0	3.5	1.0	3.7	1.0	3.6	1.0
Male	400	3.6	1.1	3.4	1.1	3.7	1.0	3.5	1.1
Total	**800**	**3.6**	**1.1**	**3.5**	**1.1**	**3.7**	**1.0**	**3.6**	**1.1**

Respondents were asked to evaluate statements, based on a 5-point Likert agreement scale, were 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree nor Disagree, 4 = Agree and 5 = Strongly Agree. Using a one-way ANOVA, mean scores were compared by country and by age bracket of parents.
[A]Mean scores in the US were statistically higher than the mean scores in Australia, and the UK. [B]Mean scores of parents age 50+ were statistically higher than the mean scores of parents age 40-49.

Table 5.9 Perceptions of the toy.

		When I was a child, I enjoyed playing with the toys that came with the child's meal in fast-food restaurants		My child asks me to take them to eat at a fast-food restaurant specifically because they want the toy that comes with the child's meal.		If my child wants the child's meal with a toy in a fast-food restaurant, I don't mind them ordering it.		Toys should be banned from being included in children's meals in fast-food restaurants	
	n	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
By country									
Australia	200	3.4	1.1	3.1	1.2	3.8	0.8	2.8	1.2
Canada	200	3.6	1.1	3.1	1.3	3.9	0.9	2.5	1.3
United Kingdom	200	3.4	1.2	3.0	1.2	3.8	1.0	2.7	1.3
United States	200	**4.0**[A]	1.0	**3.5**[B]	1.3	**4.0**[C]	1.0	2.6	1.4
By age of parent									
18-39 years	506	**3.8**[D]	1.1	**3.3**[F]	1.2	3.9	0.9	2.7	1.4
40-49 years	187	3.4	1.0	3.0	1.2	3.9	0.9	2.7	1.2
50+ years	107	**2.9**[E]	1.3	2.8	1.2	3.8	1.0	2.6	1.2
By gender of parent									
Female	400	**3.7**[G]	1.0	3.1	1.2	**4.0**[H]	0.9	**2.4**[I]	1.3
Male	400	3.5	1.2	3.2	1.3	3.8	1.0	2.9	1.3
Total	**800**	**3.6**	**1.1**	**3.2**	**1.2**	**3.9**	**0.9**	**2.7**	**1.3**

Respondents were asked to evaluate statements, based on a 5-point Likert agreement scale, were 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree nor Disagree, 4 = Agree and 5 = Strongly Agree. Using a one-way ANOVA, mean scores were compared by country and by age bracket of parents.
[A]Mean scores in the US were statistically higher than the mean scores in Australia, Canada, and the UK. [B]Mean scores in the US were statistically higher than the mean scores in Australia, Canada, and the UK. [C]Mean scores in the US were statistically higher than the mean scores in Australia. [D]Mean scores of parents age18-39 were statistically higher than the mean scores of parents age 40-49, and 50+. [E]Mean scores of parents age 50+ were statistically lower than the mean scores of parents age 18-39 and 40-49. [F]Mean scores of parents age 18-39 were statistically higher than the mean scores of parents age 40-49, and 50+. [G, H] Mean scores of women were statistically higher than the mean scores of the men. [I]Mean scores of men were statistically higher than the mean scores of the women.

Table 5.10 Engagement with the toy.

		If a child's meal with a toy is ordered, my child typically plays with the toy inside of the restaurant		If a child's meal with a toy is ordered, my child typically plays with the toy when we get home.		If a child's meal with a toy is ordered, my child seldom plays with the toy (in the restaurant or at home)		My child would rather play with technology (smartphone or tablet) than play with the toy that comes with a child's meal.	
	n	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
By country									
Australia	200	3.6	1.0	3.4	1.0	3.1	1.1	3.3	1.2
Canada	200	3.7	1.0	3.5	1.0	3.0	1.1	3.3	1.2
United Kingdom	200	**3.4**[A]	1.1	3.5	1.1	3.1	1.1	3.4	1.2
United States	200	3.8	1.1	3.7	1.2	3.1	1.4	3.4	1.3
By age of parent									
18-39 years	506	3.7	1.1	3.6	1.1	**3.2**[D]	1.2	3.3	1.3
40-49 years	187	3.5	1.0	3.4	1.0	3.0	1.1	3.4	1.1
50+ years	107	**3.4**[B]	1.1	**3.1**[C]	1.2	2.9	1.1	3.6	1.1
By gender of parent									
Female	400	3.7	1.0	3.5	1.1	3.0	1.2	3.2	1.2
Male	400	3.6	1.1	3.5	1.1	3.2	1.2	**3.5**[E]	1.2
Total	**800**	**3.6**	**1.1**	**3.5**	**1.1**	**3.1**	**1.2**	**3.4**	**1.2**

Respondents were asked to evaluate statements, based on a 5-point Likert agreement scale, were 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree nor Disagree, 4 = Agree and 5 = Strongly Agree. Using a one-way ANOVA, mean scores were compared by country and by age bracket of parents.
[A]Mean scores in the UK were statistically lower than the mean scores in Australia, and the UK. [B]Mean scores of parents age 50+ were statistically lower than the mean scores of parents age 18-39. [C]Mean scores of parents age 50+ were statistically lower than the mean scores of parents age18-39, or 40-49. [D]Mean scores of parents age 18-34 were statistically higher than the mean scores of parents age 40-49 or 50+. [E]Mean scores of men were statistically higher than the mean scores of the women.

Comparing levels of agreement by country, there were no statistical differences between Australia, Canada, the UK, and the US on statements about whether the parent or the child enjoyed the experience, on it being a treat experience, or on expected behaviour for the child during the restaurant visit (Table 5.7). Of the 506 millennial respondents (46% men/54% women), the country distribution was as follows: Australia 25%, Canada 21%, UK 25%, and US 29%.

Female parents were more likely than male parents to agree with the statement that visits to fast-food restaurants were a treat occasion, while male parents had a stronger agreement with the statement on allowing the child more freedom of behaviour in the restaurant during the visit (Table 5.7).

Overall, millennial parents were more likely to agree that they enjoyed taking their child to a fast-food restaurant (Table 5.8), that the toy was an important childhood ritual (Table 5.9 and 5.10), and they were more permissive on the behaviour question (Table 5.7).

5.4.4 Current fast-food choices

Parents had mixed opinions about what foods should be offered in fast-food restaurants. They agreed that fast-food visits were a treat occasion and almost half saw the sharing of french fries as an important family ritual. While they did not worry about themselves eating healthy while at the fast-food restaurant, they did expect the *option* of healthy foods to be available for their children. In addition, 56% believed that there should be government regulations with nutritional guidelines in place for child meal bundles (Figure 5.4).

Between countries, the conflicted view of these occasions being both a treat occasion and the expectation for healthy menu options is consistent, with no statistical differences between Australia, Canada, and the UK. However, respondents from the US were more likely to agree that they would let their child eat whatever they wanted and that sharing french fries was an important family ritual.

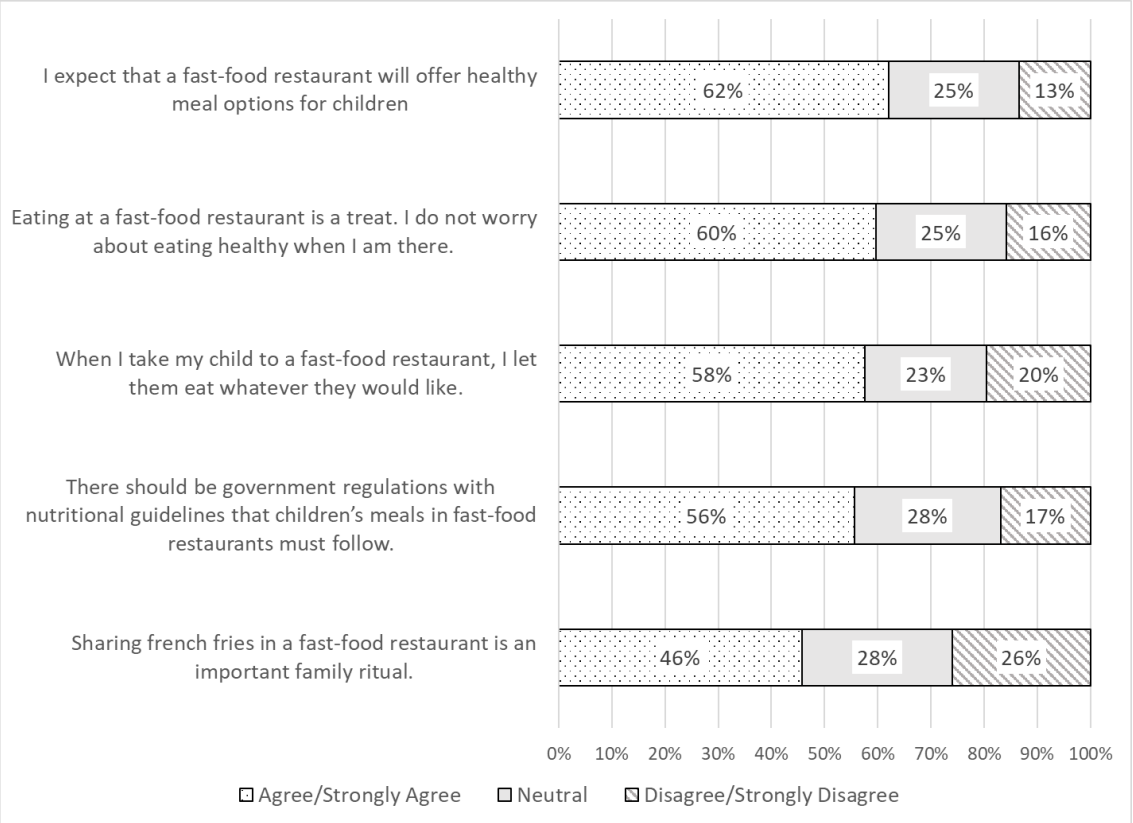


Figure 5.4 Healthy versus treat expectations (*n*=800). Due to rounding, percentages may not always appear to add up to 100%.

5.4.5 Toys with child meal bundles

For most parents (74%) either Agreed or Strongly Agreed that there was little concern about the presence of a toy in the child meal bundle, if the child wanted that option. They did not mind if their child ordered a meal with a toy, even though 45% believed that sometimes their child asked them to visit a fast-food restaurant specifically because they wanted the toy that came with the child meal bundle (Fig 5.4).

How much the child engages with the toy is unclear, with 62% of parents saying that the child plays with the toy in the restaurant, while 40% said that their child seldom played with the toy either in the restaurant or at home. Technology appears to be an upcoming preferred option with 49% of parents saying that their child would rather play with technology than the toy in the child meal bundle.

On the statement suggesting that toys should be banned from being included in child meal bundles, only 29% of respondents were in favour of a ban (Agree/Strongly Agree), 23% were neutral on the topic, and 49% (Disagree/Strongly Disagree) were against a ban (Figure 5.5).

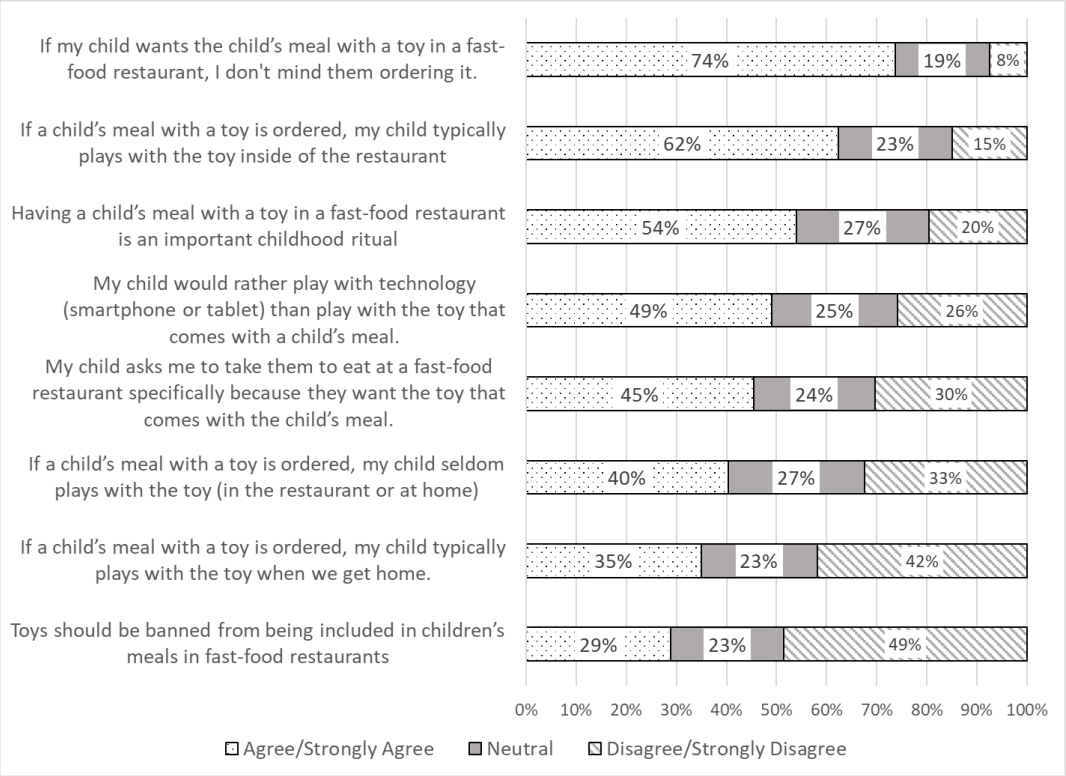


Figure 5.5 Toys with child meal bundles (*n*=800). Due to rounding, percentages may not always appear to add up to 100%.

Respondents from Australia, Canada, and the UK had similar levels of agreement on the toy statements (Table 5.6 and 5.7). However, respondents from the US were more likely than the other countries to agree that they had good memories of toys with child meal bundles when they were a child, that their own children would ask to go to fast-food restaurants specifically for the toy, and that they did not mind ordering food for their child that came with a toy.

5.4.6 Phase 2 future millennial parents

Respondents were millennial students, age 17-30 years (average age 21), drawn from a student population at a Canadian university (Ryerson University, Toronto). The sample consisted of 611 respondents (64% female/36% male, 97% full-time students/3% part-time students) who did not yet have children. A subset of this group (*n*=207) completed a longer version of the survey with additional questions in which they reflected on their own experiences with fast food as a child and their current expectations.

5.4.7 The growing role of technology in fast-food ordering behaviour

Millennials are heavy users of digital technology (Taken Smith, 2012; Fromm and Garton, 2013), with college students leading the adoption of smartphone technology (Lepp *et al.,* 2014). Mobile apps will be a part of the future gate-keepers arsenal in making decisions about food ordering/consumption, and technology such as mobile apps will influence food choices in the future based on their design and appeal, whether that appeal centres on convenience of paying, collecting incentives such as points, pre-ordering or whether it is the functionality of allowing customization as seen with the Domino Pizza app, or some combination thereof. It was therefore of interest to examine the current use of mobile technology by this group of future parents and how they are using it for fast-food purchases for themselves.

Of the 611 young Millennials surveyed, 281 respondents (46%) had at least one app on their smartphone associated with a coffee shop or fast-food restaurant (Figure 5.6). Of the subgroup with one of these apps, 29% had the McDonald's app and 81% had the Starbucks app on their smartphone. The McDonald's app was most often used as a way to access coupons and deals (65% frequently used the McDonald's app for this purpose).

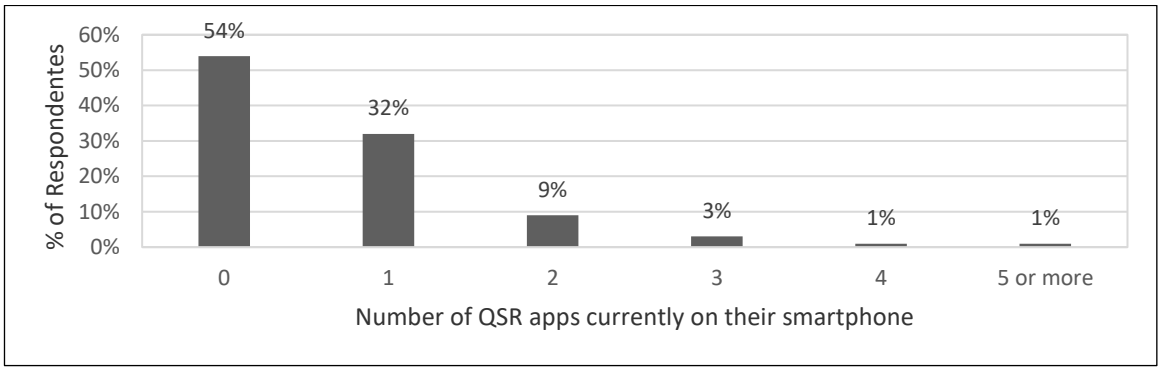


Figure 5.6 Current QSR smartphone apps on respondent smartphones (*n*=611).

The Starbucks mobile app was used sometimes or frequently by 55% for its pre-ordering functionality. Although a smaller subset of respondents was used for the QSR food questions, initial responses suggest that consumers with QSR apps spent more money in both coffee shops and fast-food restaurants than non-app users (an estimated additional $212 per year at coffee shops and $257 per year at fast-food restaurants). Females download and used the QSR apps more often than males, which is probably related to women spending more time in general using their smartphones in areas such as social media, shopping, and health (Businessofapps. 2016).

This was a student panel, and not a commercial panel. As such, quotas for respondent profiles were not an option. For the second questionnaire, respondents were 34% male/ 66% female. While it is possible to weight the sample, to adjust the results of the study to be more in line with the known population (50/50 male/female), to explore gender differences in greater detail, it would be beneficial to field this survey again to increase the sample size.

5.4.8 Young Millennials reflect on their childhood fast-food experiences

In the young Millennial study, 207 respondents were asked to reflect on their childhood memories of going to fast-food restaurants with their families. They were shown a series of statements accompanied by a 5-point Likert scale of 'Strongly Agree' to 'Strongly Disagree'. These responses were than analysed as percentages, with the 5-point Likert scale reduced to three groupings ('Agree/Strongly Agree', 'Neutral', and 'Disagree/Strongly Disagree').

Millennial future nutritional gatekeepers (with no children yet) viewed their childhood experiences eating fast food with their families as positive experiences (Figure 5.7). The young Millennials looked back on these occasions fondly, viewing it as a special treat time. Eating at a fast food restaurant was not a visit that occurred on a regular basis for most, but for half of the respondents it was also not only a rare treat. The visits were a time when many of them remembered having the freedom to choose their own food. They have good memories of going with their family to fast-food restaurants and that their family enjoyed this time together.

5.4.9 Young Millennials reflect on free toys in child meal bundles

Current parents have mixed opinions on the inclusion of a toy in a child's meal bundle (see Chapter 5). In this specific study young Millennials view the inclusion of the toy favourably. They indicated that when they were a child they often ate child meals that included a toy and remember enjoying the toy as a part of the experience. They view the ordering of a child's meal with a toy as an important childhood ritual and most do not believe that toys should be banned from child meal bundles (Figure 5.8).

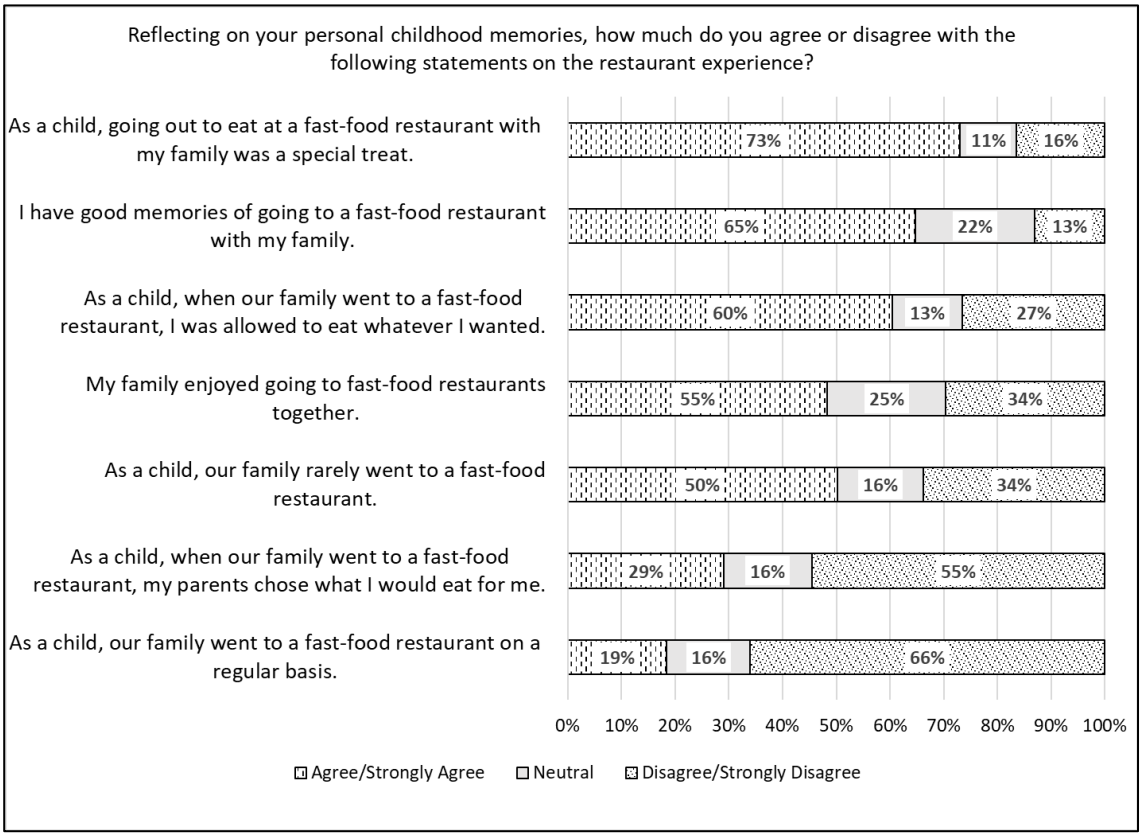


Figure 5.7 Reflecting on childhood memories (*n*=207).

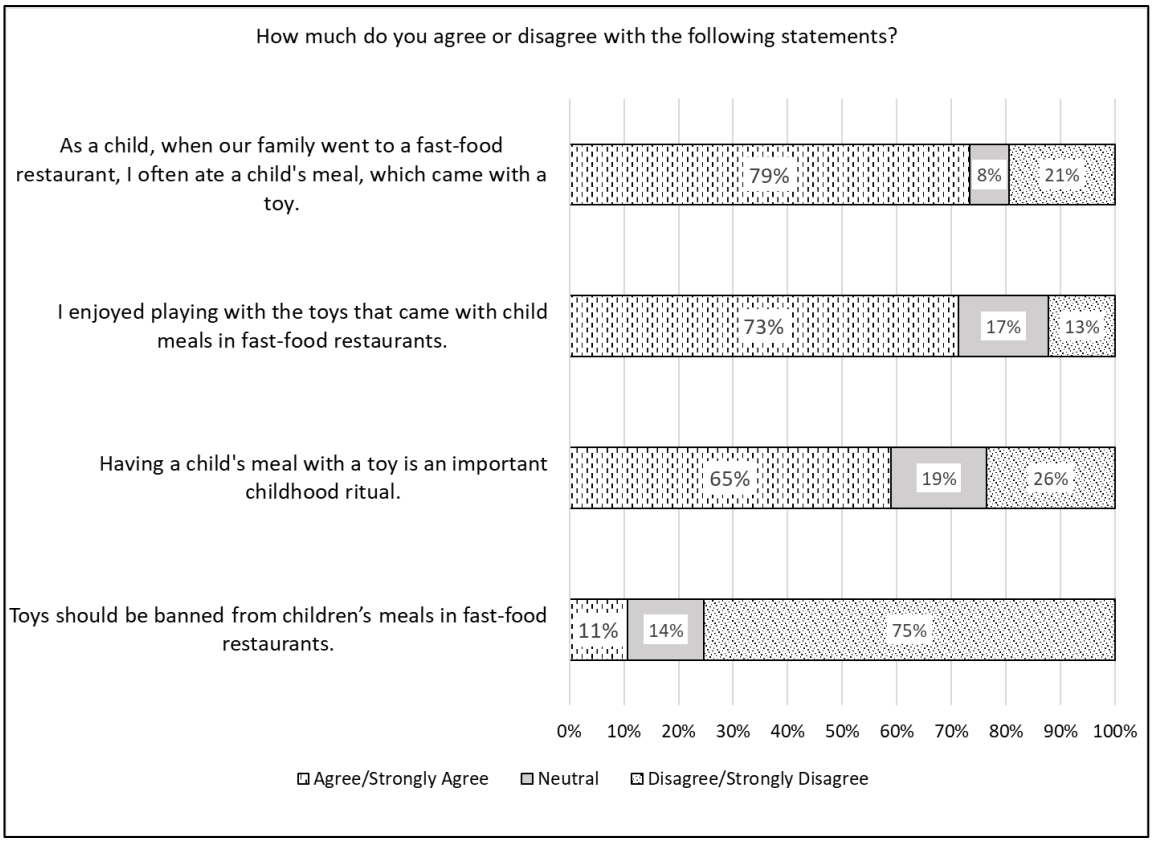


Figure 5.8 Millennials' (without children) opinions on toys that come with a child's meal bundle (*n*=207).

5.4.10 Young Millennials and future fast-food family visits

Young Millennials envision when they visit a fast-food restaurant with their future children that this would be a special family occasion where they share french fries i.e., a treat occasion where children have may have some license to pick their own food (Figure 5.9). Over half of the millennials would not hesitate to take their children to a fast-food restaurant, however over one-third would feel guilty about the fast-food visit.

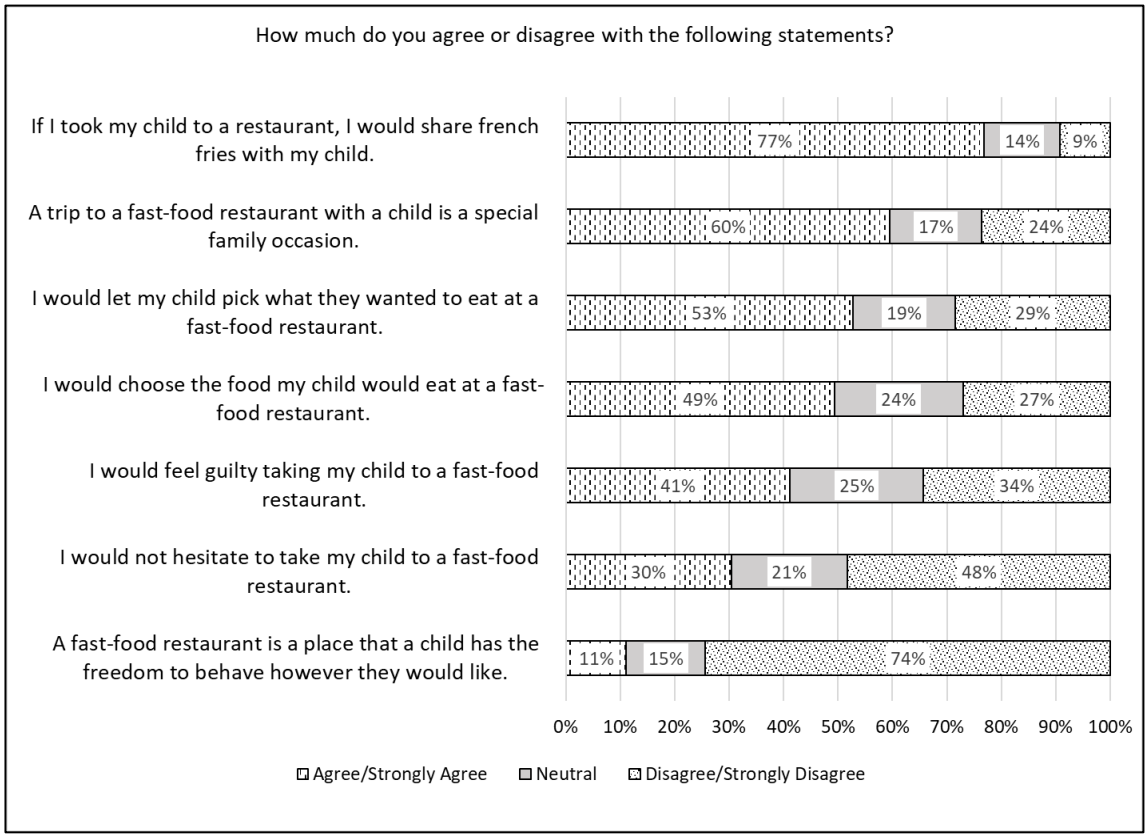


Figure 5.9 Millennials' (without children) opinions on future fast-food family visits (*n*=207).

5.4.11 Fast food has a prominent role in the lives of young Millennials (without children)

Purchasing food and beverages from coffee shops and fast-food restaurants is a routine part of the week for these young Millennials (Figure 5.10). When asked to describe their purchase patterns for a typical week, the average respondent estimated that they spent on average (in Canadian dollars) $16.71 a week in coffee shops and $23.94 a week in fast-food restaurants. One out of three respondents purchased a food or beverage item from a coffee shop or fast-food restaurant at least daily.

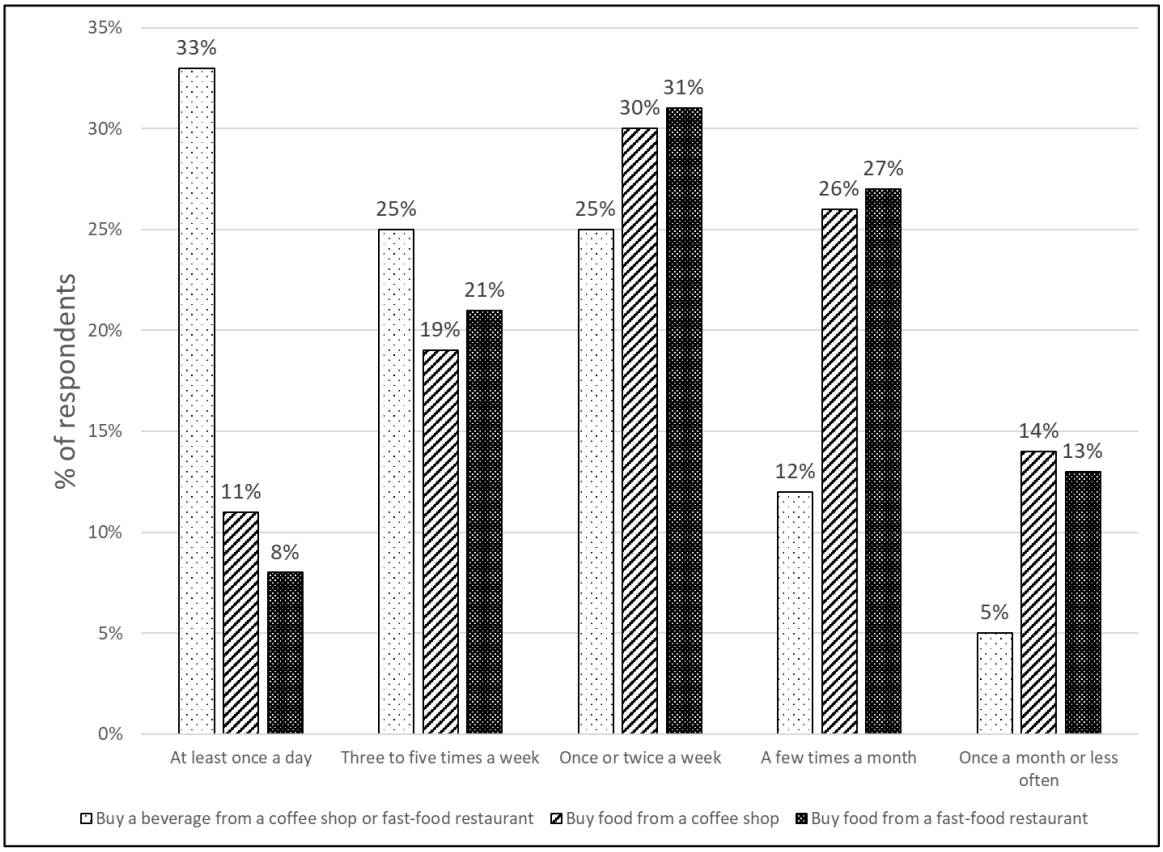


Figure 5.10 Frequency (as a percent) of away-from-home food/beverage purchases (*n*=611).

The view that a visit to a fast-food restaurant is a treat occasion (53%) and that the visit is not associated with healthy eating is seen in Figure 5.11. While 57% of respondents indicate that french fries is something they always order on a visit, 59% of respondents expect the restaurant to offer healthy meals for adults.

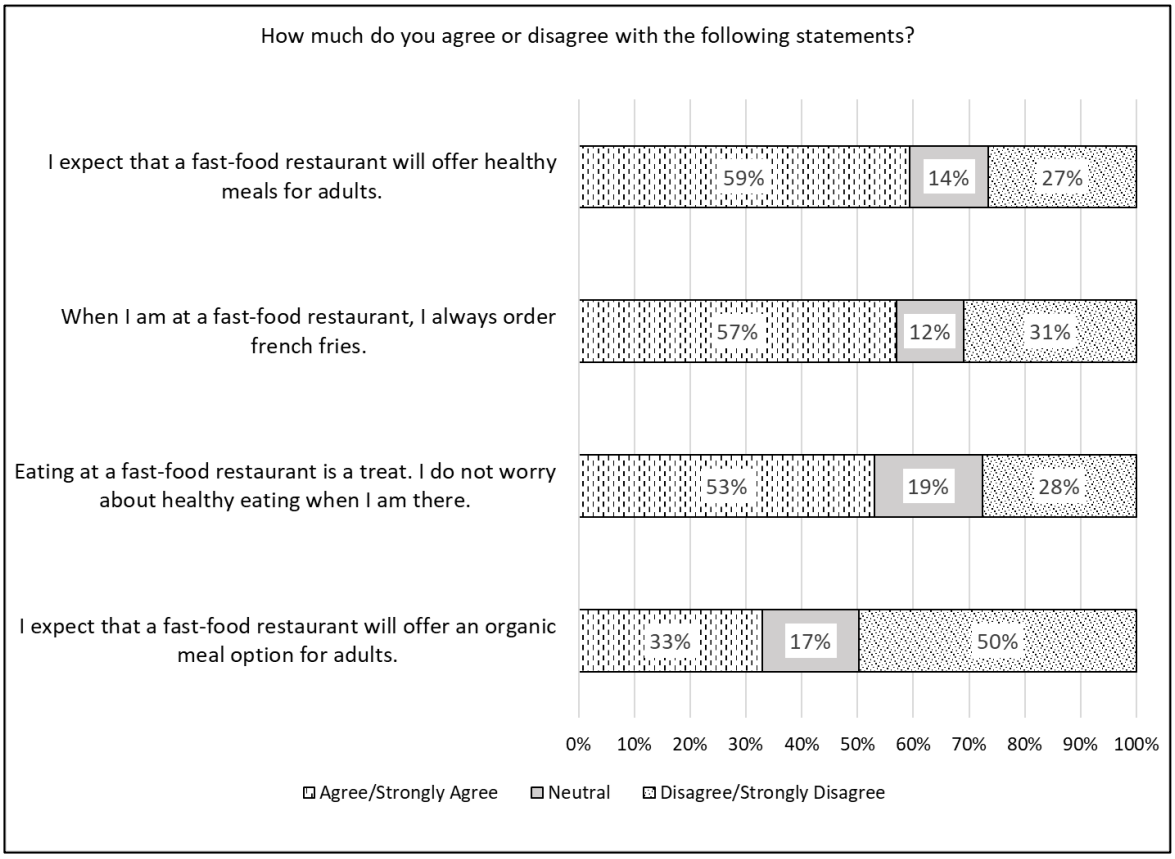


Figure 5.11 Millennials' (without children) opinions on fast-food for themselves (*n*=207).

Approximately one third of young Millennials expect restaurants to offer organic meal options for adults (33%) (Figure 5.11) and also for children (29%) (Figure 5.12). Not only do these Millennials expect healthy meal options for children, they are in strong support of government regulations laying out nutritional guidelines for child fast-food meal bundles (78%).

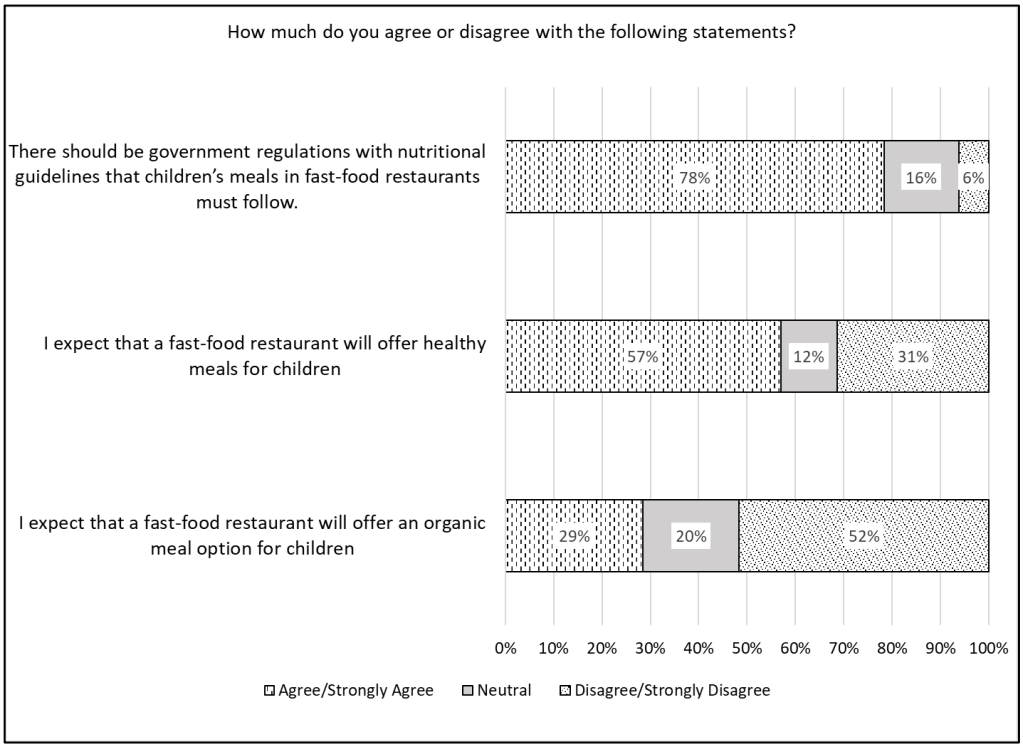


Figure 5.12 Millennials' (without children) opinions on fast-food for their future families (*n*=207).

5.5 Discussion

The fond memories that parents have of visiting fast-food restaurants as a child are probably enhanced by the fact that at one time these were mostly 'treat occasions' and celebrations such as birthday parties. However today, even though parents indicate that visits to a fast-food restaurant are a treat occasion, these treat occasions are now becoming a significant share of weekly food consumption for many consumers, especially young Millennials.

The mixed messages of balancing treat with the expectation that healthy options are available is both challenging and a potentially positive sign. If parents expect that healthy options for children will be on the menu, then this may suggest that eating healthy food at a fast-food restaurant will not be rejected out of hand.

American anthropologist Kottak has attempted a (semi-popular) analysis of the appeal of visits to McDonalds (Kottak, 2002). He suggests that they can be considered in the window of a 'sacred special place': a break from the bustle of everyday life, a sanctuary of cleanliness and order, suggesting a very strong effect in terms of ritual behaviours. Bugge and Almås (2006) discuss the strength and importance of ritual in dining events and also how they have changed over time.

Familiarity with events helps in making decisions automatically, quickly, and effortlessly, as it takes the 'thought exercise' out of ordering the food (Kahneman, 2011). Placing orders in the short time window inside of the fast-food restaurant (see Chapter 6) is usually accomplished quickly, based on past experiences. This may to some extent explain why the introduction of new healthy items is not so much a rejection of those menu items, since respondents clearly would like to see healthy items on the menu (Lassen *et al.,* 2016), but rather it may be a result of the influence of rituals and past behaviours (i.e., '*I always order french fries at McDonald's with my meal'* and *'we often share the french fries as a family'*).

Parental gender is an underexplored area in terms of fast food and it was of interest that women were more likely to agree that they enjoyed playing with the toys that came with the child meal bundle. That this was due to the type of toys included in the meal bundle is one possibility.

That men were more likely to agree that their parents chose what food they would eat in the restaurant has no simple explanation without further probing of this aspect. The dataset was examined by a number of factors including gender, age group and country. For men, there was no statistical difference by age group or by country as to how they responded to the question about parents choosing food. Unfortunately, furthering this research angle was deemed to fall outside the scope of the current study.

The role of the toy in remembrances was explored as it was hoped that the toy could be used as a way to nudge food selection towards healthier options. Previous research had suggested that there might promise in this type of nudging (Hobin *et al.,* 2012; McAlister and Cornwell, 2012). However, there has been some change in consumer's views on this topic over the past years. Although in this survey, Millennials did not have a strong inclination towards banning toys, with the current climate in which a vocal segment of consumers hold the strong opinion that toys should not be a part of a child meal bundle, many restaurants have been moving away from offering free toys and in some parts of the US, regulations and bans regarding toy inclusions have been put in place (Otten *et al.,* 2014). Some examples include KFC, which in the US in 2002 stopped including free children's toys with meals and subsequently stopped gifting toys in Australia in 2011 (Morrison, 2011). Jack-in-the-Box discontinued toy giveaways in 2011 (Schlossen, 2011) and Taco Bell announced their plans to phase out toys in 2013, followed by the elimination of child meals from their menu in 2014 (Tuttle, 2013).

In our observational study (see Chapter 9) the role of the toy appears to be diminishing with the rise in the use of e-entertainment. More parents from the US showed a higher level of agreement for recalling that they ate a child's meal that included a toy, and that they had the freedom to eat whatever they wanted at a fast-food restaurant. The higher number of fast-food restaurants in the US compared to the other three countries would have resulted in more family visits. Using McDonalds as the example, since it is one of the largest chains, the US ranks first globally in the number of McDonald's restaurants (14,146), Canada ranks fifth (1,450), the UK ranks seventh (1,274), and Australia ranks eighth (920) (Worldatlas.com, 2018). The stronger US culture of dining in fast-food restaurants compared to the other three countries may also in part be due to the very affordable menu options with the presence of 'Value Menus' (e.g., one-dollar hamburgers), where it can be a less expensive to eat certain meal options in the restaurant versus purchasing and preparing the food at home (Mhurchu, 2010).

To begin to set the groundwork for future research, younger Millennials were surveyed about their childhood memories of past family food occasions, their current perceptions of fast food, and their expectations of dining with their imaginary future children. In addition, how they currently order/purchase food was explored. While still within the millennial generation, this component of this study aimed to only include younger Millennials who do not yet have children. This is an under-researched area in terms of their fast-food remembrances, attitudes, and how this may relate to future child food decisions.

A significant correlation between education and frequency of fast-food visits by parents has not been demonstrated in the literature to date and in a recent Canadian study (Black and Billette, 2015), education was not identified as a predictor of fast food consumption. Although, the urban university Millennials surveyed would not be representative of all Millennials across Canada, the Millennials surveyed were highly diverse in both ethnicity and income. Canada has the highest proportion of college graduates among OECD countries, with 54% having either college or university qualifications.

The study of food app usage by young Millennials provides some unique insights into how they use apps for QSR purchases and how the value varies with the QSR, where in some cases coupons are the motivator (e.g., McDonald's) and in others ease of pre-order and delivery (e.g., Starbucks and Dominos Pizza). In 2015, Starbucks was one of the first in the industry to offer consumers the ability to pre-order food and beverages through their mobile app (Forbes, 2017). Other fast-food restaurants are now following Starbucks in offering this pre-order functionality, and this will change how many consumers order foods. The study provides a baseline for future studies in a new rapidly evolving area.

Published literature is scarce in this area and the study is a snapshot in time. Apps are now used by billions of smartphone users. Apple, which introduced its mobile application store in 2008, had by 2017 launched over 2.2 million new apps. Google Play has also introduced 3 million android apps, with more than 1,300 new offerings added daily. Although food and drink apps account for only 2.7% of the apps category, it is estimated that orders placed via smartphone apps will make up more than 10% of Quick Service Restaurant (QSR) sales within the next two years (Business*of*apps.com, 2016; comScore, 2017). Millennials, with their significant purchasing power and technological expertise, are shaping hospitality industry consumer interactions (Mo Kwon *et al.,* 2013). They crave technologies that simplify their lives, demand a seamless customer experience, and are willing to interact with technology for that purpose. Their driving role as consumers should not be underestimated, especially in terms of what they will be demanding from mobile technology food apps to help them make food choices in the future (PEW Research, 2016).

In many ways the young Millennials are similar to the Millennials who are already parents (see Chapter 5). Both groups have fond memories of going to fast-food restaurants with their families when they were children and it was a special treat when they went there as a child.

Both groups also remember the toy as an enjoyable element of the visit. However, the young Canadian Millennials without children are less likely to indicate that free toys should be banned from child meal bundles (11% versus 23%) compared to Canadian Millennials with children (based on 'Agree or Strongly Agree'). This is in contrast to the many reports that suggest that toys in regular child fast-food meals should be banned (Dixon *et al.,* 2017). Why the toy is not an issue for them is perhaps related to the role of technology in their lives. As seen in Chapter 9, the free toy already no longer appears to play a large role in today's family dining experience. These young Millennials are not particularly concerned about the toy's role in the dining experience as this is a generation whose children will grow up with technology always close at hand for instant entertainment.

Technology is now prevalent in the restaurant environment in several formats, including ordering kiosks, smartphones, and personal tablets. Advances in geofencing allow marketers to push offers and notifications to personal technologies in public places (Zubcsek *et al.,* 2017). However, in the observational research conducted, few respondents were observed using their personal technology prior to ordering, and thus this may require additional time to allow for more consumer adoption, before it is a broad and effective nudging option.

Although 75% of young Millennials disapprove of a government ban on toys, when nutrition is the focus, 78% believe that there should be government regulations on nutritional guidelines for children's fast-food meals. According to Futurecast (2012), Millennials consume healthier and more natural/organic brands than their parents and 30% of Millennials surveyed said that they ate foods that were certified organic (compared to 21% of Gen-X and 15% of Boomers). This number reflects what is seen in the current survey, where 33% of young Millennials expect to see organic options on a fast-food menu.

Millennials are some of the earliest "digital natives" and the most mobile engaged consumer group (Morgan Stanley Research, 2015; Futurecast, 2016). They are comfortable with technology and the role that it plays in selecting, ordering, and paying for food. For this cohort, in-store nudging techniques may become less relevant and the emphasis may well need to be on mobile ordering before arriving at the restaurant. The food apps often connect with loyalty programs and this may provide an opportunity for encouraging healthier choices, for example with incentives for alternate choices.

The challenge now is that if one third of the young Millennials surveyed are already buying fast-food or beverages at least once a day, should it still be considered a treat? Or is it now a substantial part of their daily diet? In which case, options for using technology to nudge responsible choices in a new way require additional exploration.

This survey focused on an ethnically diverse student population subgroup of Millennials in Canada (from one University in Toronto). Since these young Millennials are not yet parents, their opinions may well change when they are in fact the caretakers, However, their own past history (whether positive or negative) regarding fast-food visits could reasonably be expected to have an influence on similar visits in the future. Watterworth *et al.,* (2017) studied food parenting behaviours that focused specifically on parents living in Ontario Canada. They stressed how little is known about Canadian food parenting practices associated with young children's food intake and how important the father's involvement is to ensure healthy nutrition for young children. When considering nutritional education programs for future parents, the very important role of fathers in this process should be kept firmly in mind, especially their modelling of healthy behaviours. Food literacy knowledge for this group of future gatekeepers will be key to ensure healthy food modelling and choices for their children (Janssen *et al.,* 2017).

On a promising note for better food literacy, there is the growing interest by young Millennials in cooking and this is combined with their love of technology as they head into

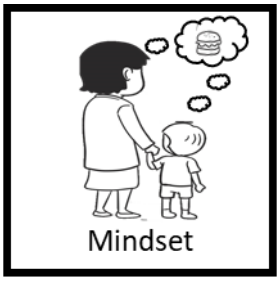
the kitchen with their mobile devices, rather than traditional recipe books. Among Millennials, gender roles tend to be less fixed, more neutral, and one of the big changes seen in regard to food is that a higher proportion of American men are now cooking (43%), which is more than at any time point over the past 30 years. The percentage of women cooking (70%) is similar to 20 years ago (67%) (Washington Post, 2016).

Not only are these young Millennials interested in cooking but healthy choices are important to them and 'healthy' is one of the top words used in their search engine quests for locating recipes (Cooper, 2015). These Millennials are not cooking alone but are using the cooking time as an opportunity to connect and spend quality time with friends, family, and children. Hopefully this interest in home cooking by Millennials will also result in a better understanding of food parameters such as fat, salt, calories, and nutrients, which would hopefully translate into better food choices overall, including when visiting fast-food restaurants

5.6 Conclusions

Across country, age, and gender, the majority of parents have good memories of going to fast-food restaurants with their families when they were children. Family fast-food occasions are viewed as treats. While parents would like restaurants to offer healthy foods, for most, they do not worry about healthy eating when they are there and are willing to let their children eat whatever they would like. This finding, that they still consider it a treat visit rather than a part of their regular food intake and thus make food selections based on a treat mentality, will make it more difficult to change food choices for their children. On a promising note, they indicate that they would like to see healthy options on the menu, and for some even government nutrition regulations. This study confirmed that there is a consumer expectation of healthy options on fast-food menus regardless of whether consumers are parents (or not). This suggests that there is an opportunity to nudge if the perception that the visits are now routine, rather than a special treat, could be brought to the consumer's consciousness.

Further exploration is required to understand how the next wave of parents will order food using the emerging technologies that are replacing in-person and in-restaurant ordering. The ability to nudge them into healthy choices that they can then model for their children in the future will depend on having an understanding of their current mindset and their history with fast-food consumption.



Chapter 6 - Family Dining: Ordering and perceived peer judgments

6.1 Research Objective

Nudges are small environmental changes, which make it more likely that an individual will make a particular choice. Nudging techniques may be environmental nudges, or they may be social nudges, as individuals look to the behaviours of others to guide their own behaviours. While Chapter 5 offered insights into millennial parent's perspectives, Chapter 6 looks at possible ways of influencing those parents.

The current research examines two aspects that may influence impactful nudging. The first phase examines the length of time in which a family orders their meal. Fast-food restaurants, as expected, pride themselves on a rapid process for ordering and delivery of the food order to the customer, which means that the window of opportunity to influence food and/or beverage selection will be short.

The second phase examines the perceptions of families dining in fast food restaurants. Millennial parents have concerns that they are being judged by their peers in terms of what they feed their children, especially in terms of fast-food offerings (Time, 2015). With their high reliance on social media, it was of interest to see if they were indeed being judged and whether they themselves are critical judges, and if this could uncover a possible peer nudging lever to encourage healthier choices.

6.2 Introduction

Millennials are a demographic that make up the largest population in the US today (and in Australia, Canada, and the UK). They are entering their prime consumer years as well as becoming parents, with one in four already parents (Fromm and Garton, 2013; Fromm and Vidler, 2015).

Observational studies of consumers with children that examine the time window to influence food choices after entering the restaurant is not a topic that others have reported on in the literature. The Phase One study explores the family food ordering process inside of a typical fast-food chain restaurant. Although research has been conducted regarding

wait times in lines at fast food restaurants, e.g., Chou and Liu (1999) and Iqbal *et al.* (2012), to date research has not addressed the in-restaurant wait time window length, in terms of how it specifically relates to parents in line with children. How long is the time window in which customers could be influenced inside of the restaurant prior to placing their order? The engagement level of the child during the in-restaurant ordering process has also not been reported in research publications. A better understanding of the food ordering time frame and of the parent/child in-restaurant ordering interactions could help in developing future in-restaurant intervention/nudging strategies

Millennial parents have a unique set of psychographic characteristics that differentiate them from previous generations of parents (Barkley, 2013). They put high value on the importance of being a good parent, weighing this as a higher priority than a successful marriage (Wang and Taylor, 2011), with 52% reporting that being a good parent is one of the most important things in their life.

Putting high value on being a good parent, in an environment with rising occasions of meals consumed outside of the home, with a strong emphasis on what their peers think, has led to a generation of parents hyper-tuned into how other parents view their parenting skills (Pew Research Centre, 2015).

6.2.1 Social media

More so than in past generations, Millennials place higher importance on the opinions of their social circle (Barkley, 2016). They rank their social circle above paediatricians, their fathers, and over other family members (except for their mothers whose advice is still first), as important sources of parenting advice.

With nearly 90% of Millennials actively using social media, millennial parents are a generation that is quick to share images and anecdotes about their children, online, with their social circle (81% Millennials versus 70% of Gen X). However, they are also more likely to find that social media posts make them feel inadequate as parents. Twice as many millennials as Gen X survey respondents stated this in a 2015 Time survey (8% Millennials versus 4% Gen X) (Time, 2015). With the focus on social circle, this has led to millennial parents having a heighted belief that other parents are judging what they allow their children to eat.

6.2.2 Gender perceptions

Pulley *et al.* (2014) examined perceptions on overall family child feeding practices but focused on within-family perceptions, while Young *et al.* (2015) focused on paternal perceptions. Both studies stressed the need for research to better understand the role of fathers in future research. There has been a lack of literature and only a limited focus on the role of fathers versus mothers in terms of overall influence on what children eat (Khandpur *et al.*, 2014, Khandpur *et al.*, 2016; Fielding-Singh *et al.*, 2017). However, the importance of engaging fathers in promoting healthy lifestyles is emerging as an important area of study (Arlinghaus and Johnston, 2017).

To date, outside perceptions (i.e., peer perceptions) is an area that has had little attention, especially in terms of how fathers and mothers feeding their child in fast-food restaurants are perceived and if there are differences in peer perceptions based on the gender of the parent.

The Phase Two study's goal was to add knowledge to this under-researched area. Providing a better understanding of how families are perceived when dining in fast food restaurants, may provide insight into potential areas of peer nudging as a consumer lever.

6.3 Methods phase one: Window of influence

The in-restaurant time window of influence was studied using a direct covert observational approach, with structured data collection, to examine family fast-food ordering (for parties with at least one child between the ages of 2-12 years, in a fast-food restaurant, in Toronto, Canada. To examine the window of influence, the researcher visually followed a single transaction from the customers' entry into the restaurant to when they received their food order. A structured observational instrument, with a closed-ended coding scheme, was used for quantification of key behaviours. Figure 6.1 illustrates the three stages measured.

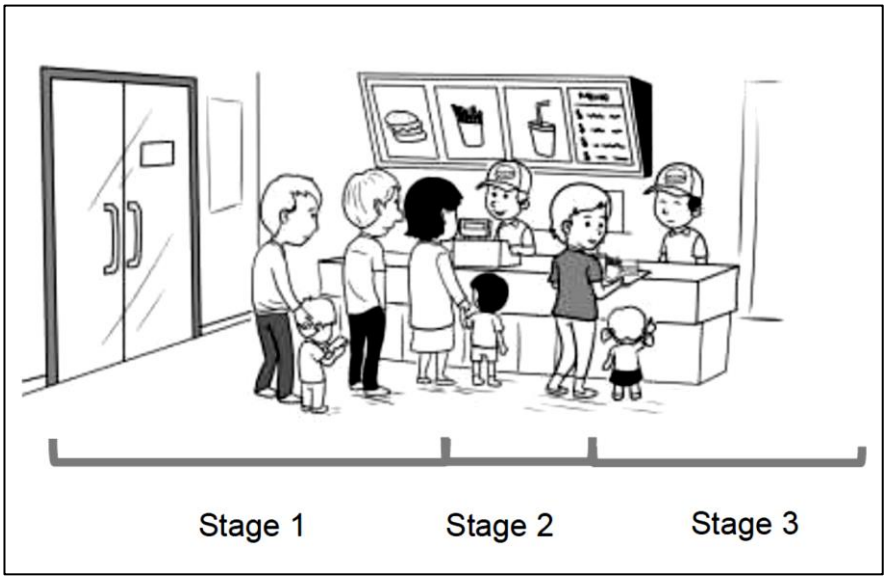


Figure 6.1 Graphic illustration of the three observed stages: Stage 1 (in-restaurant, pre-order): the time between the customer entering the restaurant and starting to place the food order. Stage 2 (order): the time taken to order food with the restaurant employee. Stage 3 (food delivery): the time from food order completion to customer receipt of food.

6.3.1 Restaurant selection

The fast-food restaurant was selected after visiting a larger sample of restaurants in Toronto Canada, in order to identify a restaurant that offered a seating arrangement that allowed for inconspicuous observation of customer orders. The selected restaurant also offered an environment with a high frequency of family visits, and a demographic that was representative of an average Canadian family neighbourhood, based on the publicly available sociodemographic data about the neighbourhood in which the restaurant was located. The local households were representative of a middle class Canadian income for that location based on census data (Statistics Canada, 2016b).

The restaurant used for the field research had a single customer entrance, and easy visibility of the order counter to enable unobstructed observation. The restaurant had seating for approximately 100 customers, free Wi-Fi, as well as free and easily accessible parking.

The selected restaurant also had an indoor play structure for children. Based on the author's knowledge of the inner workings of the corporation, there are a limited number of indoor play structures built. These are only built in areas with a high density of families. It is for this reason that a restaurant with a play structure was chosen, to increase the likelihood of observing families dining.

6.3.2 Training

Prior to the study launch, the protocol was refined and tested by the author with 30 consumer observations, in three different restaurants. This was followed by a 10-hour training period for the research assistant by the author, including familiarization, testing, and refinement of the data capture form (this training data has not been used). The research assistant for the portion of the in-restaurant observational work was paid for her work and was a 3rd year Ryerson University student (Olena Gurba).

6.3.3 Researcher's field position

At each visit, the researcher ordered a beverage or a snack and took a seat where she could observe the families ordering, while making notes in her notebook. The activities were intended to be subtle and not out of place for the environment, and the researcher noted that they did not feel noticed by the customers or by the restaurant staff. The restaurant staff were not aware of the presence of a researcher or of an ongoing study. This was to minimize restaurant employee bias.

6.3.4 Time of day

Field work was completed during the hours of 11am to 1pm on Fridays, Saturdays and Sundays, over 24 days between June and August of 2016 (holiday weekends were excluded from observations). Lunchtimes were selected for the highest potential volume of family visits. Two hundred families were observed ordering fast food over 65 hours of field time.

The times selected were the busiest times for visits with children - resulting in the longest line- ups and therefore the most time in line. Observations were made during the lunch times of Fridays, Saturdays, and Sundays, which are peak dining occasions in fast- food restaurants. Conducting the research during peak dining times for a timing study, provided a high-end estimate for the window of influence. During quieter times in the restaurant, family ordering would likely be faster. This highlights the importance of focusing on nudging techniques that are not time consuming due to the short-time window even during the longest wait times.

6.3.5 Selection of observable participants

The researcher visually followed a single transaction from when the adult/child party first entered the restaurant to when they received their food orders. After a transaction was complete, the researcher observed the next adult/child group that entered the restaurant.

Family transactions were defined as the observed presence of at least one adult and at least one child. With this observational method, it was not possible to ascertain if the adult(s) in the party were the parent(s) of the child.

6.3.6 Data collection

Data collection had two components. A timing component, measuring the three observable stages to the food ordering process, and a second component that recorded the observable traits of the subjects and their inter-subject interactions.

A digital timer was used to record how long families waited in line prior to ordering, how long they spoke to the restaurant employee during the ordering process, and how long they waited to receive their meal.

The research focused on adult/child food ordering at the counter, and not on the ordering of parties without children or customers using the ordering kiosks. A structured observation instrument with a closed-ended coding scheme was used.

In addition to the three stages of the ordering transaction, the researcher recorded customer demographics (number of people in the transaction; gender; gender of the person placing the order; race; appearance; estimated age range – adults: under 30, 30-50, 50+; children: infant, <6, 6-12, 12+); observable behaviour of family members (presence and usage of smart phones; parent-child interactions).

While researcher observations of customer characteristics are subject to error, for example misidentifying the race of a customer, in the case of subject bias due to observable customer characteristics, it could be argued that visual evidence can be equally misidentified by restaurant staff (in terms of service bias) (Myers et al., 2010).

While the researcher was unable to see the details of the food order, or overhear the full ordering conversation, the researcher was able to record whether a child's meal bundle was purchased, as this was easy to identify by the distinctive packaging of the child meals.

Figure 6.2 shows the data capture form used by the researcher. A close-ended coding scheme was used. This was based on predetermined observable behaviours and was developed through pre-testing of the data capture form.

6.3.7 Data analysis of the time frame of the food ordering process

The information from the collection forms was entered and analysed in relation to the time frame of the food ordering process as well as the parent/child interactions during the ordering process. Descriptive statistics, cross-tabulations, *t*-tests, and one-way ANOVAs were performed to identify possible differences between subgroups, using the statistical software package IBM SPSS Version 23.0, and to examine average wait time, order time and time to receive food.

6.4 Results phase one: Window of influence

In this particular study, 200 families, in a large fast-food chain restaurant (McDonald's), were unobtrusively observed during the lunch-time food ordering process. The selected days of the week reflect the busiest times for families in restaurants, and as such, the measured times could reasonably be expected to be on the longer end of what a family might experience. Families visiting during non-peak times might have a shorter ordering/waiting experience.

Results are presented based on three stages: (1) the pre-order time, (2) the time to place the order, and (3) the wait time to receive the order.

Form A - Recording Time Sheet

Date: _____*day* _____*month* _____ *year*

Day of the Week: _____ *Friday* _____ *Saturday*_____ *Sunday*

Time target consumer group entered the restaurant: _____*min and* _____ *sec*

Time target consumer group first spoke with the order taker: _____*min and* _____ *sec*

Time target consumer group completed transaction with the order taker: _____*min and* _____ *sec*

Time target consumer group received complete food order: _____*min and* _____ *sec*

Timing Calculation

Stage___ : (___*min* ___ *sec) minus* (___*min*___ *sec) = recorded time for stage*

Form B - Data Capture of Observable Traits and Interactions

Number of Adults in the target consumer group: _____

Observable traits of adult consumer (repeated as needed, based on number of adults in the group)

Gender:

□ Female □ Male

Age Approximation:

□ < 30 years old □ 30 – 50 years old □ 50+ years old

Race:

□ White □ Black □ Asian □ Other

Form C - Observable traits of child (repeated as needed, based on number of children in the group)

Number of children in the target consumer group: _____

Gender:

□ Female □ Male

Age Approximation:

□ Infant □ Under 6 years old □ 6-12 years old □ 12+ years old

Observable Activity:

□ Neutral □ Crying □ Running □ Asleep

Form D - Observable behaviours during the 3-step ordering process

How many customers (groups) were in front of the target party when they first entered the line up to order? _____ customers

At any point in the three-step ordering process was the adult observed using a smartphone?

□ Yes □ No

At any point in the three-step ordering process was the child observed using technology (smart phone, tablet, gaming system etc.)?

□ Yes □ No

During Step 1, was the adult observed speaking with the child prior to ordering?

□ Yes □ No

During Step 2, was the child observed speaking with the order taker?

□ Yes □ No

Based on the observable distinctive packaging was a child's meal bundle ordered?

□ Yes □ No

Was the order to dine-in or take-out?

□ Dine-in □ Take-out

Did the child remain with the adult during the entire ordering process?

Step 1: □ Yes □ No

Step 2: □ Yes □ No

Step 3: □ Yes □ No

Figure 6.2 Data capture forms (A-D) for timing of the observable stages of ordering.

6.4.1 Family visit party composition

The demographics of the 200 families observed in the restaurant study are shown in Table 6.1. The families were a mix of gender and age, with about half of the children under the age of 6.

Table 6.1 Family visit party composition.

Number of adults in party	
1	76%
2	23%
3	1%
Average number of adults	*1.3*
Gender of adults	
Female	57%
Male	43%
Gender of the adult placing the food order	
Female	59%
Male	41%
Adult observed demographics	
Ethnicity	
White	82%
Black	7%
Asian	6%
Other	5%
Adult age range (estimated)	
< 30 years old	12%
30-50 years old	70%
>50 years old	18%

Number of children in party	
1	58%
2	35%
3+	7%
Average number of children	*1.5*
Gender of children	
Female	45%
Male	55%
Child observed demographics	
Child age range (estimated)	
Infant	3%
<6-years old	45%
6-12-years old	39%
12^{+}-years old	13%

6.4.2 Observed behaviours

During the three-step process, 69% of children remained with their adult during the ordering process. Children had varying degrees of involvement in the ordering process. Prior to ordering, the researcher observed that 66% of adults spoke with the child at least once prior to ordering. While placing the order, 12% of children were involved in the order and spoke directly to the restaurant employee taking the order. After the food was ordered some children left the order line to go to a table or to the indoor play area (Table 6.2).

Table 6.2 Adult/child involvement during the food ordering process.

Was a child present while waiting to order food (Stage 1)?	
Yes	89%
No	11%
Was a child present during the ordering of the food (Stage 2)?	
Yes	86%
No	14%
Was a child present during the wait for the food, after ordering (Stage 3)?	
Yes	69%
No	31%
Did the adult speak with the child prior to ordering?	
Yes	66%
No	34%
Did the employee taking the order speak with the child?	
Yes	12%
No	88%

The demographics of the adults present (gender, age, and ethnicity) were examined to see whether specific subgroups were more or less likely to involve their child in the ordering process. No statistically significant subgroup differences were observed.

6.4.2.1 Observable activity and appearance

The researcher noted any observable activity cues, such as children yelling or crying, as well as general appearance (i.e., dress of adults and children). The food ordering process was noted to be a very neutral experience, with 95% of observed consumers displaying only neutral activities and appearance.

6.4.2.2 Technology

The researcher noted that 94% of adults in the party did not visibly interact with their smartphones, or other technology, at any point during the food ordering process. Moreover, only 2% of children used any form of technology (e.g., smartphones, tablets, portable gaming systems, ear phones plugged into digital media) during the three-stage ordering time frame. This low usage of technology was likely due to the rapid momentum of the order process.

6.4.2.3 Product displays targeting children

It is not uncommon for fast food restaurants to have displays of toys, food, or child-directed advertising inside of a restaurant, at the eye-level of children. While the researcher noted that the studied area did have child-targeted displays of toys that are part of the child meal bundle, as well as advertisements for child meal bundles, these eye-level child-targeted items were not near the waiting area near the front counter, nor were

the displays attached to the front counter. The child-targeted items were near the restaurant's entrance area and no children were observed interacting with the displays.

6.4.2.4 Time in line

The length of time spent waiting in line prior to ordering is of importance, as this is the key window of opportunity for nudging/intervention within the restaurant environment. The observations were captured at prime busy lunch times in this restaurant with a mean number of transactions waiting in line ahead of the family being served of 2.2 *SD*±1.6 transactions, and a mode of one transaction ahead of the family transaction upon entering the restaurant (Figure 6.3). No statistically different subgroup was detected in the analysis of Stage 1 (waiting to order), when examined by demographic subgroups, including number, age and gender of adults, number age and gender of children, use of technology by either adult or child, and interaction between adult and child.

Predictably, when there were more customers ahead of the observed family, the wait time before ordering was longer (Figure 6.3). This chart also depicts the distribution of line length. Despite the observations occurring during a peak time in the restaurants, 65% of observed families had two or fewer people ahead of them in line, when they entered the restaurant to place their order.

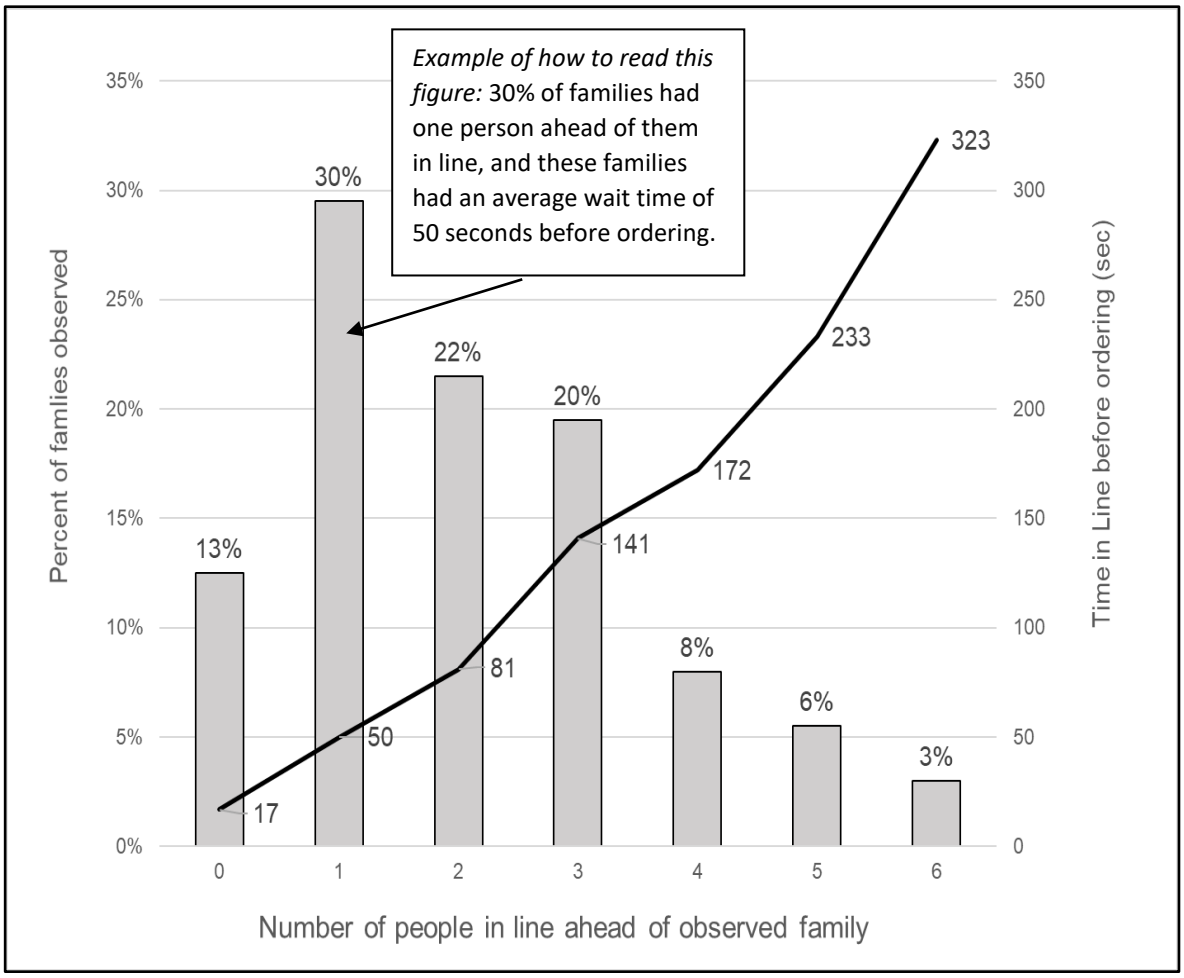


Figure 6.3 Impact of number of people in line on wait time before ordering. Bottom axis (number of people waiting in line before the family under observation). Left hand axis (of the families observed, the percentage which experienced each line length). Right hand axis (how many seconds was the wait before the family ordered their food). Graph line represents time in seconds based on number of people in line ahead of the observed family.

6.4.2.5 Placing the order

When examining the time to place an order by subgroup, differences were noted in four areas: number of consumers (children/adults) in the party (Table 6.3), age of the adult (Table 6.4), Dine-In or Take-Out (Table 6.5), and whether a child meal bundle was ordered (Table 6.6).

As can be seen in Table 6.3, when there were parties with three or more children, the order time increased significantly ($p < 0.001$) and when there were more adults in the transaction, the order time increased significantly as well ($p < 0.001$). Both outcomes would be expected based on number of orders to process by the order taker.

Table 6.3 Order time and number of children/adults in the transaction.

Number of children in the party	*n* (families)	Mean order time (sec)	Std. Dev.
1 child	115	72	34
2 children	69	77	36
3 or more children	16	118	65
Number of adults in the party	*n* (families)	Mean order time (sec)	Std. Dev.
1	151	70	30
2	47	98	54
3	2	153	12
Total	**200**	**77**	**40**

Adults with an estimated age of over 50 years old demonstrated a slower order time than adults under the age of 30 (Table 6.4) ($p = 0.014$). It is speculated that part of this difference in order time might be due to grandparents being less familiar with child menu choices.

Table 6.4 Order time and age of adults in the transaction.

Age range (estimated)	*n* (families)	Mean order time (sec)	Std. Dev.
Under 30 years old	24	67	23
Between 30 years old and 50 years old	142	76	41
Over 50 years old	34	89	43

Take-Out food orders were handled faster than Dine-In orders ($p = 0.034$) (Table 6.5). It is speculated that perhaps some of the customers had made their decisions as a family before entering the restaurant, or alternatively, the Take-Out orders may have been simpler orders based on what foods are more transportable as Take-Out orders.

Table 6.5 Dine-In or Take-Out food purchases.

Was the meal a Dine-In or Take-Out purchase?	*n* (families)	Mean order time (sec)	Std. Dev.
Dine-In	153	81	40
Take-Out	47	66	40

The child meal bundle, when included in a meal order, resulted in a longer time to place the order ($p = 0.031$) (Table 6.6). It is speculated that this was probably due to the extra time required for the order taker to determine which of the options the family wanted included in the child meal bundle.

Table 6.6 Child meal bundle and time to place order.

Was a child meal bundle purchased?	*n* (families)	Mean order time (sec)	Std. Dev.
Yes, a child meal bundle was purchased	135	82	40
No, a child meal bundle was not purchased	65	69	40

For wait time to receive food, no statistically different subgroups were detected when examined by the following: number, age, and gender of adults; number, age, and gender of children; the use of technology by either the adult or child; the interaction between the adult and the child.

6.4.3 Ethics approval

Ethics approval was obtained from the Harper Adams University Research Ethics Committee.

6.5 Methods phase two: Peer perceptions

The goal of this research was to explore preconceptions (defined in this context as an idea or opinion formed beforehand, i.e., an assumption) about the profile of a parent who takes their child to eat at a fast-food restaurant, and to explore stereotypes potentially associated with the parent, the child, and their interaction.

A vignette, with two versions, was used to illustrate a family in a fast-food restaurant. The wording of the two vignettes was identical, with the exception of the gender of the parent, who in one version was depicted as a father and in the other version was a mother. Respondents were presented with the vignette scenario and asked one open-ended question and then asked to evaluate 20 close-ended statements. Respondents were randomly assigned to only one of the two vignettes.

The questions were based on common themes the author was familiar with from her previous research work, outside of the thesis research, but in the field of fast food.

Internal validity of the vignette was established by pre-testing it with a small convenience sample. The closed-ended statements were informed from research conducted in other elements of the thesis. This survey was first fielded in Canada with 200 respondents to confirm that there was no ambiguity in the scenario. Then the fielding was expanded to include Australia, the UK, the US (with 300 respondents per country), and Canada (an additional 100 respondents), for a total of 1,200 respondents in January 2018.

6.5.1 Respondents

The 1,200 respondents were parents of at least one child under the age of 18, and were a diverse mix of age, geography (four countries), education level, and income level. The sample was 50/50 male/female and included both millennial parents (age 18-35 years) and Gen X parents (age 36-54 years). Respondents were recruited from a paid Toluna survey panel. Standard demographic questions used to select the respondents can be seen in Appendix A.

6.5.2 The vignette

Respondents were asked to imagine themselves dining at a large national fast-food restaurant and to imagine that a parent with their child was having a meal at the table beside them. Half of the respondents were given a description in which the parent at the table beside them was a mother (Scenario A; Box 6.1). The other half of respondents were shown a vignette depicting the parent as a father (Scenario B).

Box 6.1 Scenario description A.

> *Scenario A [mother]*
> *Imagine you are at a typical McDonald's restaurant. It's a Tuesday evening around 6 pm and you observe a [mother] with a 5-year old child enter the restaurant. The [mother] and child approach the counter and together they order a meal. The server at the counter places the meal on the tray and you can see that the child's meal consists of chicken nuggets, french fries, and a small pop. The [mother] and child carry their tray of food into the restaurant and they sit at the table beside you. Since they are sitting so close to you, it is easy for you to observe what their evening meal looks like. Using your own words, describe the [mother's] appearance, behaviour, and interaction with the child.*

6.5.3 Vignette data analysis

Respondents were asked to qualitatively describe what they would expect the parent/child pair to look like. A thematic analysis was performed on this qualitative data. A grounded theory approach (Strauss and Corbin, 1994) was used to identify emerging themes from the open-ended responses.

The 1,200 qualitative descriptions were coded and analysed. Codes were developed based on overarching themes, such as cost and time constraints, as well as through the use of data queries. Sub-themes were identified and interpreted, and the common themes formed the basis of the qualitative findings.

Participant quotes, to describe each major theme, were selected across a range of participants to ensure representation from the sample populations.

6.5.4 The 20-statement questionnaire

After reading the vignette, and qualitatively describing in their own words how they visualized this typical experience, respondents were asked to rate 20 statements, using a 5-point scale, about the parent portrayed in the vignette, where 1 = Does not describe the situation at all to 5 = Describes the situation to a large extent. The questions were presented to the respondents in random order and are listed in Table 6.7.

Table 6.7 The twenty questions the respondents were asked to rate on a 5-point Likert scale, Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree.

Perceptions of the Parent
The parent is organized.
The parent is smart.
The parent is healthy.
The parent is well dressed.
The parent is attractive.
The parent is wealthy.
Perceptions of the Parenting Style
The parent is a good parent.
The parent takes good care of the child.
The parent is a responsible parent.
The parent indulges the child.
The parent is a good role model.
The parent makes healthy choices for the child.
The parent is a frequent visitor to this restaurant.
The parent should feel guilty about feeding the child this food.
The parent does not know how to cook.
Weight
The parent is overweight.
The child is overweight.
Perceptions of the Child
The child is happy.
The child is well behaved.
The child is healthy.

For the analyses, subgroups were tested using *t*-tests to compare the means, and one-way ANOVAs, with statistical significance defined as a p value < 0.05.

6.5.5 Ethics approval

Ethics approval was obtained from the Harper Adams University Research Ethics Committee.

6.6 Results phase two: Peer perceptions

6.6.1 Emerging themes from the open-ended question

The five major themes identified from the respondents' open-ended comments from the qualitative data included: spending time together, fast food as a treat, unhealthy choices, judgement free zone, and convenience.

Independent sample *t*-tests were performed to identify if there were differences in the frequency of each major theme (the five themes are expanded below) comparing gender of the parent depicted in the vignette, gender of the respondent, and millennial versus non-millennial parents. A one-way ANOVA with a Bonferroni post hoc test was performed for each theme, to identify if there were between country differences.

6.6.2 Theme 1: Spending time together

For 25% of respondents, the scenario portrayed was a moment for family time together (Table 6.8). Seeing a child and parent eating a meal together, outside of their home, was often described as a special moment for them to bond. The parent was positively acknowledged for making an effort to take time with their child, and this bonding time was thought to build happy memories for the child. Fathers, more so than mothers, were praised for taking time to create these moments with their children.

Gender of parent in the vignette – Vignettes depicting fathers elicited more comments on the role of 'time together' as an element of fast-food dining. Vignettes with fathers had higher levels of mentioning 'time together' (28%) compared to vignettes with mothers (12%), $p < 0.001$.

Country of respondents – Of the four countries, Canadian respondents most often referenced the value of spending 'time together' and were statistically more likely to reference 'time together' than respondents from the UK or the US. The UK had the lowest mentions of 'time together' and was statistically lower on this aspect compared to respondents from Australia or Canada (Table 6.8). No other group differences were found to be statistically significant.

Table 6.8 Analysis of responses to open-ended questions.

	Australia	Canada	UK	US	All Respondents
Percent of open ended comments mentioning 'time together'	22%^{UK}	27%$^{UK, US}$	12%$^{AUS, CAN}$	17%^{CAN}	25%
Percent of open ended comments mentioning 'treat'	34%$^{CA, US}$	24%$^{AUS, US}$	27%^{AUS,US}	13%$^{AUS, CA, UK}$	25%
Percent of open ended comments mentioning 'unhealthy'	25% ^{US}	17%	17%	16%^{AUS}	19%

Superscripts denote which countries are statistically different from one another ($p < 0.05$). The themes of 'convenience' and 'no judgement' are not included, above as no between-country statistically significant differences were detected.

Gender of respondents – Female respondents were more likely to mention 'time together' (26%) compared to male respondents (14%), $p < 0.001$.

Generation of respondents – No statistical differences were observed between generations of parents (Millennials versus Non-Millennials).

Below are some participant quotes of the 'spending time together' theme selected to illustrate typical comments (Box 6.2 and Box 6.3).

Box 6.2 Spending time together: Mother vignette.

Mother Vignette

'That's it's nice to see a mother taking time to sit down inside of a restaurant with her child instead of eating while driving.' Male, US, 29 years old.

'Maybe not the best choice for quality of nutrition, but the mother could be on the go and needing a quick/cheap meal. At least she is spending time with her child while they're eating which is important. No judgment here! ☺.' Female, Canada, 27 years old.

'A mother who spends some of her time with the child, is great these days.' Female, UK, 32 years old.

'I would assume she is treating her child and spending time with her child creating a beautiful memory.' Female, Australia, 38 years old.

Box 6.3 Spending time together: Father vignette.

Father Vignette

'Good that the dad is spending time with the child.' Female, US, 43 years old.

'He is spending quality time with his child and should be applauded. He is a very good father. He is kind. He is loving.' Male, Canada, 50 years old.

'Spending time with his child. Knows his eating habits what he likes and dislikes.' Male, UK, 24 years old.

'Considering today's society is technology based in everything we say and do to see family members sitting eating together is a wonderful thing…. The man taking time to create beautiful memories that his son will remember for a lifetime…. these days is a very rare find.' Female, Australia, 38 years old.

6.6.3 Theme 2: Fast food as a treat

For 25% of respondents, fast food was seen as a 'treat' occasion (Table 6.8). The assumption amongst many respondents was that if a parent and a child were seen together in a fast-food restaurant, that this was a 'treat' or special occasion, and not that this was a regular occurrence. They speculated that it may be a 'treat' for the child, to reward them for an accomplishment, or an opportunity to spend some extra time with their parent. Perhaps it was a 'treat' for the parent as well, to give them a break from cooking meals, or to help them balance their busy life.

Gender of parent in the vignette – No statistical difference was seen based on the gender of the parent depicted in the vignette. There were 24% 'treat' comments with the father scenario and 26% 'treat' comments with the mother scenario, $p = 0.384$.

Country of respondents – The theme of 'treats' was common across all four countries and mentioned in 25% of all comments. However, the frequency varied by country. Respondents from Australia were the most likely to use the concept of a 'treat' to describe the meal, while respondents from the US were the least likely to include the idea of a 'treat' in their descriptions (Table 6.8).

Gender of respondents – Female respondents were more likely to mention 'treat' (29%) compared to male respondents (20%), $p < 0.001$.

Generation of respondents: Millennial parents were statistically *less* likely to describe the occasion as a 'treat' than older (Non-Millennial) parents (20% versus 28%, $p = 0.004$).

Below are some participant quotes of the 'treat' theme selected to illustrate typical comments (Box 6.4 and Box 6.5).

Box 6.4 Fast food as a treat: Mother vignette.

Mother vignette

'She is out and wanted to treat her daughter.' Female, US, 32 years old.

'This mom treats her child to a meal out. It is nice to see a mom taking time for her child. Mom deserves a day out too.' Female, Canada, 47 years old.

'She's taking her kid out for an occasional treat, probably as a reward like my mum used to do. She's probably eating one of the healthier options on the menu. I think she's a good mum but it's not up to me to judge other's parenting style as long as the children are doing well.' Female, UK, 19 years old.

'The child could simply be having a treat, so innocent until proven guilty.' Male, Australia, 36 years old.

Box 6.5 Fast food as a treat: Father vignette.

Father vignette

'Father spending some quality time with his son, and part of that time is stopping for lunch. Not the lunch the boy should eat every day, but as a treat while out with his father, this is fine.' Male, US, 46 years old.

'They are having a nice lunch together. He is treating his child to a meal. It brings back memories of when my parents would treat their kids to the same meal for special occasions.' Female, Canada 37 years old.

'He is treating his child to a fast-food meal. It does not make him a bad parent. Combined with a healthy diet, we can allow for treats from time to time. Nobody is perfect!' Male, UK, 35 years old.

'He is providing his child a treat and enjoying spending time together. I would hope that this is an occasional treat for both of them. The parent seems loving and caring towards his child.' Female, Australia, 36 years old.

6.6.4 Theme 3: Unhealthy choices

For 19% of respondents, there were interpretations that the parent was feeding the child 'unhealthy' food and that they should make more of an effort to take care of their child's health (Table 6.8). For some, the 'unhealthy' food was justified as long as it was a rare visit, while for others, the parent was setting a poor example and potentially setting up their child for a lifetime of bad-eating habits.

Gender of parent in the vignette – Vignettes depicting mothers elicited more comments on the role of 'unhealthy' as an element of fast-food dining. Vignettes with fathers had lower levels of mentioning 'unhealthy' (17%) compared to vignettes with mothers (21%), $p = 0.039$.

Country of respondents – The theme of 'unhealthy' choices was common across all four countries and mentioned in 19% of all comments. Respondents from Australia were the most likely to use the concept of 'unhealthy' when describing the vignette (Table 6.8).

Gender of respondents – There was no statistical difference observed based on gender, in how often respondents mentioned 'unhealthy'.

Generation of respondents – There was no statistical difference observed between generations of parents (Millennials versus Non-Millennials) as to whether they described the occasion as 'unhealthy'.

Below are some participant quotes of the 'unhealthy' theme selected to illustrate typical comments (Box 6.6 and Box 6.7).

Box 6.6 Unhealthy choices: Mother vignette.

Mother Vignette

'*The mom is not teaching the child to be healthy. The mom does not care what the child eats. The mom thinks fast food is okay for her child.'* Female, US, 25 years old.

'Personally, I think that a 5-year-old should be eating a home cooked meal. These are important growing years for a child. I think that the mother should get help at home if she is too tired.' Female, Canada, 49 years old.

'Food 'restaurants' tend to be outlets for products that are the result of mass murder….and I would hope that any sensible parent would open their child's eyes to the horrors of such places... let's face it, the standard of 'food' is disgraceful and very unhealthy.' Male, UK, 49 years old.

'Gives me the sensation of irresponsibility like in a way that she does not care or does not feel responsible for the well-being of the children.' Male, Australia, 18 years old.

Box 6.7 Unhealthy choices: Father vignette.

Father Vignette

'I might think that parent is lazy or even uncaring. I would see a child eating food that's not very good for his developing body and I may associate the parent with being lazy or uncaring for not providing the proper nutrition.' Female, US, 20 years old.

'He brought his child for a treat. He did not think about selecting a healthy meal for his child. The child will develop bad eating habits and will most probably pass it on to his children or friends.' Male, Canada, 43 years old.

'Lazy parent giving their child junk, food with no nutritional value and tons of sugar, fat and additives.' Female, UK, 35 years old.

'Irresponsible parent feeding the child poor quality food. Setting the child up for a life of poor health and higher risk of obesity. A sad but common sight today.' Female, Australia, 36 years old.

6.6.5 Theme 4: Judgement-free zone

For 11% of respondents, there was hesitation to pass any judgement on the parent and child dining beside them in the scenario, and some went as far as to emphasize that, if they themselves were sitting in the restaurant, they would not be in a position to pass judgment on those around them. However, for some respondents, they mentioned both 'not judging' while passing a degree of judgement at the same time.

Gender of parent in the vignette – Vignettes with mothers had higher levels of mentioning, 'no judgement' (14%) compared to vignettes with fathers (9%), *p = 0.003.*

Country of respondents – The theme of 'judgement-free' was common across all four countries and mentioned in 11% of all comments (Table 6.8). There was no statistical difference observed between countries.

Gender of respondents – There was no statistical difference based on gender, in how often respondents mentioned 'judgment-free'.

Generation of respondents – There was no statistical difference between generations of parents (Millennials versus Non-Millennials) as to whether they described the occasion as 'judgement-free'.

Below are some participant quotes of the 'judgement-free' theme selected to illustrate typical comments (Box 6.8 and Box 6.9).

Box 6.8 Judgement-free zone: Mother vignette.

Mother vignette

'*Her food choices for her and her child are her business*.' Female, US, 27 years old.

'This could be a treat for the child. Don't judge because if you are there too then that means you are eating the same food too.' Male, Canada, 41 years old.

'It's not my place to judge somebody I don't know… Fast food is obviously unhealthy for the child, but it might be a one-off treat... It's none of my business.' Female, UK, 22 years old.

'Fed is best, as long as it isn't a regular meal I don't see the issue. I wouldn't even bother judging her parenting. Feeding kids is hard sometimes and there's nothing wrong with a treat.' Female, Australia, 25 years old.

Box 6.9 Judgement-free zone: Father vignette.

Father vignette

'I would think it is nice that a parent and child are having one on one connection time. With such busy lives, it's nice to stop and enjoy the people we love. Beyond that, it's not my place to judge. However, I would probably think it would be better if the child had a healthier meal to enjoy during that shared time and that hopefully that was just a special indulgence.' Female, US, 38 years old.

'This is how I grew up, so I would not judge the man negatively. Whatever someone wants to feed their kids is their prerogative and I have no place to judge?' Female, Canada, 31 years old.

'I am not going to judge him over his food choices. At least the father is feeding and looking after the child.' Male, UK, 38 years old.

'Out treating his son…spending time with his son…. not a very healthy choice but I don't judge people.' Female, Australia, 41 years old.

6.6.6 Theme 5: Convenience (or laziness?)

Affordability, convenience, or speed was mentioned by 9% of the respondents. Families dining in fast-food restaurants were described to be 'moments of convenience', suggesting a busy lifestyle, or potentially no time (or ability) to cook.

Gender of parent in the vignette – There was no statistical difference based on the gender of the parent depicted in the vignette, with 8% 'convenience' comments with the father scenario and 10% 'convenience' comments with the mother scenario, $p = 0.234$.

Country of respondents – There was no statistical difference between country on the frequency of the 'convenience' comment, averaging 9% of total comments.

Gender of respondents – Based on gender of the respondent, there was no statistical difference in how often respondents mentioned 'convenience'.

Generation of respondents – There was no statistical difference between generations of parents (Millennials versus Non-Millennials) as to whether they described the occasion as one of 'convenience'.

Below are some participant quotes of the 'convenience' theme selected to illustrate typical comments (Box 6.10 and Box 6.11).

Box 6.10 Convenience: Mother vignette.

Mother vignette

'She is probably a single mother, getting her child a small bite to eat. She is most likely running errands around town and didn't have enough time to make her child lunch. She just stopped at a fast-food restaurant so they could get a quick bite to eat, nothing too expensive.' Female, US, 19 years old.

'*The meal they are currently enjoying seems to be out of convenience as they take a break from shopping.'* Male, Canada, 43 years old.

'Probably overworked, underpaid and took her child for a quick cheap meal at a fast-food restaurant. I have done the same and it is a massive load off parent's shoulders when they are stressed just need a break from being the 'perfect' parent.' Male, UK, 39 years old.

'The mother must be a working woman and can't find time to cook a healthy, freshly prepared meal for her 5 year old child. So she took him to a restaurant... probably McDonald's to feed the boy, and hopefully the drink is not fizzy.' Female, Australia, 27 years old.

Box 6.11 Convenience: Father vignette.

Father vignette

'That man must be in a hurry and chose to take his child to a place where they could get a meal the child enjoyed in a quick fashion.' Male, US, 34 years old.

'To me it would appear that he can't be bothered to cook for his child and it is more convenient to take this child to a fast-food chain.' Female, Canada, 34 years old.

'He is in a rush and cannot be bothered to cook. He is happy to treat his child.' Male, UK, 41 years old.

'*The man is just like any other parent, taking an opportunity to provide a quick and easy meal for the kid.'* Female, Australia, 52 years old.

6.6.7 Evaluation of the 20 statements

After qualitatively describing their thoughts on the vignette, respondents were presented with a series of 20 randomized statements and asked to rate on a 5-point scale, how much each statement described their interpretation of the vignette. The statements covered four categories, the respondents' perceptions of the parent, the parenting style, weight of the parent, and the child.

The response descriptors given to the respondents were: 1 = Does not describe the situation at all, 2 = Describes the situation a little, 3 = Describes the situation to some

extent, 4 = Describes the situation to a moderate extent, 5 = Describes the situation to a large extent.

Responses were analysed for differences using independent sample *t*-tests to determine if the gender of the parent portrayed in the vignette, gender of respondent or generation of parent changed respondents' opinions. A one-way ANOVA was conducted to test for country level differences. Mean scores are given in Tables 6.3, 6.4 and 6.5.

6.6.8 Parent attributes

For most statements, the gender of the parent portrayed in the vignette did not impact how respondents rated the statements (Table 6.9). However, the gender of the respondent evaluating the vignette did have a statistical influence on how the statements were evaluated. Male respondents were more likely to describe the parent in the vignette as organized, smart, healthy, well dressed, and attractive (Table 6.10).

The age of the respondent also had a statistical impact on their responses. Younger parents (millennial parents) were more likely than their older peers (non-millennial parents) to describe the parent in the vignette as well dressed, attractive, and wealthy (Table 6.10).

Across countries, Australia, Canada, and the UK had statistically similar mean scores for parent attributes. However, respondents from the US rated the parent in the vignette as more likely to be organized, smart, healthy, well dressed, and attractive (Table 6.11).

6.6.8.1 Parenting style

Similar to the qualitative statements from the open-ended vignette question, under parenting style, when the vignette depicted the parent as a father, there were statistically higher scores from the respondents. The father was viewed as more likely to be a good parent, a responsible parent, and that he was taking good care of his child (Table 6.9).

Male respondents had a mixed response to the vignette. They were more likely than female respondents to agree with the statements critiquing the parenting style. This included '*indulges their child', 'does not know how to cook',* and '*should feel guilty about feeding their child this food'*. However, male respondents were also more likely to agree with *'is a good role model'* and '*makes healthy choices for their child' (*Table 6.10).

Across countries, Australia, Canada, and the UK had statistically similar mean scores for parent attributes, while respondents from the US rated the parents more favourably and statistically different from the other countries (Table 6.11).

Table 6.9 Whether the vignette portrayed a mother or a father.

	Mother or Father (*n* = 1,200)		Mother (*n* = 600)		Father (*n* = 600)		
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	Sig.
Perceptions of Parent							
The parent is organized.	2.5	1.3	2.5	1.3	2.5	1.3	1.000
The parent is smart.	2.5	1.3	2.5	1.3	2.5	1.4	0.813
The parent is healthy.	2.4	1.3	2.5	1.3	2.4	1.4	0.237
The parent is well dressed.	2.3	1.3	2.3	1.3	2.2	1.4	0.442
The parent is attractive.	2.2	1.3	**2.3**	1.3	**2.1**	1.3	**0.040**
The parent is wealthy.	2.1	1.3	2.2	1.3	2.1	1.3	0.266
Perceptions of Parenting Style							
The parent is a good parent.	3.0	1.3	**2.9**	1.3	**3.1**	1.3	**0.002**
The parent takes good care of the child.	3.0	1.3	2.8	1.3	3.1	1.3	0.001
The parent is a responsible parent.	2.9	1.3	**2.9**	1.3	**3.0**	1.3	**0.036**
The parent indulges the child.	2.8	1.3	2.8	1.3	2.9	1.4	0.075
The parent is a good role model.	2.7	1.3	2.7	1.3	2.7	1.3	0.280
The parent makes healthy choices for the child.	2.4	1.3	2.4	1.3	2.4	1.3	0.560
The parent is a frequent visitor to this restaurant.	2.4	1.4	2.4	1.3	2.4	1.4	0.292
The parent should feel guilty about feeding the child this food.	2.3	1.4	2.3	1.4	2.2	1.4	0.166
The parent does not know how to cook.	2.2	1.4	2.1	1.3	2.2	1.4	0.351
Weight							
The parent is overweight.	2.1	1.4	2.1	1.4	2.1	1.4	0.566
The child is overweight.	2.1	1.3	2.1	1.3	2.0	1.3	0.432
Perceptions of Child							
The child is happy.	3.3	1.4	3.2	1.3	3.4	1.4	0.084
The child is well behaved.	2.9	1.4	2.9	1.3	2.8	1.4	0.350
The child is healthy.	2.6	1.3	2.6	1.3	2.6	1.4	0.506

Based on the vignette, respondents rated the 20 statements based on 1 = Does not describe the situation at all, 2 = Describes the situation a little, 3 = Describes the situation to some extent, 4 = Describes the situation to a moderate extent, 5 = Describes the situation to a large extent.

Table 6.10 Whether the vignette was evaluated by a male or female respondent and whether by a millennial or non-millennial parent.

	Female Respondents (*n* = 600)		Male Respondent (*n* = 600)			Millennial Parent (*n* = 513)		Non-Millennial Parent (*n* = 687)		
	Mean	*SD*	*Mean*	*SD*	*Sig*	*Mean*	*SD*	*Mean*	*SD*	Sig.
Perceptions of Parent										
The parent is organized.	2.4	1.3	2.7	1.3	**0.000**	2.5	1.4	2.6	1.3	0.821
The parent is smart.	2.4	1.3	2.7	1.3	**0.000**	2.6	1.4	2.5	1.3	0.496
The parent is healthy.	2.3	1.3	2.6	1.4	**0.000**	2.5	1.4	2.4	1.3	0.079
The parent is well dressed.	2.1	1.3	2.5	1.4	**0.000**	2.4	1.4	2.2	1.3	**0.003**
The parent is attractive.	2.0	1.3	2.5	1.4	**0.000**	2.3	1.4	2.1	1.3	**0.021**
The parent is wealthy.	1.9	1.2	2.4	1.3	**0.000**	2.3	1.4	2.0	1.2	**0.000**
Perceptions of Parenting Style										
The parent is a good parent.	3.0	1.3	3.0	1.3	0.612	3.0	1.3	3.0	1.3	0.377
The parent takes good care of the child.	2.9	1.3	3.0	1.3	0.220	3.0	1.3	2.9	1.3	0.223
The parent is a responsible parent.	2.9	1.3	3.0	1.3	0.243	3.0	1.3	2.9	1.3	0.094
The parent indulges the child.	2.7	1.3	3.0	1.3	**0.000**	2.9	1.3	2.8	1.3	0.487
The parent is a good role model.	2.6	1.3	2.8	1.3	**0.001**	2.7	1.3	2.7	1.3	0.251
The parent makes healthy choices for the child.	2.2	1.3	2.6	1.4	**0.000**	2.5	1.4	2.3	1.3	**0.017**
The parent is a frequent visitor to this restaurant.	2.1	1.3	2.7	1.4	**0.000**	2.5	1.4	2.3	1.3	**0.016**
The parent should feel guilty about feeding the child this food.	2.0	1.4	2.6	1.4	**0.000**	2.5	1.5	2.1	1.4	**0.000**
The parent does not know how to cook.	1.9	1.3	2.5	1.4	**0.000**	2.4	1.4	2.1	1.3	**0.000**
Weight										
The parent is overweight.	1.9	1.3	2.4	1.4	**0.000**	2.3	1.4	2.0	1.3	**0.000**
The child is overweight.	1.8	1.2	2.4	1.4	**0.000**	2.3	1.4	2.0	1.2	**0.000**
Perceptions of Child										
The child is happy.	3.3	1.4	3.3	1.3	0.455	3.3	1.4	3.3	1.3	0.585
The child is well behaved.	2.8	1.4	2.9	1.4	0.097	2.9	1.4	2.8	1.3	0.278
The child is healthy.	2.4	1.3	2.8	1.4	**0.000**	2.6	1.4	2.6	1.3	0.539

Based on the vignette, respondents rated the 20 statements based on 1 = Does not describe the situation at all, 2 = Describes the situation a little, 3 = Describes the situation to some extent, 4 = Describes the situation to a moderate extent, 5 = Describes the situation to a large extent.

Table 6.11 Parent portrayal by country.

	Australia (*n* = 300)		Canada (*n* = 300)		UK (*n* = 300)		US (*n* = 300)	
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
Perceptions of Parent								
The parent is organized.	2.4[US]	1.2	2.4[US]	1.3	2.5[US]	1.3	2.9[AUS, CA, UK]	1.5
The parent is smart.	2.3[US]	1.2	2.5[US]	1.3	2.4[US]	1.3	2.9[AUS, CA, UK]	1.5
The parent is healthy.	2.2[US]	1.2	2.4[US]	1.3	2.4[US]	1.3	2.9[AUS, CA, UK]	1.5
The parent is well dressed.	2.1[US]	1.2	2.2[US]	1.3	2.2[US]	1.3	2.7[AUS, CA, UK]	1.5
The parent is attractive.	2.0[US]	1.2	2.1[US]	1.2	2.1[US]	1.3	2.6[AUS, CA, UK]	1.5
The parent is wealthy.	1.9[UK, US]	1.1	1.9[US]	1.1	2.2[AUS, US]	1.3	2.6[AUS, CA, UK]	1.5
Perceptions of Parenting Style								
The parent is a good parent.	2.8[US]	1.3	3.0[US]	1.3	2.9[US]	1.3	3.3 [AUS, CA, UK]	1.4
The parent takes good care of the child.	2.8[US]	1.2	3.0[US]	1.3	2.8[US]	1.3	3.3 [AUS, CA, UK]	1.4
The parent is a responsible parent.	2.7[US]	1.2	2.9[US]	1.3	2.8[US]	1.3	3.3 [AUS, CA, UK]	1.4
The parent indulges the child.	2.7[US]	1.3	2.7[US]	1.3	2.7[US]	1.2	3.3 [AUS, CA, UK]	1.3
The parent is a good role model.	2.4[US]	1.2	2.7[US]	1.3	2.6[US]	1.3	3.1 [AUS, CA, UK]	1.4
The parent makes healthy choices for the child.	2.2[US]	1.2	2.3[US]	1.3	2.3[US]	1.3	2.8 [AUS, CA, UK]	1.4
The parent is a frequent visitor to this restaurant.	2.2[US]	1.3	2.2[US]	1.2	2.3[US]	1.3	2.9 [AUS, CA, UK]	1.5
The parent should feel guilty about feeding the child this food.	2.1[US]	1.3	2.1[US]	1.3	2.2[US]	1.4	2.7 [AUS, CA, UK]	1.5
The parent does not know how to cook.	1.9[US]	1.2	2.0[US]	1.2	2.2[US]	1.4	2.7 [AUS, CA, UK]	1.6
Weight								
The parent is overweight.	1.9[US]	1.2	1.9[US]	1.2	2.1[US]	1.3	2.6[AUS, CA, UK]	1.6
The child is overweight.	1.9[US]	1.2	1.9[US]	1.1	2.1[US]	1.3	2.5[AUS, CA, UK]	1.5
Perceptions of Child								
The child is happy.	3.2[US]	1.3	3.3	1.3	3.1[US]	1.4	3.5[AUS, UK]	1.4
The child is well behaved.	2.7[US]	1.3	2.9[US]	1.3	2.7[US]	1.3	3.2[AUS, CA, UK]	1.4
The child is healthy.	2.4[US]	1.3	2.5[US]	1.3	2.5[US]	1.3	3.0[US, CA, UK]	1.4

Superscripts denote which countries are different from one another ($p < 0.05$). Based on the vignette, respondents rated the 20 statements based on 1 = Does not describe the situation at all, 2 = Describes the situation a little, 3 = Describes the situation to some extent, 4 = Describes the situation to a moderate extent, 5 = Describes the situation to a large extent.

6.6.9 Weight

Across countries, Australia, Canada, and the UK had statistically similar mean scores for parent attributes, in that they did not expect the parent or child to be overweight. Respondents from the US were statistically more likely than Australia, Canada, or the UK, to say that the parent and the child were likely overweight (Table 6.11).

The gender of the parent portrayed in the vignette did not statistically impact whether the respondents felt the child or parent was overweight (Table 6.9). However, male respondents were statistically more likely than women, and millennial parents were statistically more likely than non-millennial parents, to say that it was likely that both the parent and the child were overweight (Table 6.10).

Figure 6.1 illustrates how the parent or child are perceived based on the gender of the parent portrayed in the vignette using the overall score numbers.

6.6.10 Perceptions of the child

Respondents were given three statements about the child and asked to evaluate if it described the situation: '*The child is happy', 'The child is healthy', 'The child is well behaved'*. There were no statistical differences in responses between vignettes depicted with a mother versus a father. Nor were there statistical differences in responses between millennial and non-millennial parents. However, based on the gender of the respondent, male respondents were more likely to describe the child as healthy (Table 6.10), as were respondents from the US (Table 6.11).

6.7 Discussion

The Phase One study examined the consumer window of influence of families in fast-food restaurants. With an average of 1 minute and 39 seconds from when the family first enters the restaurant to when they begin to order their food, any in-restaurant interventions must be timely and creative in order to disrupt this rapid, emotionally neutral, ordering process. The study was conducted during peak weekend meal ordering times for families. As such, these times are likely a high estimate of the ordering time. During lower customer volume times, the in-restaurant time in line would be expected to be shorter.

Using restaurant employees to further engage families in the ordering experience or to market new items at the point of purchase would have operational implications for the restaurants. Only 12% of children were observed to interact with the order taker. In this study, as in the study by Castro *et al.* (2016), parents placed most of the orders at the

counter (with the exception for older children). In addition, customers that ordered a child meal bundle had a longer ordering process, perhaps due to more decisions required for that particular order.

The restaurant in which this study was carried out also had digital ordering kiosks, where customers could order food without waiting in line to speak with an order taker at the front counter. While the focus of the research was on families and their ordering experience, during the testing phase of the study, time was spent observing the kiosk ordering process. The kiosk orders were not broadly adopted by consumers, with less than 6% of the customers observed using the kiosks, and very few families were seen using the kiosk ordering system.

While kiosks could be a potential vehicle to create an interactive consumer experience that allows for in-restaurant interventions, the kiosks were positioned at adult height. If a young child wanted to place their own order at the kiosk, the parent would have to physically lift the child in order for the child to use the kiosk.

Nothwehr *et al.* (2013) tested interventions of in-restaurant signage (table and window signs) to influence in-restaurant ordering behaviour. They saw only small changes in ordering behaviour. Lopez *et al.* (2017) also conducted pilot studies on interventions on the in-restaurant ordering process to encourage healthier choices in two fast-food locations (staff prompts and in-restaurant posters). While simple signage might offer a potential low-cost nudging opportunity, implementation by the restaurants proved to be a significant challenge. Many small nudges may well create a larger cumulative effect on ordering behaviour.

Despite a Canadian consumer population with a high density of smartphones (Catalyst, 2017) and advances in technologies enabling restaurants to target consumers through tools such as geofencing and push-notifications to smartphones, the low in-restaurant customer usage of technology during the ordering process suggests that consumer acceptance of offers delivered through mobile technology are still early in the adoption curve. In the future, with the growing rapid increase in mobile technology use for pre-ordering fast foods, this approach holds significant potential for implementing nudging strategies in a time sensitive process.

The Phase Two study explored peer perceptions of family dining in fast food restaurants. Tanner *et al.* (2014) explored perception differences in terms of fathers and gender. They also noted very different perceptions in terms of maternal and paternal attributes. Kasparian *et al.* (2017) discuss how mothers have more permissive food rules in

restaurants for their children (age 5 - 8 years). However, they have higher behaviour expectations and that more quality time with family is an important factor in eating-out, but a limitation of their study was lack of father insights.

In the vignette study, with the aim of exploring perceptions of fathers, respondents viewed fathers dining with their children in fast-food restaurants more favourably than when mothers were depicted in the same vignette. Fathers were praised for spending time with their children. Respondents were more likely to consider the father to be 'a *good parent', 'a responsible parent'*, and that they are '*taking good care of the child'.*

The more positive perceptions of fathers versus mothers, in the exact same vignette, offers an insight into how society perceives parents (and parenting) based on their gender (Figure 6.4). Male respondents typically viewed the parent in the vignette more favourably in terms of parenting style and parenting perceptions, with the exception of weight. In terms of weight, male respondents were more likely to say that both the child and the parent in the vignette were overweight. This observation that fathers noted the weight issue more than mothers was unexpected, however Kasparian *et al.* (2017) noted in their study that mothers were not necessarily accurate in assessing the weight of their own children, suggesting perhaps there was social desirability in their responses.

Increasing obesity has been a concern in all four of the countries. The frequency of families dining in fast-food restaurants has also been increasing in these four countries. Despite these fast-food visits now being a regular meal occurrence for many, they were still viewed by 25% as a 'treat' occasion in the vignette study. McGuffin *et al.* (2015) suggest that viable menus to ensure success of healthier eating must maintain the 'treat' element of the occasion.

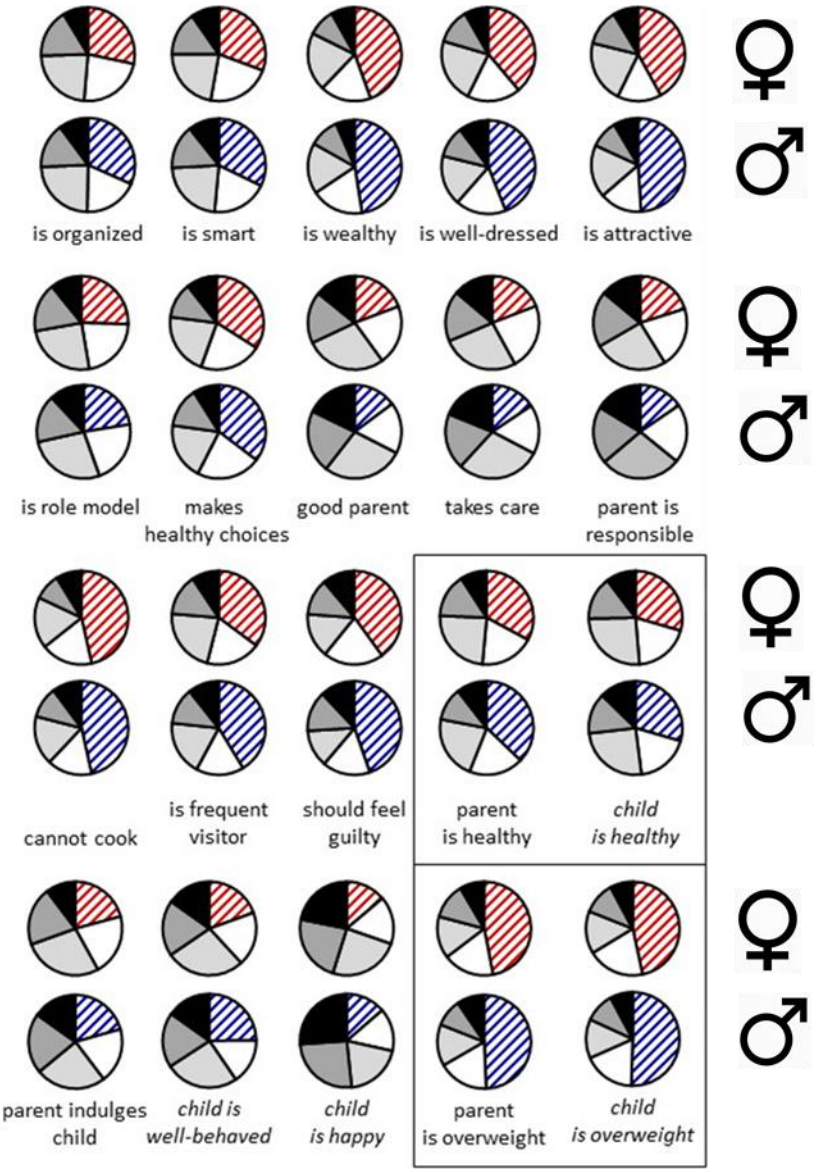


Figure 6.4 Overall scores when participants were asked how they preceived either the parent or the child based on the gender of the parent portrayed in the vignette. Hatched slice indicates: “does not describe the situation at all”; white slice indicates: describes the situation a little”; light grey slice indicates: “describes the situation to some extent”; dark grey indicates: “describes the situation to a moderate extent”; black slice indicates: “describes the situation to a large extent”. The male (♂) vignette is indicated by blue hatches, while the female (♀) vignette is indicated by red hatches.

Culturally, respondents from Australia, Canada, and the UK had statistically similar responses for 18 of the 20 attribute statements. Respondents from the US had statistically different responses from these three countries. Was this difference a result of the higher number of QSR restaurants present in the US, perhaps making a fast-food meal more of an everyday option? Additional research would help to explore why respondents from the US tend to view family dining in fast-food restaurants more favourably than respondents from the other three countries.

In the past, nutrition has been identified as one of the top concerns facing millennial parents (Barkley, 2013), with 'daycare' holding the number one spot. Millennial parents appeared to take a strong, but not extreme, position on the topic of nutrition and are probably less restrictive in what they allow their children to eat than what they say they allow them to eat. This is aligned with the findings in the current study, where only 19% of respondents associated fast-food dining with unhealthy food decisions.

Convenience has long been given as one of the key reasons that families visit fast-food restaurants (Rydell *et al.* 2008). Family dining outside of the home is frequently viewed as a 'treat', with 'healthy' eating not the key priority for many parents, during what they consider are quality 'family time' occasions (McGuffin *et al.* 2015; Robson *et al.*, 2016). The importance of 'convenience' was also reflected in the survey by Harrington *et al.* (2013), which found that although it was an important factor in QSR visits, it was not as high a priority as food safety and cleanliness. The theme of 'convenience' was mentioned by 9% of respondents in the current survey, aligned with previous studies on the importance of 'convenience' and 'family time'. 'Family time' was mentioned by 25% of the respondents, perhaps reflecting the growing role that fast-food restaurants are fulfilling as a 'third place' for families (Oldenburg, 1989).

6.7.1 Limitations and additional considerations

A limitation to the Phase One study is that it was conducted in one restaurant and in one country, although in a culturally diverse city in a globally heavily standardized restaurant chain. The ordering experience would be expected to be very similar in Australia, the UK, and the US.

Whether there were conversations prior to entering the restaurant, regarding what would be ordered for the child once inside the restaurant, would be of interest. However, this area was not explored, as the thesis focused on nudging inside of the restaurant (i.e., examining the length of time once within the restaurant when a customer might be nudged).

In the Phase Two study, many respondents felt they should not judge the choices of others. Future research could explore if parents, who do not view the visit as a 'treat' or a 'family time' occasion, make different food decisions for their children. Bertol *et al.* (2017) explored what the influence of young children is on overall family consumer behaviour and this should be further explored specifically in terms of fast-food and family behaviour. This study was a preliminary attempt to gain insights into consumer assumptions, specifically in regard to a child eating with a parent in a fast-food restaurant. It offers some early insights but also raises many additional questions to be explored in future studies.

In the literature, vignette studies have been used to explore gender stereotypes in other fields, such as health care and social tolerance. It seems plausible that gender might well play a role in how parental behaviours are perceived. For example, the eating disorder study by Schoen *et al.* (2018) illustrates gender bias in vignette perceptions/responses.

6.8 Conclusions

The average customer time, from the moment the family entered the restaurant to when they first spoke to the order taker, averaged 1 minute and 39 seconds. Customers spent a comparable amount of time regardless of party size, gender, ethnicity, or number of children.

The average order transaction time was 1 minute and 17 seconds. All observed attributes were analysed to determine which, if any, might influence order time. Four main elements were identified as statistically significant in impacting order time: size of party, customer age, ordering a child meal bundle, Dine-In or Take-Out orders.

Two-thirds of adults spoke to the child prior to ordering food, however only 12 % of the children spoke to the order taker.

The average wait time to receive a meal was 2 minutes and 53 seconds. No statistically significant subgroups based on observed attributes were identified.

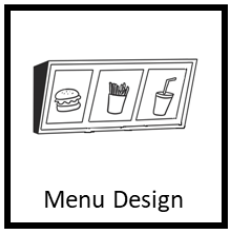
This study confirms that the in-restaurant window to nudge decisions on food choices is very brief and in-restaurant interventions will be a challenge.

Family dining in fast-food restaurants was most often associated with an opportunity for family time together (25%), a treat (25%), and an unhealthy food decision (19%). For some, this is a normal meal that should not be judged (11%), for others, this is merely a meal of easy convenience (9%). Respondents from the US viewed fast-food family dining more favourably than respondents from Australia, Canada, or the UK. Fathers, when

depicted as the parent in the vignette, were more likely to be praised for spending time with their children, while mothers were more likely to be critiqued for making poor nutritional choices.

Despite obesity concerns in these four countries, and millennial parents fearing that they are being judged by their peers on what they feed their children, only 19% of respondents focused on the unhealthy element of the food choice and only 11% questioned if fast food was simply an easy, albeit perhaps lazy, choice.

This study confirms parental peer perception differences, based on gender and country, regarding opinions on a child dining with a parent in a fast-food restaurant and how any attempts at nudging in terms of peer approval must take into account these factors.



Chapter 7 - Nudging through food design and increased calorie visibility

7.1 Research Objective

Consumers often take into consideration the visual images that they see on restaurant signage or menus (physical or electronic) when making their food purchase decisions. Chapter 6 measured the time the consumer spends in-restaurant before ordering, while the studies in this chapter examine the images that are portrayed on menus and signboards that the consumer might see inside of the restaurant.

In this set of experiments, two different menu-based nudges were explored: a small change in the appearance of a food product image was examined and the addition of calorie labels on the menu.

7.2 Introduction

Consumers often take into consideration the visual images that they see on restaurant signage or menus (physical or electronic) when making their food purchase decisions. How the food is depicted, both in design and accompanying information, can influence the consumer's choice (Bleich *et al.*, 2017; Kraak *et al.*, 2017; Rising and Bol, 2017; Schifferstein, 2017).

Phase One of the experiments explored nudging through food design and if a small change in the appearance of food product image could change consumer perceptions about a food.

Efforts on nudging interventions in many areas (e.g. public health and environmental issues) to help consumers make responsible decisions are burgeoning (Marchiori *et al.*, 2017), as are marketing approaches that nudge consumers to healthier lifestyle choices (Arno and Thomas, 2016).

Phase Two of the experiments explored nudging through the introduction of mandatory calorie labelling on menus and if it improved consumer knowledge.

A consumer desire for increased calorie visibility has led to an interest in the posting of calories on menus. It has been suggested that increased calorie visibility would result in improved consumer knowledge and that this increase in knowledge would inform

consumer food choices (Healthy Eating Research, 2013; Nikolaou *et al*., 2015). In the context of millennial parents taking their children to fast-food restaurants, calorie visibility would hopefully nudge these parents towards making healthier food choices for their children.

However, the impact of increased calorie visibility on consumer knowledge is still unclear. Past studies have shown that consumers tend to be inaccurate in estimating calories (Carels *et al*., 2007; Block *et al*., 2013; Lynskey *et al.*, 2017). This study examines increased calorie visibility on fast-food menus.

In Ontario, Canada, menu labelling legislation was passed with the hope that increased visibility of calories on menu boards would lead to better fast-food choices (The Ontario Healthy Menu Choices Act, 2015). This study examined if nudging, via increased calorie visibility on fast-food menus and menu-boards, had shifted consumer knowledge.

7.2.1. Calories and fast food

An estimated 15 to 20% of US consumers report that they use calorie labels when making food purchase decisions (Healthy Eating Research, 2013). In a comprehensive study of fast-food restaurants in New York City, Elbel (2011) noted that approximately 61% of consumers underestimated the number of calories in their meals from fast-food restaurants, while only around 24% overestimated the calorie content. Consumers struggle to accurately estimate the calories of their meals whether at home or in a fast-food restaurant (Perkins, 2012; Vanderlee *et al.*, 2012; Block *et al.,* 2013 Pettigrew *et al.*, 2013; Hobin *et al.,* 2014; Parikh *et al.*, 2015).

With the decline in meals cooked in the home from scratch and the purchase of prepared meals with complex items, it is difficult for the consumer to estimate calories in such meals. However prepared foods purchased for home consumption, depending on the country, often contain nutritional labels to help the consumer. For example, in Canada there has been mandatory nutritional labelling on most pre-packaged foods since 2007 (Health Canada, 2016). This legislated labelling gives a clear indication of the number of calories and assists the consumer as to whether the item is a good nutritional choice to add to their grocery shopping cart. Calorie labelling on menus in restaurants is therefore of particular interest, since those consumers have no packaging material containing nutritional information to easily consult before ordering as they wait in a fast-food line, that as described in Chapter 6 is a very short time window.

The literature contains an abundance of publications regarding the influence of calorie labelling on consumer food choices in restaurants (Wei and Miao, 2013; Kiszko *et al.*, 2014; Sinclair *et al.*, 2014; Cantor *et al.*, 2015; Hammond *et al.*, 2015; Long *et al.,* 2015; Nikolaou *et al.*, 2015; Droms Hatch, 2016) but there is still debate on how effective labelling is in changing behaviour as the numerous studies do not address that question adequately according to Crockett *et al.*(2018).

Despite this lack of clear evidence of effectiveness, Ontarian consumers have voiced strong support for public policy promoting increased visibility of calorie information (Toronto Public Health, 2013).

7.2.2 Voluntary or legislated labelling

Some voluntary calorie labelling has been carried out in the UK, Northern Ireland, and the Republic of Ireland (Cancer Denmark, 2014), however there is now a push for legislation to mandate calorie labelling due to concerns about rising obesity, especially in children. In two recent UK surveys, three-quarters of the public indicated that restaurants and takeaway outlets should display calorie information on their menus and over 70% of respondents felt that they did not have enough information about their food when eating out and suggested that the government should be considering legislation (Diabetes UK, 2018).

In 2011 in Australia, the Federal Government recommended kilojoule/calorie menu labelling. Since then New South Wales, South Australia, the ACT and Queensland have made the display mandatory. The state of Victoria will introduce legislation in May of 2018 (Australian Food News, 2018).

In the US there continues to be discord on the Federal level on the implementation of calorie labelling for fast-food restaurants (Rodgers, 2018). In a number of states such as New York and California, the states or cities are implementing local legislation on calorie labelling. For example, New York City and Seattle/King County, Washington in 2008 became the first jurisdictions in the US to mandate calorie labelling.

In Canada, legislation to mandate calorie labelling in restaurants has been implemented in Ontario Canada (The Ontario Healthy Menu Choices Act, 2015).

Advocates of menu labelling refer to the proposed benefits of legislating the availability of information as follows:

(i) providing the consumer with more information about the food they are eating helps people make more informed and healthier choices (Kiszko *et al.*, 2014), with benefits in terms of reducing childhood obesity (Gortmaker *et al.*, 2015) and

(ii) the requirement to post calories may influence restaurants into reworking some menu items to lower their caloric content (Bleich *et al.*, 2015).

7.2.3 The Ontario (Canada) situation

As of the 1st of January 2017, restaurants and food service providers in Ontario (Canada), with more than 20 locations in the province, were required to list the calorie content of food items on their menus. The Ontario Healthy Menu Choices Act (2015) affects fast-food restaurants, limited and full-service restaurants, movie theatres, supermarkets, and convenience stores that serve hot food. Calorie counts of each item, including alcohol, must be posted on their menus, menu boards, tags in display cases and in drive-thru locations. The availability of the calorie content of food items is not new in Ontario but previously it was displayed as a poster on the wall, or by request from the restaurant manager, and customers rarely sought out nutrition information from sources not available at the point of purchase (e.g., websites, brochures, etc.) (Healthy Eating Research, 2013). In a 2014 survey of fast-food chain restaurants in Ontario, it was noted that although some nutrition information was available at the time of the study, very little of it was readily available for consumers on menus and menu boards (Hobin *et al.*, 2014).

The Canadian province of Ontario, where the *Healthy Menu Choices Act* was passed, is home to 77 quick-service or fast-food restaurant brands and 22 full-service restaurant companies, each with 20 or more locations. The new legislation has led to the calorie counts being displayed much more prominently. Figure 7.1 shows an example of how the legislation changed menu formatting in restaurants. The calorie counts must be posted in at least the same size, font, format, and same prominence as the name/price of the food item. Every page of a physical menu or take-out pamphlet must also supply information on how many calories a healthy person should be eating daily, with the statement ‘The average adult requires approximately 2,000 to 2,400 calories per day; however, individual calorie needs may vary’.

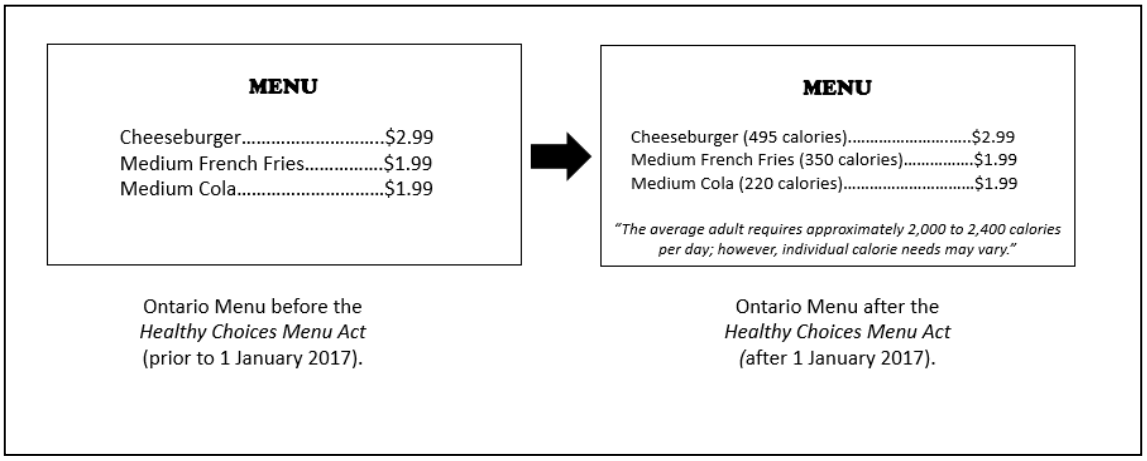


Figure 7.1 Original versus new format menu example – visually demonstrates the menu changes resulting from the *Healthy Menu Choices Act*.

In 2016, Canadians consumed over 30% of their meals outside of the home and ate at a fast-food restaurant at least once a week (Cint. Canada, 2016). At four and seven months post implementation of mandatory calorie labels, the average Ontarian Canada consumer would have had frequent exposure to the new prominent menu calorie labelling.

7.3 Methods phase one – Nudging through food design

This study examined how a small change in product design for the visual image of a common fast-food menu item, could impact estimated calorie knowledge, perceptions of the food, and whether there were differences between demographic subgroups (such as gender) or between four countries (Australia, Canada, the UK, and the US).

7.3.1 Respondents

The 1,672 respondents were from Australia, Canada, the UK, and the US (~400 respondents per country). Respondents had an average age of 43 years, and 61% were female respondents and 39% were male respondents. Households ranged in size from one to nine people, with 38% of households having at least one child under the age of 18. Respondents were recruited from a paid Toluna survey panel. Standard demographic questions used to select the respondents can be seen in Appendix A.

7.3.2 The survey

The survey was conducted in English. All four countries have similar large-scale fast-food restaurants in common, allowing for the image of a fast-food cheeseburger (with or

without a lettuce leaf) to be shown to these four consumer groups, with a reasonable expectation that the food would be familiar to the local consumer. Calories of the cheeseburger were calculated as 495 calories, using the Dietitians of Canada database, with the lettuce leaf adding an additional 1-4 calories (Dietitians of Canada, 2017).

The survey was pre-tested with a convenience sample size of 100 Canadian respondents to test its efficacy and clarity, and minor modifications were made. These 100 responses were not included in the final analytics.

Respondents were asked to estimate calories by entering a whole number, with the following instructions: *'Attached is a photo of a food item, as well as a written description of the food. After you have looked at the image and read the description, please estimate how many calories the food contains'.*

Then respondents were asked to rate four randomized statements about a 5-point Likert scale where 1 = Strongly Agree, 2 = Agree, 3 = Neither Agree nor Disagree, 4 = Disagree, 5 = Strongly Disagree, the Top 2 Box score is the percentage of respondents who answered either Strongly Agree or Agree. The statements respondents were asked to rate were:

1. The burger looks appetizing.
2. The burger looks fresh.
3. This is a burger I would feel good about children eating.
4. This is a burger I would feel good about eating.

Respondents were then shown a second cheeseburger image (different from the first only in the presence or absence of one leaf of lettuce on the cheeseburger) and asked the same questions (i.e., to estimate the calorie count and to rate the four attributes). Respondents were told that the questions were based on a series of randomly selected images from a larger pool of 10 common food images and they were unaware that the survey included only two cheeseburger images.

To account for image order bias, the respondents were randomly assigned to one of two cells with 200 respondents per cell, 400 respondents in total, per country. The concepts were shown monadically, however the order in which they were shown varied between the two cells.

Cell 1: First image shown to the respondents was the image of the cheeseburger with NO lettuce (Figure 7.2 with the product description), and then respondents saw the image of the cheeseburger with lettuce (Figure 7.3) with the product description.

Cell 2: First image shown to the respondents was the image of the cheeseburger with lettuce (Figure 7.3 with the product description), and then respondents saw the image of the cheeseburger with NO lettuce (Figure 7.2 with the product description).

The only difference between the two images was that a piece of leaf lettuce had been photoshopped onto one of the cheeseburgers, otherwise the images were identical, and the inclusion of the lettuce leaf was confirmed by mention in the product description.

Figure 7.2 Cheeseburger image **without** lettuce seen by survey respondents with the product description.

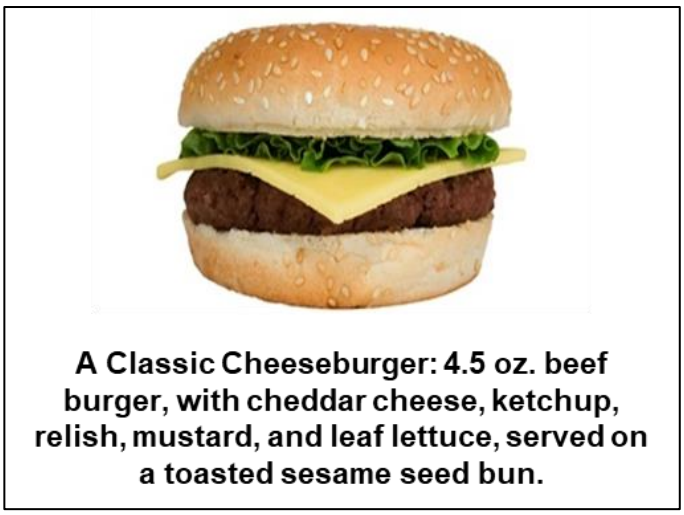


Figure 7.3 Cheeseburger image **with** lettuce seen by survey respondents with the product description.

7.3.3 Data analysis

Statistical analysis using descriptive statistics, cross-tabulations, *t*-tests, and one-way ANOVAs were performed to explore the impact of the addition of the lettuce leaf on calorie estimation, anchor image effect (based on the first image shown), the impact of the lettuce leaf on product attribute ratings, and to identify possible differences between subgroups such as country or gender, using the statistical software package IBM SPSS Version 24.0.

7.3.4 Ethics approval

Ethics approval was obtained from the Harper Adams University Research Ethics Committee.

7.4 Results phase one – Nudging through food design

This study employed an online platform on which respondents from Australia, Canada, the UK, and the US were shown an image of a common fast-food item, with and without a minor product modification. The common fast-food item was a cheeseburger and the minor modification was the visual presence of a lettuce leaf. Respondents were asked to both estimate the calorie content and to rate four product statements about the image.

7.4.1 Calories and four country survey

The calculated calorie content based on the cheeseburger description without lettuce was 495 calories. The calories were calculated using the Dietitians of Canada database, with the addition of a leaf of lettuce adding 1 to 4 calories to the overall caloric content.

Based on 1,672 respondents across the four countries, the cheeseburger with lettuce was estimated to have a mean of 548 ± 459SD calories and the cheeseburger without lettuce had a mean of 533 ± 487SD calories. The presence of the leaf of lettuce led to an increase of an additional 15 calorie estimate, a statistically significant difference (p = 0.004) (Table 7.1).

7.4.2 Country level data

Response data was examined at the individual country level, to detect country level differences (Table 7.1). While Canada and the US had statistically similar caloric estimates, Australia was statistically lower than the other three countries in their caloric estimations and the UK was statistically higher than the other three countries in caloric estimations. At the individual country level, only Australia had a statistically different calorie estimation in terms of with and without lettuce, while Canada, the UK and the US did not demonstrate a statistical impact of lettuce on the estimation of the total calorie count for the cheeseburger.

Table 7.1 Cheeseburger calorie estimates over four countries.

Country	*(n)*	Calorie estimate cheeseburger **with** lettuce		Calorie estimate cheeseburger **without** lettuce		Significance at $p < 0.05$
		Average* (±SD)	(%SD)	Average* (±SD)	(%SD)	
Australia	402	416 $^{CA, UK, US}$ (±414)	(99.5)	397 $^{CA, UK, US}$ (±406)	(102.3)	< 0.001
Canada	411	569 $^{AU, UK}$ (±514)	(72.8)	550 $^{AU, UK}$ (±527)	(95.8)	0.144
UK	421	635 $^{AU, CA, US}$ (±4634)	(73.1)	623 $^{AU, CA, US}$ (±518)	(83.1)	0.267
US	438	568 $^{AU, UK}$ (±412)	(72.5)	556 $^{AU, UK}$ (±462)	(83.0)	0.307
Total	**1672**	**548**		**533**		**0.004**

Superscripts denote which countries are statistically different from one another (p < 0.05), based on an ANOVA test. Statistical significances between calorie estimates of cheeseburgers with and without lettuce were calculated using a t-test (p < 0.05). The data range was 5,000 (minimum 0, maximum 5,000). Extreme outliers were removed from the data, as a part of the data cleaning process (e.g. responses of "0"). The %SD shows the size of the SD in comparison to the mean.

As an overall population (combined four-country data), consumers when estimating the calories in the cheeseburgers, showed a wide spread of responses in all four countries (the percentage standard deviation by country ranged from 72.5 to 102.3%. Only 19% of total respondents able to estimate the calorie content within 10% of actual calories. Calorie estimation is difficult for consumers, especially for complex products such as a fast-food cheeseburger versus a single food such as an apple and estimates are subject to a range of perceptual biases and imperfect knowledge (Forwood *et al.*, 2013; Stewart *et al.,* 2015; Moran *et al.*, 2017).

7.4.3 Demographic subgroups

Demographics of the respondents can be seen in Table 7.2. Subgroups of gender, age, and presence of children in the household, all appeared to show no detectable statistical differences in calorie estimations.

Table 7.2 Demographics of survey respondents.

		Country of Survey				
		AU	**CA**	**UK**	**US**	**Total**
		n = 402	*n* = 411	*n* = 421	*n* = 438	*n* = 1,672
Gender	Female	63%	56%	60%	66%	61%
	Male	37%	44%	40%	34%	39%
Age range	18-34	37%	38%	28%	31%	34%
	35-54	41%	42%	39%	37%	40%
	55+	22%	20%	33%	32%	26%
Household composition	No children	64%	58%	68%	58%	62%
	One child	16%	23%	16%	17%	18%
	Two or more children	20%	19%	17%	25%	20%

7.4.4 Four country data and image order

There was no statistical difference in the estimated calories of the cheeseburger without lettuce, whether shown first or second. However, if the first image shown to respondents was the cheeseburger with lettuce, it elevated the total calorie estimation and created a noted difference in how the cheeseburger without lettuce was estimated. Eliminating a visual element of the cheeseburger impacted the estimations in a way that adding a visual element did not. This impact of image order was seen in all four countries (Table 7.3).

Although there was no statistical difference ($p = 0.851$) in the estimated calories of the cheeseburger without lettuce, whether shown first (estimated calories 530) or second

(estimated calories 535). However, if the first image shown to respondents was the cheeseburger with lettuce (estimated calories 572), two statistically different results were noted.

(i) When shown with lettuce first (estimated calories 572), compared to respondents who saw the image with lettuce second, there was a statistically higher calorie estimation than with those who saw the cheeseburger with lettuce second (estimated calories 524, $p = 0.033$).

(ii) Respondents who saw the cheeseburger with lettuce first (estimated calories 572) also demonstrated a statistically higher calorie estimate than that of the second image of the cheeseburger without lettuce (estimated calories 535, $p < 0.001$).

Table 7.3 Four country data analysis of image order.

 **Lettuce image seen first**	**Sig.**	 **Lettuce image seen second**	**Sig.**
Australia		**Australia**	
419 calories (with lettuce) vs 397 calories (without lettuce)	**0.002**	397 calories (without lettuce) vs 412 calories (with lettuce)	**0.004**
Lettuce value: 419-397 = 22		Lettuce value: 412-397 = 15	
Canada		**Canada**	
625 calories (with lettuce) vs 577 calories (without lettuce)	**<0.001**	523 calories (without lettuce) vs 512 calories (with lettuce)	0.633
Lettuce value: 625-577 = 48		Lettuce value: 512-523 = -11	
UK		**UK**	
644 calories (with lettuce) vs 606 calories (without lettuce)	**<0.001**	640 calories (without lettuce) vs 625 calories (with lettuce)	0.436
Lettuce value: 606-644 = 38		Lettuce value: 625-640 = -15	
US		**US**	
593 calories (with lettuce) vs 554 calories (without lettuce)	**<0.001**	557 calories (without lettuce) vs 543 calories (with lettuce)	0.527
Lettuce value: 554-593 = 39		Lettuce value: 543-557 = -14	
Combined four country data		**Combined four country data**	
572 calories (with lettuce) vs 535 calories (without lettuce)	**<0.001**	530 calories (without lettuce) vs 524 calories (with lettuce)	0.492
Lettuce value: 572-535 = 37		Lettuce value: 524-530 = -6	

To summarize, if the first image that respondents saw was the cheeseburger that included a lettuce leaf, then the calorie estimate of the cheeseburger without lettuce was statistically lower than the image with the lettuce. This difference in calorie estimates was not detected if the cheeseburger without lettuce was the first image respondents saw.

When people had to adjust calories for the absence of a lettuce leaf, they correctly provided an estimate that was lower compared to the cheeseburger with a lettuce leaf. However, when they had to adjust their estimate because of the addition of a lettuce leaf, the average respondent in Canada, the UK or the US incorrectly lowered their estimate.

7.4.5 Consumer perceptions of product attributes

While nutritionally, the difference between the cheeseburgers (with versus without lettuce) is almost negligible (a difference of 1 to 4 calories), the lettuce elevated the product in the mind of the consumer. The presence of lettuce produced a 'product halo' effect and notably shifted perceptions of how respondents felt about the cheeseburger.

Using a 5-point Likert scale and a "Top 2 Box" analysis (i.e. Strongly Agree & Agree were combined), the presence of one leaf of lettuce statistically increased the percentage of consumer agreement across all four countries and all four attributes surveyed ($p < 0.001$) (Table 7.4). Salads and lettuce are readily associated with the notion of freshness of foods (Vidal *et al.,* 2013). The attributes of 'appetizing' and 'fresh' increased with the presence of the lettuce leaf. There was also an increase in consumer agreement to the statements 'A burger I feel good about eating' and for 'A burger I feel good about children eating'.

Table 7.4 Product perceptions of the cheeseburger across four countries (with versus without lettuce) using a Top Two Box Analysis (percentage of respondents who indicated 'strongly agree' or 'agree' with the statement).

	Australia		**Canada**		**UK**		**US**		**Total**	
	*With Lettuce (Top 2 Box)	Without Lettuce (Top 2 Box)	With Lettuce (Top 2 Box)	Without Lettuce (Top 2 Box)	With Lettuce (Top 2 Box)	Without Lettuce (Top 2 Box)	With Lettuce (Top 2 Box)	Without Lettuce (Top 2 Box)	**With Lettuce (Top 2 Box)**	**Without Lettuce (Top 2 Box)**
n	402	402	411	411	421	421	438	438	**1,672**	**1,672**
This burger looks appetizing	48%	32%	55%	41%	49%	39%	58%	46%	**53%**	**39%**
This burger looks fresh	50%	33%	54%	41%	51%	37%	58%	45%	**53%**	**39%**
This is a burger I feel good about eating	37%	26%	43%	37%	32%	29%	46%	39%	**40%**	**33%**
This is a burger I feel good about children eating	27%	20%	36%	30%	19%	18%	39%	34%	**30%**	**26%**

* On a 5-point Likert scale where 1 = Strongly Agree, 2 = Agree, 3 = Neither Agree nor Disagree, 4 = Disagree, 5 = Strongly Disagree, the Top 2 Box score is the percentage of respondents who answered either Strongly Agree or Agree.

No statistical difference was noted on average agreement to these four attributes between respondents from Canada and respondents from the US. However, respondents from Australia and the UK consistently demonstrated statistically lower levels of attribute agreement than respondents from Canada or the US. The cultural differences were most notable in response to the statement 'This is a burger I feel good about children eating'. While a neutral mean response was observed in Canada and in the US, in Australia and in the UK, the mean response was disagreement to this statement (Table 7.5).

Table 7.5 Country-by-country differences in response to perceptions about food suitability for children.

	Australia		**Canada**		**UK**		**US**		**Total**	
	*With Lettuce Mean Score (SD)	Without Lettuce Mean Score (SD)	With Lettuce Mean Score (SD)	Without Lettuce Mean Score (SD)	With Lettuce Mean Score (SD)	Without Lettuce Mean Score (SD)	With Lettuce Mean Score (SD)	Without Lettuce Mean Score (SD)	**With Lettuce** Mean Score (SD)	**Without Lettuce** Mean Score (SD)
n	402	402	411	411	421	421	438	438	**1,672**	**1,672**
This is a burger that I feel good about children eating	3.3 (1.1)	3.5 (1.1)	3.0 (1.1)	3.2 (1.1)	3.4 (1.1)	3.5 (1.1)	2.9 (1.1)	3.0 (1.2)	**3.1 (1.1)**	**3.3 (1.1)**

*****Respondents were asked on a 5-point Likert scale if after viewing either a cheeseburger with lettuce or a cheeseburger without lettuce, whether they agreed with the statement 'This is a burger I feel good about children eating', where 1 = Strongly Agree, 2 = Agree, 3 = Neither Agree nor Disagree, 4 = Disagree, 5 = Strongly Disagree.

Subgroups of age [18 to 34 years (*n* = 560), 35 to 54 years (*n* = 665) and 55+ years (*n* = 447)] and the presence of children in the household were examined using *t*-tests and one-way ANOVA analyses to determine if there were statistical differences in attribute ratings by subgroups. No consistent statistical differences in these subgroups were observed.

7.4.6 Gender and product perceptions

When examined by gender, men had higher levels of agreement than women with the four attribute statements (for both the cheeseburger with and without the lettuce) (Table 7.6). The largest difference in response was seen when men and women were asked to evaluate the statement 'This is a burger I would feel good about eating'.

Table 7.6 Product perceptions of the cheeseburgers by gender.

	Cheeseburger without Lettuce				Cheeseburger with Lettuce			
	Men	Women			Men	Women		
	n = 648	*n* = 1,024	Diff	Sig.*	*n* = 648	*n* = 1,024	Diff.	Sig.*
The burger looks appetizing	2.8**	3.2	0.4	< 0.001	2.5	2.8	0.3	< 0.001
The burger looks fresh	2.8	3.1	0.3	< 0.001	2.5	2.7	0.2	0.001
This is a burger I would feel good about children eating	3.2	3.4	0.2	< 0.001	3.0	3.2	0.2	0.001
This is a burger I would feel good about eating	2.9	3.3	0.5	< 0.001	2.8	3.1	0.3	< 0.001

* Sig. = Significant at $p < 0.05$, ** On a 5-point Likert scale where 1 = Strongly Agree, 2 =Agree, 3 = Neither Agree nor Disagree, 4 = Disagree, 5 = Strongly Disagree.

7.5 Methods phase two – Nudging through calorie visibility

The Phase Two study focused on Canadian consumers (Ontarian residents and non-Ontarian, Canadian residents), specifically those living in the province of Ontario and their calorie estimates of a common food item (cheeseburger). Calorie estimates were compared pre- and post-implementation of the mandatory calorie labelling in restaurants. The goal was to examine if the prevalence of the new and prominently displayed calorie information on menus had shifted the Ontarian consumer's ability to estimate calories. Canadian respondents outside of Ontario were also surveyed and used as a control group to evaluate if any observed changes might be attributed to the Ontario-specific menu labelling. This study did not examine whether posting calories influenced food purchase decisions.

7.5.1 Ontario legislation and timelines

In Ontario Canada, new legislation was introduced in January of 2017 mandating calorie labelling in fast-food chain restaurants. Using an online survey, Ontarian consumers were asked to estimate the calories of a popular menu item, prior to the new legislation, and three months and six months after the introduction of the mandated calorie labels on menus (Figure 7.4).

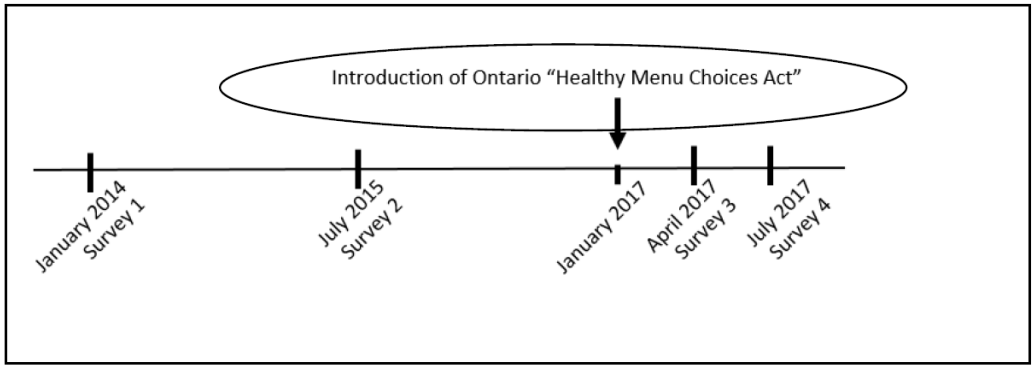


Figure 7.4 Timeline for calorie estimation surveys of Canadian consumers.

7.5.2 Respondents

The 1,359 responses were a diverse mix of age, education level, and income level. The sample was 40/60 male/female with an average age of 40 years. Respondents were an even split between the market of interest (Ontario) and the control market (the rest of Canada). Households ranged in size from one to nine people, with 45% of households with no children under the age of 18, and 29% of households with one child under the age of 18. The remaining 26% of households had two or more children under the age of 18. Respondents were recruited from a paid Toluna survey panel. Standard demographic questions used to select the respondents can be seen in Appendix A.

7.5.3 The survey

All respondents were shown the same image of a fast-food burger, with the reasonable expectation that the food would be familiar to them. In the classic cheeseburger image seen by survey respondents, the food was described as '*a 4.5 oz. burger with cheddar cheese, ketchup, relish, and mustard, served on a toasted sesame seed bun'* (Figure 7.2). The calculated calorie content based on the nutritional description was 495 calories (Table 7.7). Calories were calculated using the Dietitians of Canada database (Dietitians of Canada, 2017).

Table 7.7 Calorie breakdown of ingredients of cheeseburger**.**

Ingredient	Estimated calories from the Dietitians of Canada Database (eatracker.ca)
Mustard	6
Ketchup	14
Relish	16
Cheddar Cheese	98
4.5 oz Beef Patty	248
Hamburger Bun	113
Total	**495**

Respondents were asked to estimate calories by entering a whole number, with the following instructions: *'Attached is a photo of a food item, as well as a written description of the food. After you have looked at the image and read the description, please estimate how many calories the food contains'.*

The 1,359 Canadian respondents were distributed over four waves of research: two waves prior to the new legislation, establishing a baseline response and two waves after the implementation of the new legislation, allowing for statistical comparison.

7.5.4 Data analysis

Ontarian respondents were compared to a control group of Canadian respondents (living in Canada but outside of Ontario), to examine if the new Ontario legislation was impacting consumer abilities to estimate calories. Statistical analysis using *t*-tests and one-way ANOVAs were performed to identify possible differences between the control group and the Ontario market, as well as to examine differences in calorie estimates over four time periods, using the statistical software package IBM SPSS Version 23.0.

7.5.5 Ethics approval

Ethics approval was obtained from the Harper Adams University Research Ethics Committee.

7.6 Results phase two - Nudging through calorie visibility

For this study, a cross-sectional cohort of Canadian consumers were asked to estimate calories based on the same image of a typical fast-food burger, before and after the implementation of mandatory calorie labelling.

7.6.1 Calorie estimation results

The calculated calorie content based on the burger description was 495 calories.

Of the 665 control respondents (i.e. non-Ontarian Canadians) and the 694 Ontarian respondents, 78% and 77% respectively, were unable to estimate the burger's caloric content within ±10% (i.e., ~50 calories) (Table 7.8). Examining the data in three subgroups:

(i) those who underestimate calories by more than 10%,
(ii) those who estimate the calories within 10%, and
(iii) those who overestimate calories by more than 10%.

Up to the date of the introduction of mandatory calorie reporting in Ontario, both the control group (non-Ontarian Canadian consumers) and the Ontarian consumers, the largest subgroup in both populations underestimated the calorific content of the cheeseburger by more than 10%. However, after the date of the introduction of mandatory calorie reporting in Ontario, the largest the Ontarian subgroup of consumers was the subgroup that overestimated the calorific content of the cheeseburger by more than 10%. This while the largest subgroup among the non-Ontarian consumers kept underestimating the calorific content of the cheeseburger.

When examining specifically the responses from Ontario over time, no statistically different change in the calorie estimates of the image after the introduction of menu labelling was observed after six months. Perhaps directionally, there may be what appears as an upward trend, with a shift from underestimating to overestimating among the Ontarian respondents since the introduction of the menu labelling regulations, however, additional time may be required for a statistically measurable shift to occur.

Table 7.8 Calorie estimation responses for the cheeseburger image, Control group (Canadian non-Ontarian) vs Ontarian group, 2014 to 2017.

	Control Group (Canadian non-Ontarian)*						Ontarian Group*						
Date	**Respon-dents (*n*)**	**Calorie Estimate Mean (±SD)**	**(%SD)**	**% Under-estimated (*n*)**	**% Correct (*n*) within ±50 calories**	**% Over-estimated (*n*)**	**Respon-dents (*n*)**	**Calorie estimate Mean (±SD)**	**(%SD)**	**% Under-estimated (*n*)**	**% Correct (*n*) within ±50 calories**	**% Over-estimated (*n*)**	**Statistical difference between Ontario and Control ($p \leq 0.05$)**
Jan 2014	192	564 (±602)	(107)	51% (97)	24% (47)	25% (48)	215	546 (±450)	(82)	44% (94)	24% (51)	33% (70)	0.727
July 2015	98	512 (±370)	(72)	42% (41)	33% (32)	26% (25)	99	588 (±477)	(81)	45% (45)	14% (14)	40% (40)	0.211
April 2017	202	637 (±587)	(92)	44% (89)	17% (35)	39% (78)	184	604 (±521)	(86)	36% (66)	27% (49)	38% (69)	0.558
July 2017	173	495 (±402)	(81)	52% (90)	20% (34)	28% (49)	196	663 (±533)	(80)	37% (72)	22% (43)	41% (81)	0.001
	665	**561 (±523)**	**(93)**	**48% (317)**	**22% (148)**	**30% (200)**	**694**	**600 (±498)**	**(83)**	**40% (277)**	**23% (157)**	**37% (260)**	**0.153**

*Note due to rounding not all rows sum to 100 %.

No statistical difference ($p > 0.05$) was observed between the estimates of Ontarian respondents and non-Ontarian control respondents prior to the implementation of the Ontario “Healthy Menu Choices Act”, nor 3 months post implementation (Table 7.8). In the most recent survey (July 2017), there appeared to be a statistical difference ($p = 0.001$) between the overall mean calorie estimate of the Ontarian group vs the Control (non-Ontarian) group but with the very large standard deviation seen in the data, the question of how meaningful the significance value is when the calorie differences are so small is debateable. This could perhaps be an early sign that calorie labelling is shifting consumer knowledge, but additional research over time will be required to confirm this.

In addition, no statistical difference in calorie estimates was observed based on the subgroups of age, number of children, and primary household grocery shopper status ($p > 0.05$, ANOVA). However, on average, women estimated the burger to be 94 calories higher than the estimates of men ($p = 0.031$).

With the non-Ontarian cohort there was always a greater proportion of people underestimating the calorie content (across all 4 occurrences). That same observation is true for the Ontarians prior to the introduction of mandatory menu labelling, however, following the introduction of the mandatory menu labelling the Ontarians started to reveal a swing from underestimating to a greater proportion overestimating (Figure 7.4). This might be an early indication that Ontarians are becoming ‘more educated’ on calories, however are still not yet accurate within 10%.

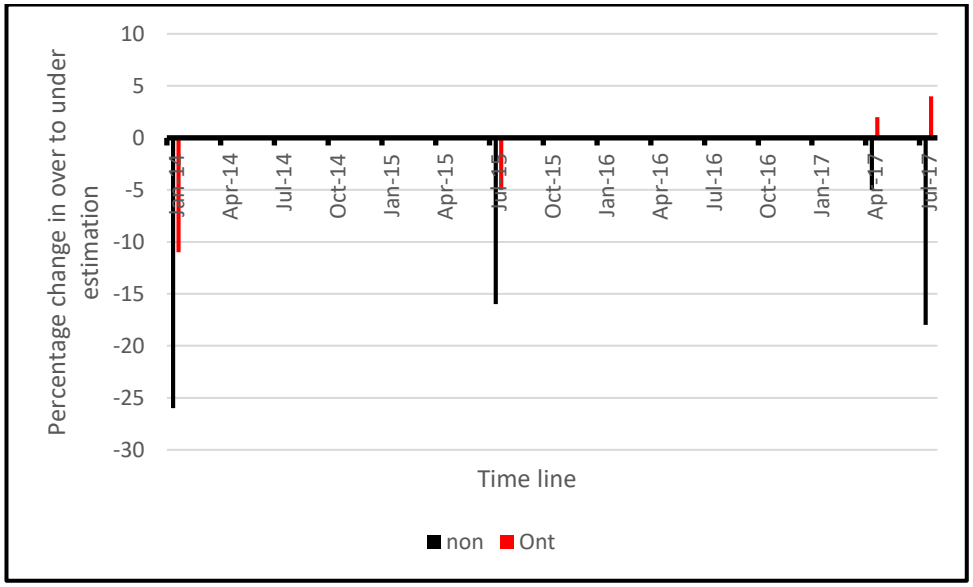


Figure 7.5 Change in non-Ontarian and Ontarian calorie estimations.

7.7 Discussion

In a typical fast food restaurant, the image of a product with its price is frequently depicted on a menu seen by the consumer before they see the actual food product. How subtle changes to food images may impact calorie understanding, food perceptions, and potential gender differences in perceptions of food images, is still an under-researched area.

The majority of individuals struggle to correctly estimate fast-food calories, but there have not been specific reports on whether correct calorie estimation is a more across-the-board broader challenge and whether small product changes with the potential to nudge consumer perceptions are compelled by geographical boundaries/limitations/restrictions. This study examined calorie estimates in four countries to explore if there were country effects between Australia, Canada, the UK, and the US.

A wide variation in estimated calorie content was observed in all four countries and these results are aligned with reports that the general population (both men and women) struggle with estimating calories (Carels *et al.*, 2007; Elbel, 2011; Droms Hatch, 2016). While there were differences by country in how high the total calories were estimated, with large ranges of responses observed in all four countries, it did not appear that a single country stood out for their respondents' abilities to estimate calories.

Underestimation of the calorie content was seen to increase substantially as the actual meal calorie content increased in an in-restaurant study in the US by Block *et al.* (2013). This study was notable as it was exceptionally comprehensive and ranged over six fast-food restaurant chains and 3000 diners.

When healthy nutritional items are offered and identified on a menu, researchers have noted a 'health halo' effect (Chandon and Wansink, 2007; Wilcox *et al*., 2009). This is when the presence of a healthy item on the menu, or as a side, leads to a final food choice that is more indulgent than if the healthy item had not been seen as an option on the menu; a serious problem when trying to encourage healthy eating. Product changes do not need to be large to be impactful. The presence of just a nutritionally minimal leaf of lettuce elevated the product perception of the cheeseburger.

If shown first, the presence of the lettuce leaf, also created an image order effect on the calorie estimations, raising the total estimated calorie number higher. It is speculated that removal of an item (the lettuce) in the image may have resulted in the consumer feeling a loss. When the first image did not have the extra item, the second image was seen as

similar. These results could perhaps be ascribed to ‘loss aversion’ or ‘negativity bias’ in decision making, where potential losses are more heavily considered than potential gains (Kahneman and Tversky, 1979).

Although the presentation order was randomized, in future research, a third option should be added in the 1st position to address 1st order effects and the images under study would be randomized in positions 2 and 3.

The impact of a small change in food design (the addition of one leaf of lettuce) had a statistically significant impact on perceptions of the food. Respondents not only viewed the product as more appealing and more fresh, but respondents in all four countries also felt better about eating it. Respondents from the UK were more negative towards the product than other countries, giving it the highest mean calorie estimate. While the addition of lettuce made the cheeseburger more appealing for themselves, it did not statistically impact whether they agreed that they would feel good about a child eating the cheeseburger. For Australia, Canada, and the US, the minor product change also increased agreement that the cheeseburger was more likely to be a product that they would feel good about a child eating.

Zhu *et al.* (2015) comment that to date surprisingly little attention has been given to investigating gender and food preferences. The addition of a leaf of lettuce to the cheeseburger image resulted in a much higher approval from both men and women despite the fact that one leaf of lettuce offers little additional nutritional value. Recent studies are going beyond surveys and investigating gender differences in food perceptions and stimuli using functional neuroimaging, with early results suggesting that women might be more reactive to visual food stimuli (Chao *et al.*, 2017). These differences in gender perceptions will need to be further explored and confirmed using additional food offerings.

Mobile pre-ordering at fast food restaurants is growing in popularity, resulting in the food order being ready for pick-up when the consumer arrives at the restaurant (see Chapter 6). Therefore, some of the factors that used to impact consumers, such as the wait time in the restaurant, now play a declining role, as orders are increasingly placed outside of the restaurant environment. The influence of a food image in the ordering process is growing in its role as a factor in the decision-making process. As a result, the gap in understanding how small changes in the depiction of a food can influence consumer perceptions is growing in research importance. There will be important implications for visual marketing

on menus as the use of mobile ordering, rather than in-restaurant ordering, increases in popularity.

Based on how frequently Canadians visit food service providers and purchase food or beverages away from home, it can be estimated that after six months with the new Ontario menu labelling rules in place, that Ontarian consumers would have been exposed to menus with food calories listed, on average, between 60 to 100 times. Despite this frequent exposure, early results do not yet show statistical changes in the Ontarian consumer's ability to more accurately estimate calories (based on surveying one popular food item). However, in the recent July 2017 survey there was less underestimation of the high calorie food product by the Ontarian consumer (only 37% of the Ontarian group underestimated the calorie content versus 52% of the control Canada (non-Ontarian) group), suggesting positive results from calorie labelling may well be occurring.

For consumers, estimating calories appears to be a very complex task even for simple food items. In this study, the wide range of calorie estimates for the burger reinforces the findings of other researchers that most consumers have a poor sense of how many calories a food (or meal) typically contains. It has also been reported that this number is easily swayed based on the context in which the food is viewed (Chandon and Wansink, 2007). Consumers both overestimate and underestimate the number of food calories, depending on the context (Chernev, 2011; Ebneter *et al.*, 2013; Moorhead *et al.*, 2015; Schermel *et al.*, 2016). Vanderlee (2016) in 2012 examined the effect of menu labelling in an Ontario cafeteria setting and noticed a modest but positive effect on the nutritional quality of food purchased, but observed little effect on consumers' accuracy in estimating calories (i.e., ability to estimate within 50 calories of the calculated amount).

Ontario fast-food menu transparency is now in place due to government regulations. It has been speculated (Cantor *et al.*, 2015) that as the presence of calories on menus becomes commonplace, as opposed to the exception, with time, one might expect that consumers either start to have a better sense of food calorie content or that this calorie information will blend into the background (i.e. even though the calories are in front of them on the menu board many consumers will no longer absorb the information). Bleich *et al.* (2015) observed that in the United States, restaurants that voluntarily began to label food calories early and who had increased transparency, showed a decrease in calories per menu item over time.

Bringing more visibility to calorie content in Ontario fast-food restaurants is expected to result in more informed food decisions in the long run, and perhaps encourage restaurants

to put more consideration into calorie levels (and nutritional values) when developing new menu items, knowing that this information will now be highly visible to the consumer.

Droms Hatch (2016) has suggested that perhaps additional calorie information will only ever influence the small subgroup of consumers who say they already look for the calorie information when making food choices. Those consumers will certainly benefit from having the calorie information more accessible but that sub-segment may also already be using their mobile technology when making their choices since many websites offer calorie information on popular fast foods. The segment that is interested and looks for calorie information, but with less dedication before ordering, would probably benefit the most. For example, seeing on a menu board in the restaurant the difference in various coffee choices (e.g., at Starbucks an Iced Americano Grande (no milk) contains 15 calories while a White Chocolate Mocha Frappuccino Grande (whole milk, whipped cream) contains 520 calories) would certainly influence choice in the segment of the population generally interested in keeping their calorie consumption under control.

While mandated calorie labelling on Ontario menus is a step in the right direction, especially in terms of menu transparency, it may only be one of the many initiatives required to improve the overall nutritional knowledge of the general consumer. Crockett *et al.* (2018) suggest that restaurant menu labelling should be used as part of a wider set of measures to tackle the obesity issue. They also indicated that no harm or unintended consequences (e.g., higher consumption of a high energy food) to the consumer from calorie labelling had been reported in the literature.

The cheeseburger was chosen for the survey since it is one of the most popular and widely ordered fast-food restaurant choices and thus could offer an indication of how well an adult consumer could gauge the calorie content of a typical food item ordered in a fast-food restaurant. While this is a challenging food item to estimate calories for, the image was identical throughout the research waves, and after the menu labelling was legislated, consumers would reasonably have been exposed to a variety of cheeseburger calorie labels, over the 6-month post-implementation time frame. A limitation of this online study is that the respondents only saw one food image for estimating calories, rather than multiple simpler food images (e.g., an apple, a slice of bread, a glass of milk) or a complete fast-food meal (e.g., burger with fries and a soft drink). Additional research (including in-person and in-restaurant) examining numerous food items (both simple and complex) would yield a more comprehensive picture of consumer calorie knowledge.

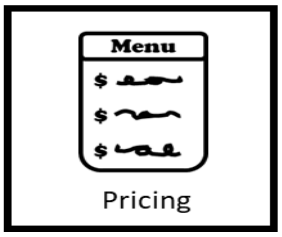
Most consumers, not just in Ontario, are poor at estimating calories. Hopefully, measurable improvements from calorie education will result in the future since there will be increased consumer exposure to calorie information due to the new mandatory listing of calories on Ontario menus.

7.8 Conclusions

In conclusion, the present study contributes to the literature in the under-researched area of food design and product perception, including gender differences in fast-food perceptions. By surveying consumers in Australia, Canada, the UK, and the US, this study illustrates how a small product change in an image can shift a consumer's food perceptions. Most consumers were poor at estimating calories and overall perceptions of the food were influenced by a minor product change.

The calculated calorie content based on the burger description was 495 calories and of the control (non-Ontario) respondents and Ontario respondents, 78% and 77%, respectively, were unable to estimate the burger's caloric content within ±10% (i.e., ~50 calories). No statistical difference was observed between the estimates of Ontario respondents and control respondents prior to the implementation of the Ontario "Healthy Menu Choices Act" or 3 months post-implementation. In the most recent survey (July 2017) there was a statistical difference (p = 0.001) between the overall mean calorie estimate of the Ontario group versus the control (non-Ontario) group. This may be an early sign that calorie labelling is shifting consumer knowledge. In addition, no statistical difference in calorie estimates was observed based on the subgroups of age, number of children, and primary household grocery shopper status. Repeated exposure to the calorie information now posted on most Ontario fast-food menus is an educational initiative expected to show benefits in the future, but additional time is required for measurable increases in consumer knowledge.

As the populations in Australia, Canada, the UK, the US, and other parts of the world struggle with obesity and its attendant health problems, there is interest in gaining more insights into how products such as fast-food burgers, which are inexpensive and popular, are advertised and thus perceived in terms of their calorie content and healthiness. How consumers are influenced by fast-food food images is an important potential target for consumer nudging considerations.



Chapter 8 - Nudging through pricing or branding of healthy food items

8.1 Research Objective

While there is a general lack of data on 'how and why' parents make food choices for their children in a fast-food restaurant environment, especially in terms of younger children (age < 6) (McGuffin *et al*., 2015), there are even fewer studies that specifically examine pricing effects as a way of encouraging the selection of healthier fast food choices (Waterlander and Zenk, 2015). Chapter 7 explored if menu calorie visibility had an effect on food choices and the current chapter explores the effect of menu pricing on choices.

This research examines two approaches to nudges for healthier food choices. Phase One explores pricing as a nudging tool, and if incentive or punitive prices could be a promising lever to shift behaviours. Phase Two explores branding healthy items, and if a branded healthy food item could positively influence how children perceive the healthy item. This exploratory study was to examine young children's perspectives of branded and unbranded healthy fast-food side options, by using card sorts, to explore how they categorize these foods and how they describe their rationale.

8.2 Introduction

Price is often mentioned as a barrier in healthy food choices in general and thus, not surprisingly, there is less uptake if the price is higher for the healthier food item (Basch *et al.,* 2013). When fast food restaurants offer healthier options at the same price, there is often a significant difference in the raw material cost for the healthier item and this can affect the restaurant's bottom line. Many fast-food restaurants, such as McDonald's, Burger King, and Wendy's, offer healthier options as alternatives that can be substituted in a child meal bundle at no price differential to the customer. However, despite this offer of a healthier option, at no additional price, the restaurants have frequently found that the uptake of these healthier choices for the child meal bundle is minimal (Bleich *et al.,* 2016).

In another recent study of intended fast food purchases, and one of the first randomized trials incorporating a subpopulation of parents with children (Yoong *et al.,* 2015), it was found that just the provision of healthy items on a menu as an alternative was not enough to change parent purchasing behaviour. They suggested that the price of the healthier item could be a potential reason for lack of selection.

A better understanding of how pricing could be used to nudge healthier food choices could help in developing future in-restaurant intervention strategies. This study's goal was to add knowledge to this under-researched area.

Is there a difference in stated intent of what parents choose for their child's meal based on positive financial incentives to choose a healthier option versus a deterrent tax for choosing an unhealthy option? The healthier food option examined was the substitution of apple slices for french fries in the child meal bundle at a hypothetical large national fast-food restaurant in Canada.

The impact of branding healthy items on very young children's perceptions has rarely been examined. Most of the research on branded food items has focused on high calorie processed foods.

Research has shown mixed results when examining branded food items and children's food preferences and consumption patterns. Gelperowic and Beharrell (1994) addressed the role of the packages appeal to children and mothers′ purchase decisions for healthy food products. Recently, Hartman (2017) examined branded snack choices of children (age 8 to 11) and demonstrated that preference by product type is the greatest influence on children's snack purchase decisions. A child's liking of a brand determines whether a brand is successful at motivating a child of this age to choose a product.

Food marketing is primarily used to promote energy-dense, nutrient-poor foods. With children as young as 4 years of age able to recognize brands (McAlister and Cornwell, 2010; Watkins *et al.,* 2017), and branded products having been shown to influence food choices (Young, 2003; Halford *et al.,* 2007; Gunnarsdottir and Thorsdottir, 2010; Kottler *et al.,* 2012; Boyland and Halford, 2013), it was of interest to study whether the branding used for fast foods could have a positive (or negative) impact on the perceptions of some healthy foods.

Card sorts have been used with young children to demonstrate how they characterize foods from their own perspectives (Wiseman and Harris, 2015; Adams and Savage, 2017; Althubaiti *et al.,* 2017). While this technique limits participants to the items depicted in the card deck, including an open sort (no structured categories) with the closed sorts (structured categories), it allows for the children to freely categorize the items into their own groupings, providing grounded insights into how the cards cluster. Card sorts, in food research with children, are one approach to understand how children categorize foods (Weller and Romney, 1988; Beltran *et al.,* 2008; Sepulveda *et al.,* 2009).

Jaeger *et al.* (2017) demonstrated that emojis can be used to measure foods in a subjective non-verbal manner. Gallo *et al.* (2017) demonstrated that children can use a combination of emotion words and emojis to describe their reactions to foods.

While some research has looked at children aged 8 to 11, and tied product type, brand, and pricing together (Hartmann *et al.,* 2017), less research has been conducted with younger children (aged 4 to 6), for whom the images of the options may be more influential.

8.3 Methods phase one – Nudging through pricing

A survey-based study was used to investigate the use of pricing (incentive and punitive) to shift the purchase decision intent of parents when they order food for their child in a fast-food restaurant.

The survey was undertaken in three phases. Phase 1 examined stated intent of side dish ordering and dessert orders for a child meal bundle. Phase 2 tested an incentive approach to shifting side dish orders. Phase 3 tested a deterrent approach to shifting side dish orders.

8.3.1 Respondents

The 400 respondents were parents of at least one child under the age of 18, and were a diverse mix of age, geography (Canadian provinces), education level, and income level. The sample was 50/50 male/female and included both millennial parents (age 18-35 years) and Gen X parents (age 36-54 years). Respondents were recruited from a paid Toluna survey panel. Standard demographic questions used to select the respondents can be seen in Appendix A.

8.3.2 Survey Phase 1

For the first phase, 100 respondents were provided with a hypothetical scenario in which they were asked to consider that as a parent, if they took their own child to a large national fast-food restaurant and ordered a child's meal for their child, if there was no difference in price, whether they would order french fries or apple slices as the side dish for their child (Box 8.1). The order of the side dishes was randomized to account for order bias.

A large national fast-food restaurant is interested in promoting healthy eating in children. Currently, they sell a child's meal for $3.99. The typical child's meal contains a drink (milk or a small soft drink), an entrée (a cheeseburger, a hamburger or chicken nuggets) and a side (apple slices or french fries). If you took your child to eat a child's meal at this large national fast-food restaurant, which side would you most likely choose for your child?

- *Apple Slices*
- *French Fries*

Box 8.1 Phase 1 side dish research question.

To further explore whether selecting a perceived healthier side dish for the child's meal resulted in any subsequent changes in ordering, the parent, after selecting the side dish for their child, was told that the restaurant chain offered a choice of desserts with the child's meal. They were asked to choose between a small ice cream cone and an organic low-fat yogurt (the perceived healthier option) for their child's dessert (Box 8.2). Dessert options were randomised to account for order bias.

The large national fast-food restaurant mentioned in the previous question, is planning it expand the child's meal to include a dessert item. If you took your child to eat a child's meal at this national fast-food restaurant, which dessert item would you most likely choose for your child?

- *Organic Low-Fat Yogurt*
- *Small Ice Cream Cone*

Box 8.2 Phase 1 dessert research question.

8.3.3 Survey Phase 2

For the second phase, to investigate whether the provision of a discount as an incentive would change the stated intent of what a parent would order for their own child, 100 respondents were asked to review a scenario in which they imagined themselves with their own child at a large national fast-food restaurant. In the scenario, they were provided with a financial discount if they chose the apple slices over french fries as the side dish in the child's meal. They were asked if the various financial discounts would shift their purchase decision.

The discount options (5, 10, 15, 20, 25%) were described to the respondents both as a percentage of the price of the meal as well as the total dollar amount saved (in Canadian currency in all scenarios) (Box 8.3).

A large national fast-food restaurant is interested in promoting healthy eating in children. Currently, they sell a child's meal for $3.99. The typical child's meal contains a drink (milk or a small soft drink), an entrée (a cheeseburger, a hamburger or chicken nuggets) and a small side of french fries. While the restaurant currently offers apple slices as a substitute for french fries, they want to increase the number of parents that choose apple slices instead of french fries for their children.

If you took your child to eat a child's meal at a fast-food restaurant, which of the following options would change the type of side dish that you normally order for your child from french fries to apple slices?

- *My child already eats apple slices instead of french fries, as a part of their child's meal.*
- *A 5% price discount would convince me to change my child's order to apple slices instead of french fries (The child's meal would cost $3.79, instead of $3.99, saving you $0.20)*
- *A 10% price discount would convince me to change my child's order to apple slices instead of french fries (The child's meal would cost $3.59, instead of $3.99, saving you $0.40)*
- *A 15% price discount would convince me to change my child's order to apple slices instead of french fries (The child's meal would cost $3.39, instead of $3.99, saving you $0.60)*
- *A 20% price discount would convince me to change my child's order to apple slices instead of french fries (The child's meal would cost $3.19, instead of $3.99, saving you $0.80)*
- *A 25% price discount would convince me to change my child's order to apple slices instead of french fries (The child's meal would cost $2.99, instead of $3.99, saving you $1.00)*
- *I would always order french fries instead of apple slices for my child. No discount in the price of the meal would change my mind.*

Box 8.3 Phase 2 financial incentive question.

8.3.4 Survey 1 Phase 3

For the third phase, to investigate the up-charge (punitive) option, as before 100 respondents were asked to review the same restaurant scenario but were provided with a number of financial deterrents if they chose french fries over apple slices as the side dish in the child's meal. They were asked if various financial deterrents (5, 10, 15, 20, 25%) would shift their purchase decision. The deterrent options were described as both as a percentage of the price of the meal, as well as a total dollar premium added to the price of the meal (Box 8.4).

A large national fast-food restaurant is interested in promoting healthy eating in children.

Currently, they sell a child's meal for $3.99. The typical child's meal contains a drink (milk or a small soft drink), an entrée (a cheeseburger, a hamburger or chicken nuggets) and a small side of french fries.

While the restaurant currently offers apple slices as a substitute for french fries, they want to increase the number of parents that choose apple slices instead of french fries for their children. To encourage parents to choose apple slices instead of french fries for their children, the restaurant is planning to add an up-charge if french fries are chosen as a part of the child's meal.

The new menu pricing will be:

$3.99 for a child's meal with a drink, an entree and apple slices +an up-charge to substitute french fries instead of apple slices.

If you took your child to eat a child's meal at a fast-food restaurant, which of the following options would change the type of side dish that you normally order for your child from french fries to apple slices.

- *My child already eats apple slices instead of french fries, as a part of their child's meal.*
- *A 5% up-charge would convince me to change my child's order to apple slices instead of french fries (The child's meal would cost $4.19, instead of $3.99, charging you an additional $0.20 for substituting french fries instead of apple slices)*
- *A 10% up-charge would convince me to change my child's order to apple slices instead of french fries (The child's meal would cost $4.39, instead of $3.99, charging you an additional $0.40 for substituting french fries instead of apple slices)*
- *A 15% up-charge would convince me to change my child's order to apple slices instead of french fries (The child's meal would cost $4.59, instead of $3.99, charging you an additional $0.60 for substituting french fries instead of apple slices)*
- *A 20% up-charge would convince me to change my child's order to apple slices instead of french fries (The child's meal would cost $4.79, instead of $3.99, charging you an additional $0.80 for substituting french fries instead of apple slices)*
- *A 25% up-charge would convince me to change my child's order to apple slices instead of french fries (The child's meal would cost $4.99, instead of $3.99, charging you an additional $1.00 for substituting french fries instead of apple slices)*
- *I would always order french fries instead of apple slices for my child, regardless of the price.*

Box 8.4 Phase 3 financial deterrent question.

8.3.5 Survey 2 Phase 3

Another 100 respondents were given a slightly different question. As french fries are only a small portion of the child's meal, a specific question of an amount easy to visualise was used (i.e., a $0.25 up-charge). The single deterrent question was phrased 'If you took your child to eat a child's meal at this fast-food restaurant, would the $0.25 up-charge for the french fries change what you ordered?' (Box 8.5).

A large national fast-food restaurant is interested in promoting healthy eating in children. Currently, they sell a child's meal for $3.99. The typical child's meal contains a drink (milk or a small soft drink), an entrée (a cheeseburger, a hamburger or chicken nuggets) and a small side of french fries. While the restaurant currently offers apple slices as a substitute for french fries, they want to increase the number of parents that choose apple slices instead of french fries for their children. To encourage parents to choose apple slices instead of french fries for their children, the restaurant is planning to charge an additional $0.25 if french fries are chosen as a part of the child's meal. The new menu pricing will be: $3.99 for a child's meal with a drink, an entree and apple slices +$0.25 to substitute french fries instead of apple slices.

If you took your child to eat a child's meal at this fast-food restaurant, would the $0.25 up-charge for french fries change what you ordered for your child?

- *My child already eats apple slices instead of french fries as a part of their child's meal. The pricing change would not change our order.*
- *A $0.25 up-charge for french fries would change what I order for my child. I would rather order the apple slices for my child than pay the $0.25 up-charge for french fries.*
- *A $0.25 up-charge for french fries would NOT change what I order for my child. I would order the french fries for my child and I would pay the $0.25 up-charge.*
- *I would always order french fries instead of apple slices for my child, regardless of the price.*

Box 8.5 Single price specific deterrent question.

8.3.6 Data analysis

Statistical analysis using chi-squared testing compared the incentive approach to the deterrent approach to determine which pricing approach would have a greater impact on the percentage of parents that choose apple slices over french fries. In addition, one-way ANOVAs were performed to identify possible differences between subgroups, using the statistical software package IBM SPSS Version 22.0.

8.3.7 Ethics approval

Ethics approval was obtained from the Harper Adams University Research Ethics Committee.

8.4 Results phase one – Nudging through pricing

This particular study consisted of three phases. The first phase examined stated intent of side dish ordering and dessert orders for a child's meal. The second phase tested an incentive approach to shifting side dish orders. The third phase tested a deterrent approach to shifting side dish orders. Results are presented based on the three phases.

8.4.1 Respondent characteristics

Respondents (n = 400) were not eligible to complete more than one phase of the research. They were all Canadian residents, age 18 or above. There were equal numbers of males and females, and all had at least one child currently living in the household. The average age of the respondent was 37.6 years. Households ranged in size from one to six children, with the majority of respondents having one child (53%) or two children (34%).

8.4.2 Phase 1: Side dishes

In Phase 1, 100 respondents were provided with the hypothetical scenario where they were asked to consider themselves as a parent who took their own child to a large national fast-food restaurant. In that hypothetical fast-food restaurant they were to order a child's meal for their child. Then, if there was no difference in price, whether they would order french fries or apple slices as the side dish for their child. With no financial penalty or incentive associated with the food side choice made for their child, 38% of parents stated they would order apple slices for their child and 62% stated they would order french fries.

A chi-squared test was performed to evaluate if the side dish item chosen by parents was influenced by parental demographics. Most demographic subgroups demonstrated no difference in side selection for their child, [including gender (p = 0.248), education level (p = 0.928), ethnicity (p = 0.472), household income (p = 0.438), and total number of children (p = 0.089)]. However, parents under the age of 35 years were more likely to select apple slices as a side dish for their child than parents over the age of 35 years (p = 0.034), where statistically significant difference was defined as $p < 0.05$ (Table 8.1).

Table 8.1 Side dish selected by parental age.

Respondent group	*n*	Apple slices	French fries
Parents 18-34 years old	40	51%	49%
Parents ≥ 35 years old	60	27%	73%
All parents	**100**	**38%**	**62%**

8.4.3 Phase 1: Subsequent dessert selection

To further explore whether selecting a perceived healthier side dish for the child's meal resulted in any subsequent changes in ordering, the parent, after selecting the side dish for their child, was told that the restaurant chain offered a choice of desserts with the child's meal. When parents were asked to choose between a small ice cream cone and an organic low-fat yogurt (the perceived healthier option) for their child's dessert, a chi-squared test indicated that the parents who chose french fries for the side dish for their child, chose the option of an ice cream cone more often than the low-fat yogurt for their child's dessert (p = 0.010) (Table 8.2). Similarly, parents who choose apple slices as the side dish, chose the perceived healthier option of low-fat yogurt as the dessert option more often than ice cream.

Table 8.2 Chosen dessert item selected with apple or french fry side order.

Respondents (percentage)	Chosen side and dessert combinations
42%	French fries and ice cream cone
22%	Apple slices and organic low-fat yogurt
20%	French fries and organic low-fat yogurt
16%	Apple slices and ice cream cone

8.4.4 Phase 2: Incentive approach

When asked whether the provision of a discount as an incentive would change the stated intent of what a parent would order for their own child, similar to the Phase 1 survey, parents under the age of 35 were more likely to choose apple slices for their child, with 34% of parents < 35 years of age responding that no financial incentive was required. They would already choose apple slices as a side dish for their child, while for parents over the age of 35 years, only 16% would choose apple slices as a side dish for their child with no financial incentive (Figure 8.1).

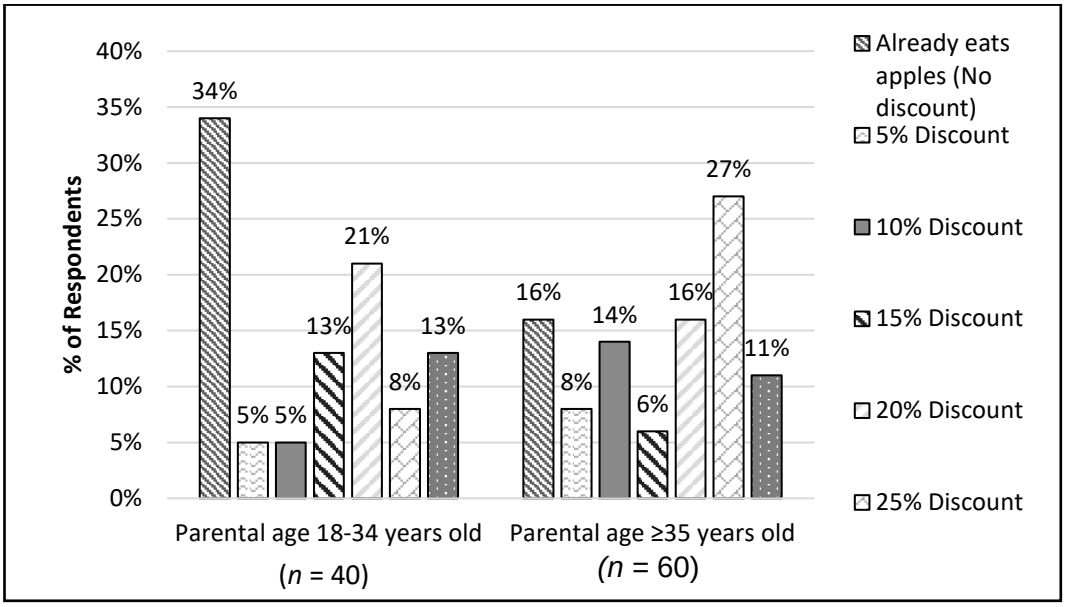


Figure 8.1 Incentive response to discount for healthier side option by parental age 18-34 years old and parental age ≥ 35 years old.

When demographics other than age were examined, using a chi-squared test and a one-way ANOVA, no statistically significant differences were detected between respondent subgroups based on gender (p = 0.307), ethnicity (p = 0.335), household income (p = 0.779), education level (p = 0.610), or number of children in the household (p = 0.753).

A 15% discount was required in order to persuade 50% of the population to have apple slices as the side dish that they would purchase for their own child. Table 8.3 shows the cumulative percentage of respondents that would choose apple slices over french fries based on the proposed financial discount. For example, a 10% discount on the overall price of the meal would result in 18% of the total respondents indicating that they would have normally chosen french fries as a side dish but would change their side dish choice to apple slices.

A discount of ≥ 15% on the overall meal price appears to be the financial incentive that would be required for half of the respondents to choose apple slices as the side dish for their child. On a $3.99 child's meal, a 15% discount is a saving of $0.60 (paying $3.39 instead of $3.99 for the meal).

Table 8.3 Cumulative percentage of respondents that would choose apple slices over french fries based on the proposed financial discount.

Proposed discount needed for respondent to change their order from french fries to apple slices.	The percentage of respondents that would select apple slices at the stated discount level.	Cumulative percentage of respondents that would select apple slices, based on the escalating discount level.
0% Discount (would order apple slices even if no discount was offered)	23%	23%
5% Discount	7%	30%
10% Discount	11%	41%
15% Discount	9%	50%
20% Discount	18%	68%
25% Discount	20%	88%
Respondents would always order french fries	12%	

8.4.5 Phase 3: Punitive approach

Using a graduated punitive pricing approach, with 100 respondents and a 5% up-charge ($0.20), a 15% shift in the number of respondents that would select apple slices as a result of the up-charge could be observed (Table 8.4).

Table 8.4 Cumulative percentage of respondents (*n* = 100) that would choose apple slices over french fries based on the proposed financial deterrent.

Proposed up-charge required for respondent to change their order from french fries to apple slices.	The percentage of respondents that would select apple slices at the stated up-charge level.	Cumulative percentage of respondents that would select apple slices, based on the escalating up-charge level.
0% Up-charge (would order apple slices even if there was no pricing deterrent)	18%	18%
5% Up-charge ($0.20)	**15%**	**33%**
10% Up-charge ($0.40)	11%	44%
15% Up-charge ($0.50)	14%	58%
20% Up-charge ($0.80)	16%	74%
25% Up-charge ($1.00)	13%	87%
Respondents would always order french fries.	13%	

Based on these results, another 100 respondents were surveyed using an up-charge of $0.25, a familiar Canadian coin amount to visualize. As shown in Table 8.5, 36% of the respondents would avoid paying the additional $0.25 up-charge, by choosing apple slices for their child when faced with this punitive pricing approach.

Table 8.5 Distribution of responses to the punitive $0.25 up-charge.

Percentage of respondents*	Response options to up-charge question
14%	My child already eats apple slices instead of french fries as a part of their child's meal. The pricing change would not change what I would order.
36%	A $0.25 up-charge for french fries **would change** what I order for my child. I would rather order the apple slices for my child than pay the $0.25 up-charge for french fries.
38%	A $0.25 up-charge for french fries **would NOT change** what I order for my child. I would order the french fries for my child and I would pay the $0.25 up-charge.
13%	I would always order french fries instead of apple slices for my child, regardless of the price.

*Due to rounding, percentages may not always appear to add up to 100

An analysis of the demographic subgroups demonstrated no statistical differences in subgroup behaviour, including responses from parents based on the two age groups (i.e., ≥ 35 years old and < 35 years old).

8.5 Methods phase two – Nudging through branding

A card sort exercise with branded and unbranded images of elements often included in child fast-food meal bundles was conducted. Participants completed both an unstructured open card sort and four closed card sorts.

8.5.1 Pilot testing

The cards were tested with 4 children within the same age group (4, 5, 6, and 6 years old), to ensure that the task was easy to understand, that the cards were sized correctly, that the images were clear, the foods selected were recognizable, and that the questions were reasonable for a child of this age group to answer. In pilot testing, similar aged children completed a full card sort, and the methodology was reviewed and revised to improve the data collection process.

8.5.2 Age group

Card sort exercises have been used for other published research studies for this age group in the past. This methodology works well with children too young to read, but able to understand and articulate choices. Food preferences can be established as infancy and prior to age 7, children are young enough to not yet enter the phase of more autonomous food decisions, and the parent is still the primary gate keeper of food related decisions. The explanation of the task was tested in the pilot phase, revised, and scripted. In addition, the interviewer answered any questions asked by the children during the cart

sort exercise. In the study, the children appeared to easily understand the task, found it engaging, and were comfortable discussing their thoughts on the foods.

8.5.3 Participants

Of the 20 children that participated in the study, 8 were boys and 12 were girls. Children were age 4-6 years (mean age of 5.1 (± 0.9) years). The children were predominantly Caucasian (80%), and most had two parents living at home (95%). The children were recruited from a convenience sample in Toronto, Canada, in 2017. Eligibility criteria included no dietary restrictions and a familiarity with eating in fast-food restaurants. One parent of each participant provided written informed consent and at least one parent was present during the card sort exercise.

8.5.4 Research setting

Interviews were conducted in the homes of the children to provide the child with a familiar environment. Parents provided a quiet space for the interview, either at the dining room table or on the floor of the living room. Space was cleared so that the child had ample room to sort the cards. Distractions were minimized (no TVs, tablets, or music playing), with no branded food items within line-of-sight. At least one parent was present but removed from the immediate area to minimize parental influence. They could see their child, but the child could not easily see the parent (for example, a parent might have been across the room, but behind where the child was facing).

8.5.5 Card design

Two card decks were developed by the researchers. These cards were colour-printed on laminated card stock (8 cm x 8 cm). Cards were sized to be easy for a 4 to 6-year-old child to hold and sort. The card sort activity involved the child sorting a deck of cards, pre-printed with photos of food items. Cards were sorted into an open sort first (with groups created by the child) and then into a series of closed sorts (with groups predetermined by the researcher).

8.5.5.1 Card sort deck one

The first card sort deck was a single food item (an apple) in seven forms. There were three unbranded formats: a whole apple, apple slices, and apple slices in an opaque snack sized unbranded bag and four branded apple slices in opaque snack sized bags (Figure 8.2).

A single apple colour (red) was selected to limit the number of variables. In the Canadian marketplace, fast food restaurants typically sell red sliced apples as part of the child meal bundle.

Figure 8.2 Images from the apple card sort. Image of (a) whole apple, (b) apple slices, (c) bagged apple slices with no branding, and (d) bagged apple slices with logo branding (left to right) of a generic cartoon character logo, the McDonald's logo, the Starbucks logo, or the Subway logo. All pictures for the card sort were created by the researcher using Adobe Photoshop CC software.

The opaque bag format was chosen as it is a common format in how apple slices are sold in fast-food restaurants and in grocery stores in Canada. It was therefore anticipated that the children would be familiar with this format. Five options were included in the apple slices-in-a-bag format, including: unbranded (labelled "Apples Slices"), one with a generic cartoon apple logo, and three versions using common QSR brands that have offered apple-in-a-bag options. These were McDonald's, Starbucks, and Subway. The design of the apple slices-in-a-bag images were identical, except for the logo.

8.5.5.2 Card sort deck two

The second card sort deck was comprised of nine different common food items. The cards are shown in Figure 8.3.

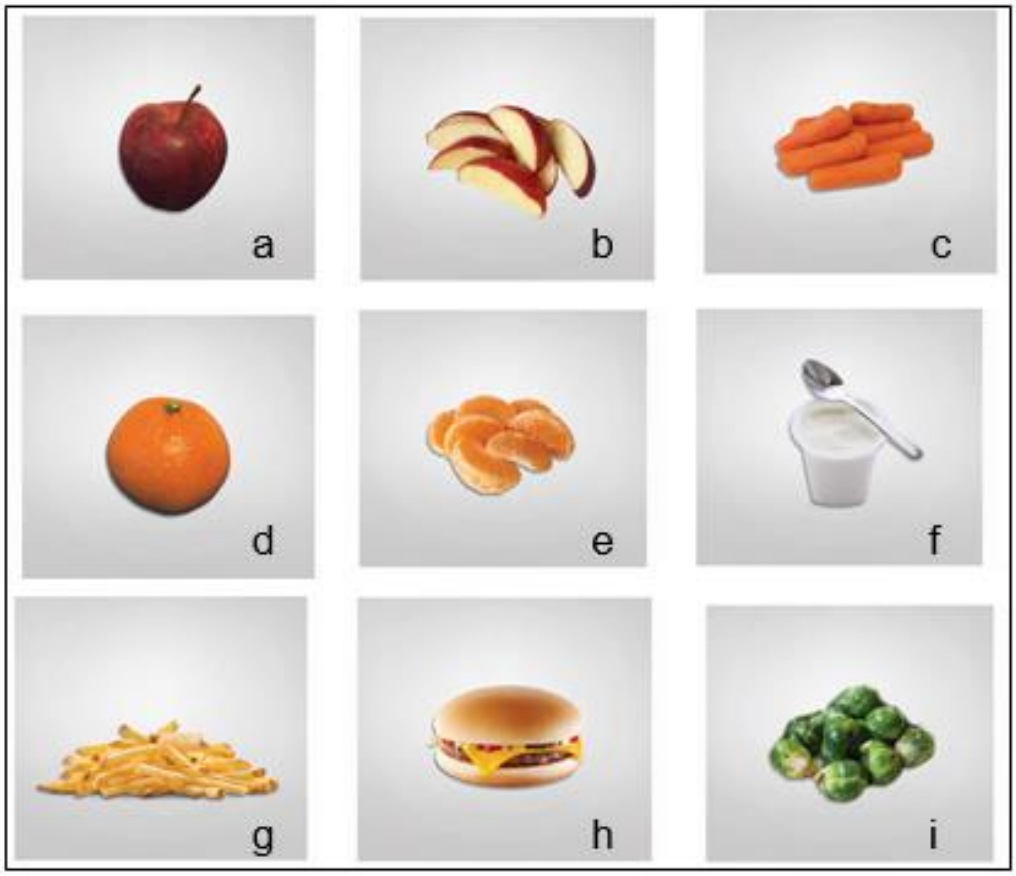


Figure 8.3 The nine images used for the mixed food card sort were: (a) an apple, (b) apple slices, (c) baby carrots, (d) whole orange, (e) orange slices, (f) yogurt, (g) french fries, (h) cheeseburger, (i) brussels sprouts.

The items chosen were common offerings available in fast-food child meals: a whole apple, a sliced apple, a whole orange, orange segments, baby carrots, a cheeseburger, french fries, and a yogurt cup. The images were designed to be comparable in perceived size. For example, there were seven slices of apple on the card with the apple slices on it, which is the equivalent of one whole apple, and on the card with the baby carrots, there were also seven baby carrots, so that the number of food pieces did not bias the response. In addition, an image of brussels sprouts was included in the deck. While brussels sprouts are not offered in a fast-food child meal, the image was intended to provide an anchor point of reference for the child.

8.5.5.3 Visual scale

A third series of cards (Figure 8.4) was used for the closed card sorts, to provide participants with a visual response scale.

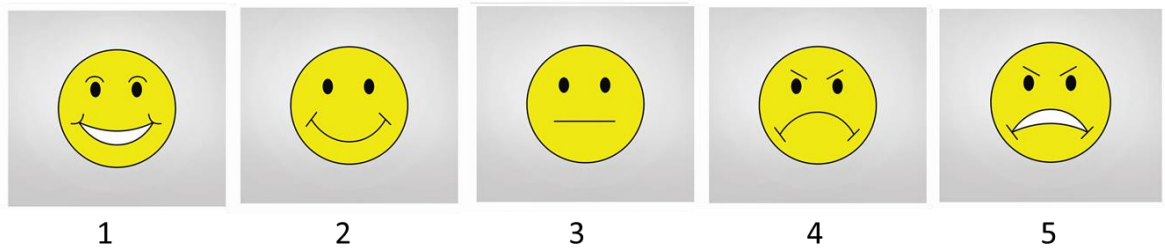


Figure 8.4 Five-point visual emoticon scale for closed card sort.

This response option was designed based on commonly used scales for this purpose (ASTM E2299-03) appropriate for children and easy to understand. A 5-point scale of emoticon faces was used to represent a 5-point measurement scale for the closed card sorts. For each of the four closed sorts, the interviewer identified what the ends of the scale represented, for example, for the first closed sort, children sorted food based on what they thought tasted 'good/yummy' to food they thought tasted 'not good/yucky'.

8.5.6 Interviews

Parents provided a quiet space for the interview, either at the dining room table or on the floor of the living room. Space was cleared so that the child had ample room to sort the cards. Distractions were minimized (no TVs, tablets, or music playing), with no branded food items within line-of-sight.

The interview began with an open sort, with no structured categories, followed by four sorts with closed categories. After the open methods sort, for the closed sorts, the visual scale was added to the work space to assist the child in the sort.

During the interviews, participants completed a series of five card sorts per deck, 10 sorts in total. Five sorts were completed with deck one (Figure 8.2), followed by five sorts with deck two (Figure 8.3). Given the young age of the participants, the number of cards was intentionally limited, and the length and depth of the interview was guided by the engagement of the child.

The five sorts are listed below.

1. Open methods sort: the child sorted the food cards into groups of their choice.
2. Closed methods sort: the child sorted the food cards into piles based on taste (best taste to worst taste).
3. Closed methods sort: the child sorted the food cards into piles based on perceived healthiness (most healthy to least healthy).
4. Closed methods sort: the child sorted the food cards into piles based on what they thought their mother would like them to eat (my mother wants me to eat this to my mother does not want me to eat this).
5. Closed methods sort: the child was asked if they had a second adult in their home living with them (for example, a father, a second parent). If there was a second adult in the child's home, the child was asked to sort the food cards into piles based on what the other adult might like them to eat (they want me to eat this to they do not want me to eat this).

The cards were shuffled prior to each sort. Any questions that the child had about the cards were answered by the interviewer (for example, confirming that each depicted bag had the same number of apple slices in it). For the open sort, the child could create as many or as few piles as the child wanted, and a pile could have only one item, or none, if that was what the child wanted.

After sorting, the interviewer asked the child to describe each pile they had created. The interview was audio recorded using an iPhone6 and the voice memo function. Photographs were taken of each card sort. The photographs captured how the cards were sorted on the table and were added to the field notes. No identifying characteristics of the participants were captured. After the interview, the audio file was transcribed and the sort order was captured from the field photographs. The interviews took 10 to 22 minutes per child.

8.5.7 Analysis of qualitative data

A grounded theory approach, which identifies emerging themes directly from qualitative research data (i.e. the verbatim transcripts), was used for analysing the output. This methodology allowed for theory to be generated directly from the data. Generating the theory and doing the research were two parts of the same process.

8.5.7.1 Identification of major themes

The transcribed interviews were reviewed for identification of major themes. Participant quotes were chosen to describe each major theme and were selected across a range of participants to ensure representation from the sample population. The study was limited to 20 respondents, since while reinforcing themes from previous interviews, with respondents 17 to 20 no new themes arose.

8.5.8 Analysis of quantitative data

Based on the placement of the cards under the visual scale, cumulative scores were calculated as a total score summing the emoticon 5-point scale, where responses to questions were: 5 = most positive, 4 = positive, 3 = neutral, 2 = negative, 1 = most negative. Cumulative scores were compared by food item.

8.5.9 Ethics approval

Ethics approval was obtained from the Harper Adams University Research Ethics Committee.

8.6 Results phase two – Nudging through branding

Results are presented based on the following: (1) branded and unbranded apples and on (2) nine assorted foods.

8.6.1 Deck one card sort - apples

All children recognized and easily identified the whole apple and apple slices. While they did not necessarily recognize the brands on each bag of apple slices, they were able to recognize that it was a picture of a bag of something apple-related and that it came from a store or a restaurant. All of the children were able to identify at least one of the brands.

8.6.1.1 Open sort exercise

During the unstructured card sort, children were instructed to sort the apple cards into piles of things that were the same and things that were different. The children could make as many or as few piles as they wished. The children after sorting the images of apples into similar and different foods were asked to explain their groupings; 18 of the 20 children completed an identical sort. The whole apple and the slices of apple were one group and all of the bagged apples were placed in a second group. The whole apple and non-bagged sliced apple were identified as a similar food, but it was not always clear to the children what was in the apple bags.

From the perspective of the children, the apples in the bags, regardless of the brand, were distinctively different from the whole apple or apple slices not in a bag.

> *'Is it dried apples? Apple slices? Apple sauce? I can't tell. Only that it is different from these' [points to the whole apple and the non-bagged sliced apple] (boy, 5 years old)*

8.6.1.2 Closed sort exercise

Most children (75%) thought that they would like the taste of the whole and sliced apples and classified both as healthy food choices. While for the sliced apples in bags, there was less consistency as to whether the children thought the slices would taste good, if the slices were healthy, and if the slices were something that they thought a parent would want them to eat. Results of the card sort are presented in Table 8.6.

When taking into account the combination of the perceived scores, i.e., the sum of the child's taste, health, mother's choice and other parent's choice, the whole apple scored higher than all the other apple variations (Figure 8.5). Of note, the cartoon branded apple slices had a higher cumulative score than the unbranded apple slices, elevated by the child's belief that the mother would prefer this option over the unbranded slices.

Table 8.6 Child responses to apple sort using the emoticon scale.

Food Card	Mean Score*	Number of Responses				
						
Taste Scores						
Whole Apple	4.2	12	3	2	2	1
Sliced Apple	4.4	12	5	2	1	--
Sliced Apple-in-a-Bag (Unbranded)	3.3	6	3	5	2	4
Sliced Apple-in-a-Bag (Cartoon Apple)	3.6	7	4	5	2	2
Sliced Apple-in-a-Bag (McDonald's)	3.5	6	5	5	1	3
Sliced Apple-in-a-Bag (Starbucks)	3.4	8	2	3	4	3
Sliced Apple-in-a-bag (Subway)	2.7	4	3	3	2	8
Healthy Scores						
Whole Apple	4.9	18	2	--	--	--
Sliced Apple	4.3	12	4	1	--	3
Sliced Apple-in-a-Bag (Unbranded)	3.9	10	2	5	2	1
Sliced Apple-in-a-Bag (Cartoon Apple)	3.7	9	4	2	2	3
Sliced Apple-in-a-Bag (McDonald's)	3.6	6	4	6	3	1
Sliced Apple-in-a-Bag (Starbucks)	3.7	9	6	--	--	5
Sliced Apple-in-a-Bag (Subway)	3.1	5	3	5	3	4
Mother would choose for child to eat						
Whole Apple	4.6	16	1	2	--	1
Sliced Apple	4.5	10	9	1	--	--
Sliced Apple-in-a-Bag (Unbranded)	3.4	6	3	5	4	2
Sliced Apple-in-a-Bag (Cartoon Apple)	4.0	9	5	3	2	1
Sliced Apple-in-a-Bag (McDonald's)	2.8	4	1	7	3	5
Sliced Apple-in-a-Bag (Starbucks)	3.4	7	5	2	5	1
Sliced Apple-in-a-Bag (Subway)	2.9	4	4	2	6	4
*Other parent/adult would choose for child to eat***						
Whole Apple	4.6	14	4	--	--	1
Sliced Apple	4.3	11	4	2	2	--
Sliced Apple-in-a-Bag (Unbranded)	3.4	8	1	4	3	3
Sliced Apple-in-a-Bag (Cartoon Apple)	4.1	12	2	--	4	1
Sliced Apple-in-a-Bag (McDonald's)	3.5	9	1	4	1	4
Sliced Apple-in-a-Bag (Starbucks)	3.3	8	2	2	1	6
Sliced Apple-in-a-Bag (Subway)	3.4	6	6	1	2	4

*A mean score was calculated based on the 5-point emoticon scale, where responses to questions were: 5 = most positive, 4 = positive, 3 =neutral, 2 = negative, 1 = most negative.

**For the first three closed sorts, the sample size was 20 children, and the last sort, based on 'other parent or adults in the household', was based on 19 children.

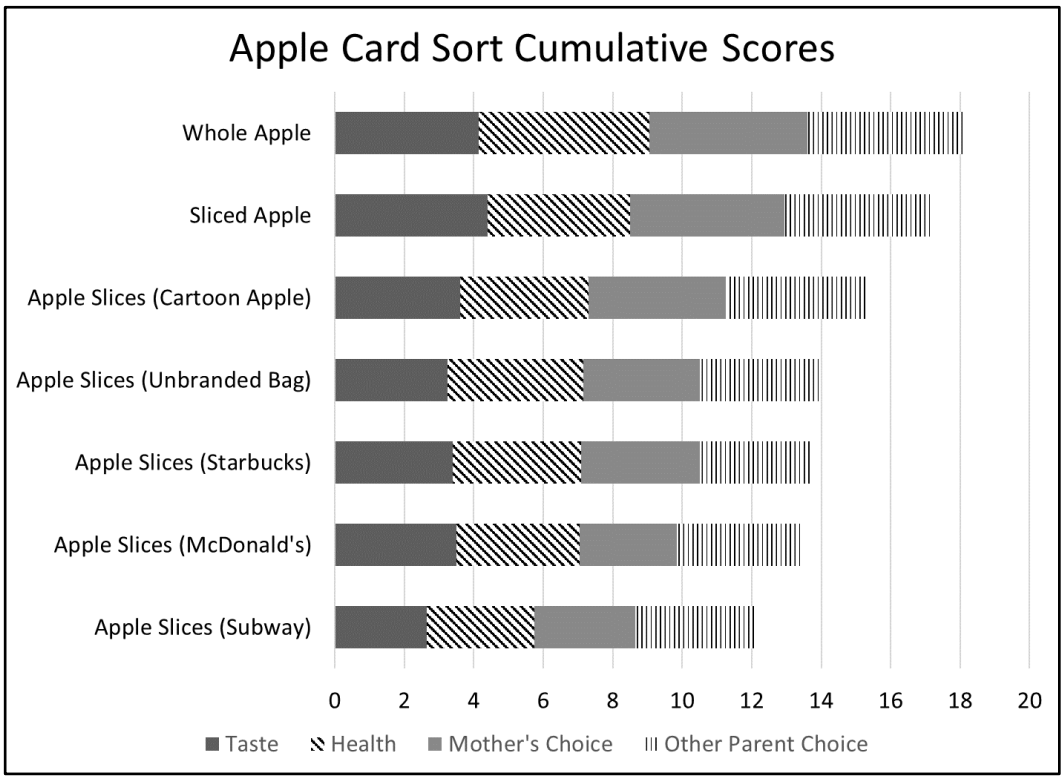


Figure 8.5 Cumulative scores of child responses to apple sort using the emoticon scale. (Cumulative score was calculated as a total score summing the emoticon 5-point scale, where responses to questions were: 5 = most positive, 4 = positive, 3 = neutral, 2 = negative, 1 = most negative).

8.6.2 Themes identified from discussions on apple card sort

The three major themes identified from the discussions during the closed apple card sort are outlined below.

8.6.2.1 Theme 1: Packaged apples in a bag are not the same as non-packaged apples

Similar to the open sort, it was clear that apples in bags were different from apples that were not in bags.

> *'If they are in a bag they would taste different.' (girl, 6 years old)*

> *'These look like they could come from a farm [points to whole apple and sliced apple] but you would not find these on a farm. These are from a store.' (boy, 6 years old)*

8.6.2.2 Theme 2: Brand sometimes influenced expected taste and experience

The branded apple options included McDonald's, Starbucks, and Subway, as well as an unbranded version and a version with a generic happy cartoon apple on the bag. Many of

the children recognized the McDonald's logo and the Starbucks logo, but very few recognized the Subway logo. Seeing the McDonald's logo, often led to comments about what other experiences McDonald's offered.

> *'McDonald's! You get toys there too. Cheeseburgers, french fries and toys!' (girl, 4 years old)*

While some children recognized the Starbucks logo by name, most referred to it as a coffee shop. Associating a coffee shop with apples was often not an intuitive fit for the children. For some, this meant that the apples would likely have a coffee taste.

> *'Those apples would taste yucky [points to Starbucks branded apple slices] because I think there's coffee there too.' (girl, 6 years old)*

One respondent, interpreted the word Subway, for the type of underground transportation known as a subway.

> *'Subway? Who would eat apples on the subway? That's gross.' (boy, 6 years old)*

8.6.2.3 Theme 3: Apples are healthy, except when they are not

Most children categorized the apples as healthy and tasty. However, all apples were not equally healthy.

For the whole apple, the children were quick to identify it as healthy (90%) and as something a parent would want them to eat. However, for branded apple slices, the distinction was not as clear.

> *'This apple is from McDonald's [places apple under the unhappy face] …McDonald's doesn't have very good food…momma doesn't want me to eat McDonald's food.' (girl, 6 years old)*

8.6.3 Deck two card sort - assorted foods

All children recognized and easily identified the food items, except for the brussels sprouts, which required clarification from the interviewer at times. The children recognized the brussels sprouts, but some could not remember the name of the food.

8.6.3.1 Open sort exercise with assorted foods

When asked to sort the food images into similar and different foods and to explain their groupings, a few common groupings were created by the majority of the children. Whole fruit was most often partnered with its segmented counterparts, for example the whole apple was most often grouped with the apple slices and the whole orange was most often grouped with the orange segments. The brussels sprouts were rarely grouped with other items. Children commented that nothing was similar to brussels sprouts. The cheeseburger was most often grouped with the french fries, and the interviewer probed further to see if other items might be associated with the cheeseburger, but additional groupings were not identified.

> *'French fries go with the cheeseburger.' (girl, 5 years old)*
>
> Interviewer: Could anything else go with the cheeseburger?
>
> *'No, when you go to a restaurant, you get french fries with your cheeseburger.'*
>
> Interviewer: Do you ever get apple slices with a cheeseburger?
>
> *'No.'*
>
> Interviewer: Do you ever get carrots with a cheeseburger?
>
> *'No, only french fries go with a cheeseburger.'*

8.6.3.2 Closed sort exercise with assorted foods

Most children liked the fruit options and identified them as healthy. French fries were most often identified as a food the child thought tasted the best, with a variety of responses as to whether or not french fries were healthy. As expected, brussels sprouts received a strong response from the children. Brussels sprouts were often identified as a food that they would not like, but as a healthy item that at least one parent would want them to eat.

Results from the assorted food card sort are presented Table 8.7.

The cumulative scores (Figure 8.6) show that, even though the french fries were the chosen option by most of the children on taste, they were ranked as one of the lowest items in terms of 'would my parent want me to eat this?'. This may well create tension in negotiating what the child eats in a fast-food restaurant.

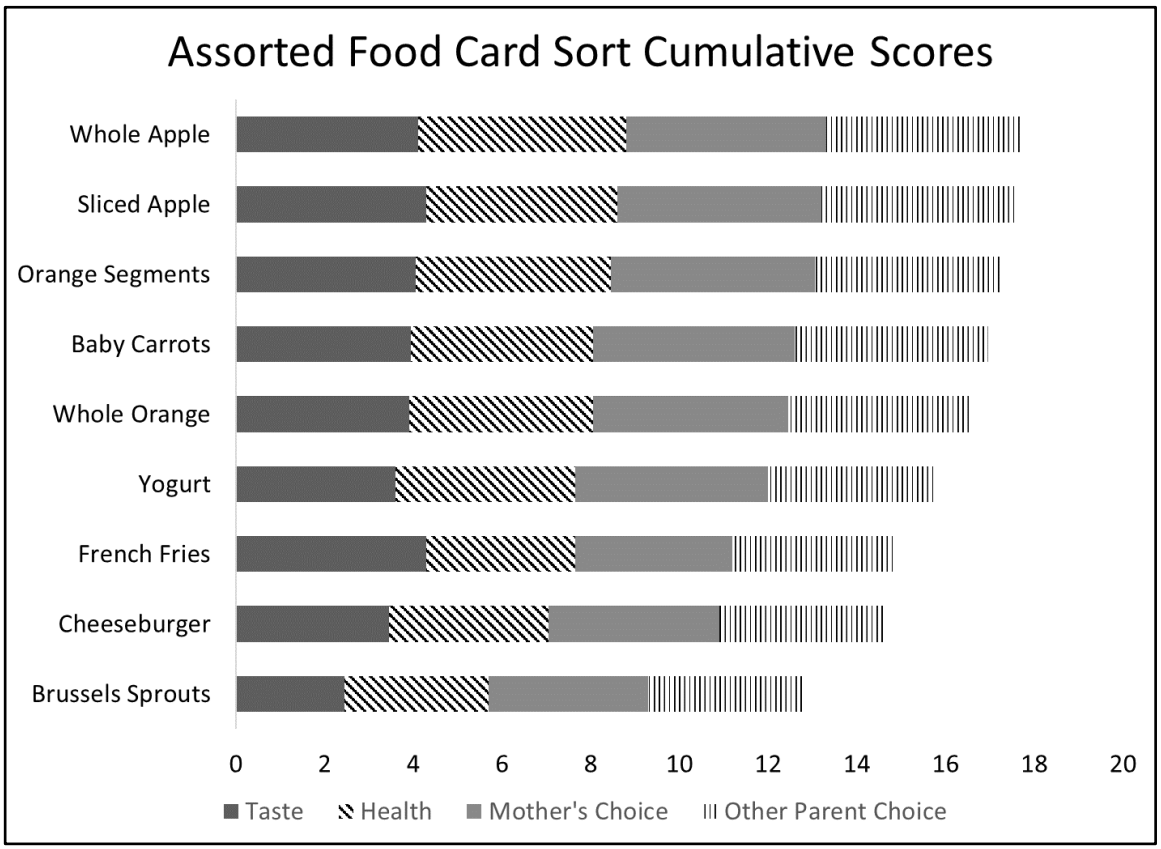


Figure 8.6 Cumulative scores of child responses to assorted food sort using the emoticon scale. (Cumulative score was calculated as a total score summing the emoticon 5-point scale, where responses to questions were: 5 = most positive, 4 = positive, 3 = neutral, 2 = negative, 1 = most negative).

Table 8.7 Child responses to assorted food sort using the emoticon scale.

Food Card	Mean Score *	*Number of Responses*				
						
Taste Scores						
Whole Apple	4.1	12	2	3	2	1
Sliced Apple	4.3	12	4	2	2	--
Whole Orange	3.9	11	3	1	3	2
Orange Segments	4.1	11	3	3	2	1
Baby Carrots	4.0	9	5	3	2	1
Cheeseburger	3.5	8	3	2	4	3
French Fries	4.3	14	2	1	2	1
Yogurt Cup	3.6	8	4	4	--	4
Brussels Sprouts	2.5	5	1	2	2	10
Healthy Scores						
Whole Apple	4.7	17	2	--	--	1
Sliced Apple	4.3	14	1	3	1	1
Whole Orange	4.2	13	2	1	3	1
Orange Segments	4.4	13	3	3	1	--
Baby Carrots	4.1	13	2	2	--	3
Cheeseburger	3.6	10	3	--	3	4
French Fries	3.4	9	--	5	1	5
Yogurt cup	4.1	12	2	3	1	2
Brussels Sprouts	3.3	10	--	2	1	7
Mother would choose for child to eat						
Whole Apple	4.5	15	3	--	1	1
Sliced Apple	4.6	16	2	1	--	1
Whole Orange	4.4	14	2	3	--	1
Orange Segments	4.6	15	3	1	1	--
Baby Carrots	4.6	16	1	1	2	--
Cheeseburger	3.9	9	4	4	1	2
French Fries	3.6	8	2	6	1	3
Yogurt Cup	4.4	13	4	1	1	1
Brussels Sprouts	3.6	12	--	1	2	5
*Other parent/adult would choose for child to eat***						
Whole Apple	4.4	15	1	--	2	1
Sliced Apple	4.4	15	1	1	--	2
Whole Orange	4.1	13	1	2	--	3
Orange Segments	4.2	13	2	1	1	2
Baby Carrots	4.4	14	1	1	3	--
Cheeseburger	3.7	8	5	2	1	3
French Fries	3.6	9	1	5	1	3
Yogurt Cup	3.8	9	4	2	1	3
Brussels Sprouts	3.5	10	--	2	3	4

*A mean score was calculated based on the 5-point emoticon scale, where responses to questions were: 5 = most positive, 4 = positive, 3 = neutral, 2 = negative, 1 = most negative. **For the first three closed sorts, the sample size was 20 children, and the last sort, based on 'other parent or adults in the household', was based on 19 children.

8.6.4 Themes identified from discussions on assorted food card sort

The major themes identified from the discussions during the closed assorted food card sort are outlined below.

8.6.4.1 Theme 4: Tasty and healthy are distinct concepts

For the majority of the children, french fries were identified as the tastiest of the options and were frequently referenced as the chosen option of all of the food cards. However, the children were also clear that french fries were not as healthy as the fruit options and that at least one parent would likely want them to eat fruit more frequently than french fries.

> *'I love French fries. I want them every day.' (boy, 6 years old)*
>
> *'French fries are not as healthy as fruit. But they are yummy.' (girl, 6 years old)*

8.6.4.2 Theme 5: Nutrients

While the boy respondents rarely mentioned specific nutrient elements of the food images, the girl respondents frequently talked about the nutrients, what was in the food, and how that influenced their opinion.

> *'They [pointing to french fries and cheeseburgers] aren't healthy for you…because they use sugar in them. It's bad because it's not healthy for you.' (girl, 6 years old)*
>
> *'Bread is made of sugar and it doesn't have any vegetables so it's not good for you…[pointing to french fries] these are a little bit healthier because it has potatoes in it.' (girl, 5 years old)*
>
> *'French fries are not healthy cause of the salt…sometimes salt makes you sick or if you have too much salt you can pass out and never wake up again.' (girl, 6 years old)*

8.6.4.3 Theme 6: Children understand that their parents have different food perspectives

For households with two parents, the children were asked to estimate what their mother would want them to eat, or not want them to eat. Then they were asked to do an additional sort reflecting what the second adult in their house would want them to eat or not want them to eat. Often, the second parent was portrayed by the child as having a much more lenient approach to eating.

'When I'm out with my dad, there's no chance of getting anything healthy…because when me and my dad are out we always have party time food…because when I'm out with him, he doesn't like having anything healthy.' (girl, 6 years old)

'Dad wants me to eat anything. He's just happy when I eat. It doesn't matter what it is.' (boy, 4 years old)

8.7 Discussion

In Phase 1 of the pricing study, french fries were the preferred side item chosen by parents for their child. Despite this, younger parents (< 35 years of age) were more likely to choose apple slices for their child compared to the over 35-year-old parents. Regardless of the parent's age, when given dessert options, parents who choose french fries as the side dish for their child were statistically more likely to choose ice cream as the dessert item. As younger parents were more likely to choose the healthier options for their child, this may be indicative of a difference in parenting styles of Millennials. Millennial parents have demonstrated a difference in how concerned they are about other parents judging the food their children eat, more so than older generations (Steinmetz, 2015) (see Chapter 6). Although the primary driver for fast food is convenience, millennial parents have an expectation that healthy foods will be an option at fast-food restaurants.

The Organic Trade Association (OTA) reported in their 2016 survey, that half of all organic shoppers in the US were Millennials with children (52%). The organic purchase behaviour was much lower for GenX parents (35%) and Baby Boomer parents (14%) (OTA, 2016). In terms eating fresh vegetables, younger consumers (under the age 40 in this survey) increased fresh vegetable consumption by 52%, while Baby Boomers age 60 + decreased consumption by 30 % (NPD, 2016).

Millennials who are more health conscious than older generations are also more willing to pay extra for what they consider to be healthier food attributes according to the Nielsen 2014 global food survey (Table 8.8). Willingness to pay a premium for food with health attributes has been shown to decline with age, despite that one would expect the older age group to be more interested in purchasing foods with health attributes (Nielsen, 2015). The Nielsen survey results are aligned with what was seen in this survey (Table 8.1), where Millennials were also selecting the healthier side dish option for their children.

Within this dataset, the sample size of people that chose apple slices with no incentive is too small to suggest that it could represent the greater population of people who choose healthy items. However, directionally, these consumers had a mean average age that was 5 years younger than the mean age of those who choose french fries.

Although there is no data presented on which parent demographic choses the healthy fast-food option – only what they say they would purchase, it is known that the organic food sector purchases are primarily by the millennial demographic with Millennials with children forming the largest group of organic shoppers in the US at 52%(OTA, 2016).

In Phase 2 of the pricing study, the results from the financial incentive approach to shifting food choices suggest that a financial discount, rewarding healthier choices (apple slices instead of french fries), does have the potential to shift what parents order for their child. However, in order to reach half of the consumers intending to choose apple slices, a financial reward of at least a 15% discount on the overall meal price was required. While the introduction of a discount shifted 'stated' consumer behaviour, the 15% discount would likely be problematic to restaurants if the discount was applied to current meal prices. According to Statistics Canada (2014), the average limited-service eating place in Canada (comparable to the scenario described to respondents in the study) has less than a 6% operating profit margin, and full-service restaurants have an even smaller profit margin at less than 4%. Implementing a financial discount as an incentive without raising the overall menu prices, would likely have such a detrimental impact on a restaurant's profit margin that it would be an unrealistic approach. Since, the initial results demonstrated that effective incentive pricing was cost prohibitive from the perspective of the restaurant, therefore this specific nudging approach was not explored further within this thesis research.

Table 8.8 Consumer's willingness to pay for healthier foods [Adapted from the Nielsen 2014 Global Health and Wellness Survey (Nielsen, 2015)].

Consumer age group*	Healthy food attributes are very important	Willingness to pay a premium for healthy food attributes
Millennials (age 21-34)	33 %	29%
Gen X (age 35-49)	32%	26%
Baby Boomers (age 50-64)	32%	23%
Silent Generation (age 65+)	24%	15%

*Ages as defined in the Nielsen global online survey, based on 30,000 respondents.

In Phase 3 of the pricing study, the deterrent (punitive) pricing approach, while possibly a smaller percentage of the total cost of the child's meal, its introduction had a stronger per dollar influence on the decisions that the parents said that they would make. Regardless of the parent's age, the introduction of a $0.25 up-charge for the choice of fries had a statistical impact on the side options chosen for the child, with half of the parents reporting that they would have their child eat apple slices rather than pay this premium. The $0.25 up-charge was the equivalent of a 6% price increase on the proposed $3.99 child's meal. This approach may be a more financially feasible option for a restaurant-introduced incentive to support healthier food decisions.

The deterrent pricing approach has similarities to the concept of 'fat taxes' that have been tried in other studies (Paarlberg *et al.,* 2017). In a study that examined sugared beverage purchase intentions for pre-school children, Ford *et al.* (2015) examined how a potential deterrent tax on sugar sweetened beverages (as well as high sugar milk and > 1 % fat milk) might influence US consumers' beverage purchase decisions. They concluded that price increases from 10 to 20% might be associated with favourable effects in terms of reducing sugar purchases. Similar results on the potential use of deterrent pricing beyond beverages have been shown in this study. However, further research around the consumer response and acceptance of this approach would be required before implementing this at the restaurant level.

Food preferences are malleable, and examining food preference learning during early life can highlight ways to promote acceptance of healthier foods. Children as young as four were able to recognize a brand on food packaging and to differentiate between what they think tastes good and what they think is healthy. Some were able to start to describe nutrients. Preschool is an important time to teach healthy eating practices (Carrie *et al.,* 2005) as this is a time when food preferences are still very malleable (*Anzman-Frasca et al.,* 2018).

Packaging and branding a healthy food item with a fast-food logo did not increase the item's appeal to children. However, understanding children's perceptions of branded healthy items can help in presenting healthier options to encourage their selection in fast-paced environments such as those encountered in a fast-food restaurant. The very short in-restaurant window of ordering time is summarized in Chapter 6, Table 6.3.

Children were able to clearly articulate their thoughts on the food images, and to sort them based on the emoji 5-point scale. A scale of emoji-type faces is not new to food research with children, as over 20 years ago, Chen *et al.* (1996) used a version of this scale to

study food preferences in young children. Similar approaches have been used ever since (Gallo *et al*., 2017; Schouteten *et al*., 2018; Swaney-Stueve *et al.,* 2018)

When Elliott *et al.* (2013) examined branding with pre-school children, they found that it was the decorative wrapper rather than the actual brand logo that elevated the taste preference of the food. In the current study, the brand logos influenced some of the children's perceptions on how a common food item would taste. However, the branding did not elevate the perception of the apple slices in the bags, in terms of taste or healthiness compared to the whole fruit.

Brussels sprouts, due to their bitter taste are not usually a preferred vegetable for young children (Field, 2006; Capaldi-Phillips and Wadhera, 2014). The Brussels sprouts card, which was included as an anchor item, received the lowest mean taste scores of the nine food items and also lowest mean scores in terms of healthy and whether the mother or another adult would choose it for the child.

Whole fruit items (whole apple in deck 1, and any fruit or vegetable in deck 2) were identified as healthy and tasting good. French fries and cheeseburgers were identified as tasting good, but with varied perceptions of health. For the children, it was more challenging to estimate how a packaged food would taste if it was healthy and if parents would want them to eat it.

Most children (95%) thought whole and sliced apples were a healthy food choice. Sliced apples in bags demonstrated variability not seen in whole or non-bagged apple slices, as to whether the children thought they would taste good, if they were healthy, and if they were something they thought a parent would want them to eat.

Of the current options available for a child's meal at a fast-food restaurant, the majority of the children identified french fries as their option of choice. Regardless of the format of the fruit (whole, sliced, or branded apples or oranges), the perceived healthy items were not as appealing as the french fries, even less so once they were packaged. While the restaurants may be offering fruit side options in a child's meal, children as young as age 4 were pairing the french fries with the cheeseburger, and the majority did not pair fruit or vegetable options as naturally accompanying a cheeseburger.

Using a visual card-sorting approach, this study provided insights into young children's perceptions of branded food items offered in fast-food restaurants. Findings from the card sort revealed that children have a strong opinion of what food items will taste good, which items are healthy, and which items a parent might want them to eat and these

classifications, while they may overlap, are distinct to them. However, it is not until after the pre-school stage age that they develop the reasoning skills on how healthy and unhealthy foods affect their growth (Raman, 2014).

Typically, in a two-parent household, one parent had a more lenient approach to what their child should eat when dining out, and often the father was portrayed as more lenient; these observations adding to the limited body of literature in the under-researched area of parental interactions with young children (≤6 years old) regarding fast-food ordering decisions and are in accordance with findings by Khandpur *et al.* (2014).

Understanding how children perceive foods branded as healthy items and meal options in fast-food restaurants, provides a foundation for future research to better understand children's eating behaviour and how to develop more effective targeted interventions to encourage healthy choices. In an older study by Robinson *et al*. (2007), they demonstrated that branding could change a child's taste perceptions. Sixty-three children (age 3 to 5 years) took part in a tasting experiment. Results indicated that they were more likely to prefer the taste of chicken nuggets, french fries, milk, apple juice and carrots, if they were branded McDonald's, compared to unbranded identical foods. Apples and apple slices were not tested. This study involved feedback from a taste test based on the branded or unbranded food packaging rather than an in-depth discussion with the children or images similar to those seen on a menu board. In addition, the children in the Robinson study were of a different demographic (lower income US children versus higher income Canadian children). It is challenging to compare the studies especially with two such different approaches and a ten-year time gap.

A positive branding effect on foods in a study with pre-school children was reported by Tim *et al.* (2014). They found that over half preferred the various food products wrapped in a popular fast-food branded paper wrapper rather than a generic wrapper (keeping all other factors consistent such as colour). When they offered carrots in a branded wrapper they received positive taste feedback as the carrots tasting better when they were wrapped in this paper, despite it not being a normal offering of the restaurant. This result suggested perhaps there was a nudging opportunity in terms of branding healthy foods in this manner.

8.7.1 Limitations and additional considerations

A limitation to the Phase One pricing study is the potential inconsistency between purchase intent and actual behaviour. Examining 'stated' purchase intent only through the use of a questionnaire, and without a consequence of the choice, may not reflect a

consumer's real purchase behaviour. This is an inherent limitation of using a communicative approach to collect data. Loureiro and Rahmani (2016) recently examined stated preference and actual choices in fast-food selections and prediction limits. In their study, which looked at the role that calorie information may have on fast-food choices, while posted calories impacted stated intent, in-restaurant posted calorie information had a relatively low impact on actual behaviour. Henry and Borzekowski (2015) studied child fast-food meal bundling and mothers' positive attitudes to the option of healthier food defaults in bundled meals. A future study should be conducted on pricing approaches in a restaurant setting, where the parents then have the consequences of interacting with their child and the child's response to the food decision made on their behalf.

The Phase 1 quantitative dataset did not allow for the isolation of parents with children < 6 years old, but this should be built into future research. For the Phase 1 survey, children older than age 6 were included as insights to understand how parents in general may be influenced will have the potential to be applied to parents of younger children, especially as many families consist of children with siblings both over and under the age of 6, requiring a balancing approach in ordering for the parent. In addition, with children's meal bundles, these are produced to appeal to a broad child age group.

The current restaurant offering forces consumers to choose between apple slices or french fries, however the option of also adding apple slices to a meal bundle with fries is a potential nudge that could be explored in future research. However, it would (up to a point) defeat the purpose of a 'healthier option' in terms of calories, if you order the fries and the apple. Although there is an increase in total calories, there is also a gain in additional nutrients from the apple.

The pricing surveys were also limited to a Canadian population and expanding the study to other countries may yield different results, although the reaction to the amount of "fat tax" required to change behaviour appears to be consistent over a number of countries where this implementation was tracked (Muller *et al.*, 2016; Afshin *et al.,* 2017).

A limitation of the branding study was that only children's perceptions and not actual eating behaviours were measured. In addition, only a small number of children were interviewed. The children were primarily English-speaking, middle/upper class Canadians. Therefore, they were not a representative geographical sampling. Findings might be different using a larger pool of children, where there is a greater diversity in terms of ethnicity and socioeconomic status. The sample size and limited diversity in the sample did not allow for analysis of the results by factors such as gender, ethnicity, or

socioeconomic status. Additional research is needed to understand how branded healthy food items vary in perception based on a child's ethnicity, nationality, and economic status.

It would also be of interest to have the corresponding parent's view of the same questions asked of the child. In future research, it would be interesting to fold in the parent's perspective.

Children's responses to the emoticon scale were skewed to the left, even for the brussels sprouts, raising the question of potential inherent bias in the data. The small sample size is not representative of all children, and the children who participated in the study were familiar with fast food and had no dietary restrictions. A larger sample size might provide a broader range of responses.

8.8 Conclusions

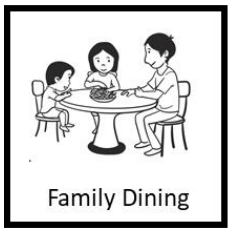
Younger parents were more likely to choose the healthier option of apples for their child as a side dish rather than french fries. Parents who chose apples as the side dish were also more likely to select the perceived healthier dessert of yogurt rather than an ice cream cone perhaps suggesting an overall healthy food mindset. Parents, all ages, who chose french fries for their child were statistically more likely to choose ice cream as a dessert option, perhaps thinking of the visit as a 'treat' occasion where calories and nutrition were not a concern.

The pricing study suggests that pricing could be a possible tool to influence the food choices that parents make for their children. Attempts using a financial incentive approach were able to shift food choices away from french fries and into fresh fruit as a side dish, however the monetary incentive required (≥ 15% discount) would probably not be economically feasible from the perspective of the restaurant. While the punitive pricing approach to discourage less healthy choices may be more financially feasible from the perspective of the restaurant owner, the long-term consumer perception and response to punitive nudging measures associated with choosing less healthy options requires further exploration.

A conclusion from the branding study is that we need a better understanding of young children's eating behaviour if we wish to target effective interventions for healthy eating. When children were asked about their parent's snack choices for them, they easily identified snacks that they perceived to be healthier. However, perceptions of healthier

may not translate into the children's actual snacking behaviour. More nutrition education will be required to encourage healthy choices.

The branding study suggests that while children have an early awareness of branding, the branding of healthy food items may not necessarily nudge young children into increased consumption of healthier options. When apples were sliced and bagged, perceived taste and healthiness perceptions were variable, and may be detrimental to consumer uptake. None of the presented healthy options swayed children from selecting french fries as their desired side to a cheeseburger. The majority believed that fruit or vegetables were not side options that naturally accompany a fast-food cheeseburger. Branding healthy foods in this manner may not effectively nudge choices.



Chapter 9 - Family dining: Time together, toys and technology

9.1 Research Objective

To date, research has not adequately explored the behaviour of parent/child interactions while dining in fast-food restaurants. How families spend their time in this type of restaurant, the level of engagement by children and with children, and what family interactions take place within the fast-food restaurant setting is of interest to understand the modern family dining experience, especially in terms of family time, toys, and technology.

It is important to understand what these family dining experiences entail and how they may shape future food dining behaviours, in order to address the evolving needs of families. This study focused on observable behaviours, as did the family dining study described in Chapter 6.

9.2 Introduction

9.2.1 Family behaviours in fast-food restaurants – 'Third place'

First coined by sociologist Ray Oldenburg in 1982, the term 'Third Place' refers to a location for everyday social interactions that provide a 'home away from home' role (Oldenburg, 1999). If the first two places for a consumer are home, and work, the 'third place' is growing in its role for consumers, and includes public spaces such as coffee shops and fast-food restaurants, as well as virtual communities (Wang *et al.*, 2017).

US Millennials and their children consume as much as one-third of meals in fast-food restaurants and Americans currently spend more on food out-of-home than on eating at home (USDA, 2017). Many of these fast-food restaurants have now become a 'third place' for families, a 'home away from home' in which their natural family behaviours, including family dining rituals may be observed (McIntosh *et al.,* 2011).

9.2.2 Toys and fast-food restaurants

The toy is a controversial part of the fast-food experience for many families. Toys, included in the purchase of a child's meal, are often vilified in the popular press for playing

a potential role in the growth of fast-food consumption by children. For nearly half of the parents, the presence of the toy did not enter into the purchase decision according to Boutelle *et al.* (2011). For some parents, there is displeasure at the addition of toys to food orders, while others say it is a positive addition making their child happy or allowing the parent time to enjoy their meal (VicHealth, 2015).

In some instances, government intervention has influenced the inclusion of toys in a child meal bundle. For example, the introduction of a local ordinance in San Francisco, California banned the inclusion of free toys in meals (Otten *et al.,* 2014), while in two other counties of California, an ordinance was passed that toys could only be included in a child meal bundle that met a well-accepted nutritional standard (Otten, 2014). With changes in regulations and attitudes, our understanding of the toy's role during the fast-food dining experience requires updating. The role of the toy has been covered extensively in Chapter 2 Section 2.2.6.

9.2.3 Technology and family dining

Prior research, examining mobile technology use and children in fast-food restaurants, noted that parents focused on their digital world rather than on their children during the restaurant visit (Radesky *et al.,* 2014). While for some families, technology may create new opportunities for family interactions, other families may experience 'technoference' (technoference being defined as where technology interferes with family interactions) (McDaniel, 2013; McDaniel and Radesky, 2018). Technoference is not unidirectional. It can be children ignored by parents and/or parents ignored by children, as they focus on their tablets and smartphones. The increasing role of technology in the family dining experience was a key area of interest for this observational study, as there is currently a gap in our knowledge on the prevalence of technology use during family fast-food dining visits.

9.3 Methods

9.3.1 Background

The ethnographic research in this chapter used a direct covert observational approach, with both structured and unstructured data collection, to examine family fast-food dining (for parties with at least one child between the ages of 2-12 years) in a fast-food restaurant in Toronto, Canada.

To understand the in-restaurant family activities and the timeline of family dining, the researchers visually followed a single-family party, from when they first entered the dining area, to when they left the restaurant.

A structured observational instrument, with a closed-ended coding scheme for activity timing, and an open-ended section for field notes, was used for the quantification of key behaviours.

9.3.2 Restaurant

The fast-food restaurant was selected after visiting a larger sample of restaurants in Toronto, Canada, in order to identify a restaurant that offered a seating arrangement that allowed for inconspicuous observation of customer orders. The restaurant that was chosen to observe family dining was located in an ethnically diverse middle-class neighbourhood, with a high density of families with school-aged children.

The restaurant was fit out with two large television screens, playing a 24/7 news channel. Free crayons and colouring pages were available upon request from the restaurant staff, with no purchase requirement.

There was a fixed display of children's toys, positioned near the front counter, at the eye-level of a child. The displayed toys accompanied the purchase of the child meal and were also available for individual purchase. The toys were themed on a popular animated child-targeted movie, which was playing in theatres at the time of the research.

There were digital menu boards and customers could order directly from a restaurant staff member at the front counter, or by using self-service digital kiosks.

The indoor play area, with signage identifying it as appropriate for children age 3 to 12, was a separate room with glass interior walls that faced into the dining area of the restaurant. The indoor play areas featured crawl tubes, a play structure, and slides. Inside the play room, there was additional seating separate from the main dining area, for adults who wished to sit closer to their children at play. Approximately one-third of the seats in the main dining area also had visibility to the interior of the indoor play area.

The restaurant, in which the research was conducted, belongs to an international fast-food chain (McDonald's), and the design was reflective of fast-food restaurants not just within Canada, but in many areas of the world.

9.3.3 Training

Prior to the study launch, the protocol was refined and tested with 15 consumer observations in the target restaurant. There was a one-day training period for the researchers, including familiarization, testing, and refinement of the data capture form (this training data was not used). The principal investigator (i.e. the author) trained three research assistants in the observational techniques and all three assistants were involved in the daily field work. The assistants (Karishma Karia, Nadia Mariotti, and Elizabeth Varghis) were Ryerson University marketing students and they were paid an honorarium for their participation.

9.3.4 Researcher field position

At each visit, the researchers ordered beverages or snacks and took seats where they could observe the families dining, while making notes in their notebooks. The researchers' activities were intended to be subtle and not out of place for the environment. The restaurant staff were not aware of the presence of the study, to minimize restaurant employee bias or interference.

The subjects under study were unaware of the presence of the observer, in an attempt to minimize the observer effect. The observer did not interact directly with any of the families dining.

The researchers visually followed a single transaction, from when the food order was received, to when the family left the restaurant. The team of three research assistants, supporting the lead researcher, were strategically placed throughout the restaurant, to allow for continuous tracking of families throughout the family's visit. If family members moved between restaurant sections, the researchers (communicating via text message) maintained the line of vision for continuous observational monitoring, while staying inconspicuous.

9.3.5 Time of day

Field work was completed during the hours of 11am to 1:30pm, over a ten-day period, during the school winter break. Lunchtimes were selected for the highest potential volume of family visits. One hundred families were observed ordering fast food over 65 hours of field time.

9.3.6 Data collection and analysis

Information from the observations was taken down on a data capture form (Figure 9.1) that was used on all occasions.

What constituted a 'family' in terms of data collection was defined as dining parties with at least one child between the ages of 2 to 12. The relationship of the adult(s) accompanying the child, could not be definitively ascertained. While observers frequently overheard familial names (e.g., Mom, mommy, daddy etc.) the specific relationship was not captured in the structured data collection form.

At the end of each day's observations, field jottings were expanded into full-length field notes. In addition to focusing on specific categories identified in the structured observational form, emerging themes of behaviour and experiences from open observations were reviewed.

Quantitatively, a structured observational approach was used for the following: visit ordering time, total visit length, the presence of technology and timed use of technology, the presence of a child's meal with a toy, whether the child played with the toy, timed toy play, whether the child visited the indoor play room, and timed indoor play.

Observational data were entered and analysed using the statistical software package IBM SPSS Version 23.0. Descriptive statistics, *t*-tests and one-way ANOVAs were performed to describe family restaurant behaviours and to identify possible differences between sub-groups.

9.3.7 Ethics approval

Ethics approval was obtained from the Harper Adams University Research Ethics Committee.

Data Capture Form – Family Dining
Date: _____*day* _____*month* _____ *year*

Number of adults in the target consumer group: _____
(repeat as needed, based on number of adults in the group)

Gender:
□ Female □ Male
Age Approximation:
□ < 30 years old □ 30-50 years old □ 50+ years old
Observable Activity:
□ Used smartphone □ Took photos □ Set out food for child
□ Hand fed child □ Food was purchased for the adult □Food was brought in from the outside □ Adult ate child's fries □ Adult ate child's food (not fries)

Number of children in the target consumer group: _____
(repeat as needed, based on number of children in the group)

Gender:
□ Female □ Male
Age Approximation:
□ Infant □ Under 6 years old □ 6-12 years old □ 12+ years old
Observable Activity:
□ Used technology □ Watched TV
□ Used a colouring sheet □ Ordered a child's meal □ Had a toy included with their meal
□ Played with the box the meal came in □ Played with toy before meal
□ Played with toy during meal □ Played with toy after meal
□ Toy was tucked away untouched □ Spent time in indoor playground before meal
□ Spent time in indoor playground during meal □ Spent time in indoor playground after meal
□ Food was purchased for the child □ Got own drink
□ Child ate adult's fries □ Child ate adult's food (not fries)

Timing
Total Time spent in Restaurant: _____ min
In playplace: _____ min
Eating: _____ min
Playing with toy: _____ min
Colouring: _____ min
Using Technology: _____ min
Playing (not with toy): _____ min

Field Notes:

Figure 9.1 Data capture form for the in-restaurant observational research of family dining.

9.4 Results

This study used covert direct observation. Structured observational data was recorded on the behaviours of naturally occurring groups of families with at least one child ≥2 to ≤12 years old, dining in a fast-food restaurant in Toronto, Canada. Statistical analyses using descriptive statistics were performed to examine the structured recorded data.

Results are presented based on the three emergent themes: (1) family behaviours, (2) restaurant-provided toys, and (3) technology and the family dining experience.

9.4.1 Family behaviours (Family dining in the 'Third place')

The restaurant appeared to serve the role of a 'third place' (a substitute home), with what seemed to be regular and local customers, who were familiar with the specific location, based on greetings and conversations overheard between the staff and customers. The fast-food restaurant provided neutral ground, where societal status did not seem to be very important and there was a casual hominess, in which the customers treated the space as a home away from home. Many families were observed using the restaurant as a common meeting place to socialize with other families. It was a place for the children to play together in the play area, while the adults interacted without the need to pay close attention to the children. The family restaurant visits averaged 53 minutes in total.

9.4.1.1 Eating behaviour

Observed family groups did not necessarily order food for every individual in their party. Five percent of children did not have food that appeared to be ordered specifically for them and they were observed sharing food with an adult, while 14% of adults did not appear to have ordered food for themselves. In addition, 14% of families brought food into the restaurant from an outside source and consumed that food in the restaurant (e.g., boxes of donuts, juice boxes, plastic containers of Cheerios cereal).

Often an adult unpacked and/or arranged the food on the table for the family. For example, pulling the food out of the packaging and arranging it in front of the child. On 32% of the occasions, it included at least one time where an adult hand was feeding the child, for example holding the burger for them to bite or holding their drink cup for them. While there was a self-serve beverage fountain in the restaurant, only 11% of children were observed using it to fill their own drink cups.

The researchers observed that the adults frequently used this food set-up time to provide direction to the child on behaviour expectations, for example tucking a toy away before the

child ate the food, or putting the packaging to the side and identifying it as a receptacle for waste.

Meal time did not appear to be a time for extensive conversations. Many of the families ate in near silence or with minimal interaction. Eating was automatic and appeared disengaged in nature. Often, dining occurred in stages. Either the child ate first, and then went to play while the adult(s) ate, or the adult(s) ate while the child played in the play area and later the child ate. Eating in stages often meant that when the child ate first, the parent later 'finished' the food the child left behind (one-way sharing). Approximately one-third of the children ate at a different time than their parents.

Food tended not to be knowingly shared among family members, with one notable exception, which was the shared consumption of french fries, and the observed familial habits that seemed to accompany this. For some families, the communal approach to french fry eating involved placing the french fry order in the centre of the dining table, so that all members of the family had equal access. Some 37% of adults were observed eating french fries from the child's order and 23% of the children were observed eating french fries from the adult's food order. Taking food from family members that was not french fries was less frequent, with 28% of adults eating from the food ordered for the children (i.e., food that was not french fries), although this was often after the child declared themselves finished eating. Twelve percent of children were observed eating some of the non-french fry food that the adults had ordered. Often the taking of french fries from one another appeared to be in kind-hearted jest or a thoughtful way to share food without perceived injustice (for example a large order of french fries might have 50+ french fries in it, making it easy to share a few with a family member without a perceptible loss of food). This sharing of french fries was also observed in an ethnographic study in a MacDonald's QSR by Traphagan and Brown (2002).

9.4.1.2 Play area behaviour

The restaurant included an indoor play area, with signage indicating it was meant for children age 3 to 12 years old. During the food ordering process, no children were observed to be playing in the indoor play area while their accompanying adult ordered food.

While there was optional seating (2 tables and 4 chairs) inside of the indoor play area, where adults could sit and supervise the children as they played, these seats were most often empty. Rarely did adults move from the table they had dined at outside of the play area to the table within the indoor play area to watch their children more closely. More

often, if the child was in the play area, parents provided little additional supervision. With the large glass windows on the interior of the indoor play area, there was visibility into the area from approximately one-third of the main dining area, however, the windows muted the sounds of the children. While it was clear that the children in the play area were making relatively loud sounds and noises; only muffled sounds could be perceived by the observing researchers.

Supervision of the children in the play area was minimal. While approximately two-thirds of the seating in the main dining area did not provide sight into the indoor play area, this lack of sight line did not appear to influence whether or not the child went into the play area. Most often, parents remained seated at the table in the main dining area, while children went to play in the indoor play area unsupervised.

The indoor play area was a strong draw for the children, with 65% of children spending time there and averaging 33 minutes in the play area (minimum 3 minutes to maximum 99 minutes). The approach to balancing play time and eating varied by family. Of the children that spent time in the play area, 55% spent time in the play area prior to eating and 36% went back and forth to the play area during the meal. Of the children that visited the play area, 81% of those children visited the play area after finishing their meal. Play was not limited to within the indoor play area as children were also observed conducting free play (i.e., not on the climbing structure or with a toy) during their visit, averaging 4 minutes of free play in the dining area in addition to time spent dining and in the indoor play area. Free play in the dining area consisted of activities such as children chasing each other around tables in the restaurant, entertaining younger siblings with their baby toys, and pretending to be super heroes.

The researchers also noted that during the 10 days of field research, they observed two families who came to the restaurant for the express purpose of allowing their children to play in the indoor play area. During their visits, they ordered neither food nor drink from the restaurant. Field notes also included two families that spent so much time in the restaurant that they consumed two distinct meal orders during their one visit, giving their children extended time to play both in the dining area and play area, between the meals.

9.4.1.3 Other activities

While the child ate or played in the indoor play area, the adults were observed conducting a wide variety of activities that one might not associate with family restaurant visits but are reflective of how the fast-food restaurant has taken on the role of a ‘third space’ for

families. Observed activities included (but were not limited to): conducting a business meeting with a laptop, interviewing someone for a job, working on homework, playing chess, watching an entire movie on a tablet, sleeping on a bench, and clipping and filing fingernails.

9.4.2 Restaurant-provided toys

Since toys are often criticized in the popular press for playing a potential role in influencing children to consume more fast-food (see Chapter 2 Section 2.2.6.3), field researchers were instructed to include in their structured field notes specific observations about the role that the free toy played in the family dining experience.

In the restaurant, there were numerous options available to children that might be considered restaurant-provided toys: (1) free crayons and colouring sheets were available upon request to any customer, with no purchase requirement, (2) the child's meal bundle came with a toy, and (3) the child's meal bundle came in a box that had games and images printed on the box for the child and (4) it was possible to purchase just the toy without the child meal bundle.

There was little use of the free crayons and colouring sheets. Only 7% of families used these, and that was only when on one of the field days a restaurant manager had walked around the dining area actively passing out sheets and crayons to families. No family was observed requesting these from the order counter, although the lack of observed use of these sheets and crayons may stem from a lack of awareness of their availability.

During the field research, the toys available in the restaurant were characters from a popular children's movie, in theatres at the time, which was one of the top 10 grossing box office movies of the year. While the restaurant's layouts included an eye-level display of toys that accompanied the child's meal bundle, fewer than 5% of the children were observed looking at, or interacting with, the toy display either as a part of the ordering process or during the dining experience. No families were observed buying the toy as a separate item.

Nearly 7 in 10 families (68%) purchased a dedicated child's meal bundle. These meals all included a free toy and a custom box for the meal. The distinctive packaging of the child's meal bundle made it easy for the researchers to observe when this was purchased, and to see if the child interacted with the packaging. While there were games on the box for the child's amusement, only 20% of children spent any time playing or looking at the box. For

most families, the meal was unpacked and the box was immediately set to the side. It was often used as a repository for garbage from the meal.

The inclusion of a toy in the child's meal did not mean that children were necessarily permitted to play with the toy during the restaurant visit. For 22% of the children, an adult removed the toy from the box and tucked it out of sight (for example into a bag or purse) and the toy remained there during the entire visit.

For the 78% of children that did interact with the toy during their visit, researchers noted that for many families there appeared to be a rule or negotiation associated with when the child could play with the toy (for example, some parents could be overheard saying that the child could play with the toy only *after* they had eaten their meal). Of the children observed, 18% played with the toy before eating, 40% played with the toy while eating, and 45% played with the toy after eating. These were not mutually exclusive moments. For example, some children played with the toy before, during and after the meal. Of those that played with the toy, on average, they played with the toy for 10 minutes (minimum 2 minutes, maximum 27 minutes).

9.4.3 Technology and the family dining experience

Once the food had been received (see Chapter 6 for more on family ordering) and the family moved into the dining area and settled into their dining rituals, the presence of technology became much more prevalent.

For the children that had the child's meal bundle with a toy, the restaurant-provided toy also included a code that would allow the customer to download a child's e-game related to the toy, onto a smartphone or tablet. However, no families were observed using the code to activate and play the restaurant-provided game during their time in the dining area. While children were observed playing a variety of games on smartphones and tablets, these games appeared to have been games that they brought with them and not the game provided by the restaurant.

The presence of technology during the family dining experience was very prevalent. The researchers observed that it was common for a family to bring technology such as a tablet, an iPad, or a handheld gaming system into the restaurant specifically for their child to use. For example, child-sized headphones that the child wore to independently watch a video playing on a tablet while they were eating. The use of some form of technology during the visit was observed for 40% of the children, with use averaging 14 minutes (30% of the total dining time).

While sometimes adults used technology when dining with their child, the key time for adults to use their personal technology was while the child was playing in the indoor play area, with 70% of observed adults spending time using technology, such as a smartphone or a tablet, at this time. Of the 30% of adults that did not use technology while waiting for their children to play or eat, half of these adults used the time to talk to another adult in their party, while the other half watched the TVs that were mounted in the restaurant or read books or the free newspapers provided by the restaurant.

For most, any interaction with screen time came from time spent with personal screens (smartphones, tablets, iPads) that the customers brought with them into the restaurant. The restaurant had flat screen TVs playing 24/7 news channels, but engagement with the TVs was limited. Only 15% of adults and 5% of children were observed spending any time watching the restaurant TVs.

During the dining experience, 25% of the families included an adult who used their mobile technology to take at least one photograph of the meal event, including photographs of the food, of the child, selfies, and the family. The use of technology to capture the dining experience was not unexpected, given the millennial consumer's love of photographing their food. It is estimated that as high as 69% of millennial consumers take a photo or video of their meal before eating (Maru/Matchbox, 2016).

Of the 100 families observed dining, researchers noted that technoference appeared to be a frequent occurrence during family meals. Children's engagement in technology appeared to lead to less interaction with their parent(s), and when the adult was engaged in using technology, they appeared to be less responsive to the child. Technoference, technology-based interference in parent-child interactions, is a growing part of the family dining experience.

9.4.4 Field notes

Extensive field notes were gathered during the research. The field notes included a structured component in which researchers noted observations on dining behaviours, toy usage and technology, as well as an unstructured component, where researchers recorded other observations, which were later grouped into themes during the analysis. An example of a field note from each of the broad categories identified from the research is included in Table 9.1.

Table 9.1 Field note examples.

Theme	Example Field Notes
'Third Place'	Child paid little attention to the food and was focused on the play area. The adult (female) didn't push the child to eat and instead waited for him to notice that there was food and to leave the play area to come and eat. While the child was in the play area, the adult cut her nails, had a quick nap, and chatted with other adults in the restaurant. Adult did not supervise the child in the play area.
Staged Eating	Children started in the play area. When the children's food arrived, adults did not call them to eat but waited for them to notice, and meanwhile they ate their own food. Adults didn't pay a lot of attention to the children when they were in the play area but occasionally looked into the room to make sure they were OK. After finishing their own meals, the parents set out food for the children. They removed the empty boxes from the table, taking away the chance to play with the box.
Shared Fries	Adult (male) and child (female) had two orders of fries as a part of their meal. Both orders of fries were placed in the middle of the table where they could both reach them and they shared both orders.
Toy/Box	Youngest child interested in toy pre-meal, looked at it and picked it up but didn't take it out of the wrapper. Dad took both toys and kept them to the side. Relatively silent meal. Dad hand-fed the yogurt to youngest child, and child only ate when dad hand fed her. Shared moment between dad and children when he showed them how to play with the toy. Children played with toy even while dad was cleaning up to get them ready to leave.
Limited Con-versations	Child was distracted by phone, didn't touch the food at all and the toy was left in packet. Adults were having their own conversation. Food was set out for the child but she didn't eat it for 20 minutes. Her eyes never left the phone screen even when she grabbed a few fries to eat and to drink juice. She tried to play with the box but no one helped her so she gave up. Child didn't eat more than 5% of her meal before leaving for the play area.
Children and Technology	Both children used technology (cell phones) while at the table waiting for their mother to return with the meal, and they used phones while their mother was setting the food out. Little/no conversation during the meal. The youngest boy kept one of the phones out during the meal and was the most distracted and he only ate food that he could eat with one hand (juice and hash browns), while his older brother watched the phone screen but still ate. Entire table was silent. When the meal was finished, the mother asked children if they were ready to go (based on the fact that they were using the technology, not because they were still eating).
Adults and Technology	Grandmother used her phone from the time they sat down until they left (31 minutes). Dad used the phone while waiting for the food order but put the phone away once his wife came back with the meals. Most conversation happened between adults. Food was cut and unwrapped for children and the mother shared some pieces of her pancake with the toddler. Eldest son had some of the dad's juice, son ate half of the mother's muffin, she ate the rest. The mother only used phone when boys went to the play area in contrast to the father and grandmother, who were using their phones before and during meal (with children present). The eldest son was distracted with the toy for most of the time, but when he saw another child with a different family using an iPad to watch videos, he stood over their shoulders to watch for a while.

9.5 Discussion

Fast-food restaurants have taken on a 'third place' role for families, offering not only fast and convenient dining, but also offering a public space in which to gather and spend time. Thirteen years ago, Brembeck (2005) in a study of fast-food restaurant meals in Sweden, suggested that a family meal in a fast-food restaurant for many parents was an effortless way of upholding family life, and creating 'family' and 'home' in new ways. She suggested that fast-food meals could still provide an opportunity for parents to have a 'proper' family meal with their children. However, what was observed in the current study was sequential eating behaviours rather than the Brembeck proper 'family' meal occasion. The prevalence of staggered eating times also results in less opportunity for parents to model desirable eating behaviours (Ayadi and Bree, 2010). One study has suggested that when children consume food exclusively from the children's menu this might help to limit overconsumption in QSRs (Cohen *et al.,* 2017).

The role of the toy in the family fast-food dining experience is evolving and a number of studies have suggested that the toy is not a top reason for fast-food choices/visits (Boutelle *et al.*, 2011; Lambert and Mizerski, 2011). Rather, the top three reasons adults choose fast food for their family are: (1) rapid service, (2) convenient location and (3) good tasting food (Rydell *et al.,* 2008). While the toy is not listed as one of the top three decision drivers, there exists a multi-million-dollar industry based on food marketing through toys. This industry has come under increased scrutiny as to whether it encourages fast food consumption in children (Anzman-Frasca *et al.,* 2017). In the current study, technology brought from home was used much more than engagement with restaurant provided toys, despite the fact that some fast-food restaurants now include a code or access to a smartphone app with the toy, so that the child receives both a physical toy and access to a virtual game.

The presence of technoference for personal entertainment had not yet become mainstream during the time that Brembeck studied families in fast-food restaurants. The rise of technology has led to a shift in dining practices, such as the intrusion of technology during the meal. With food consumed away from home on the rise, understanding how families dine outside of the home, and what new rituals may be emerging, will continue to grow in importance, especially in terms of technology. Some of the behaviours of the families observed in this study, such as the presence of technology during meal times, should not necessarily be viewed as unique to a fast-food restaurant (David *et al.,* 2018; McDaniel *et al.,* 2018; McDaniel and Radesky, 2018), rather today the presence of technology is potentially indicative of common family dining behaviours beyond fast-food

restaurants. Elements of how the observed families dined together may illustrate common behaviours in a sizeable proportion of today's family meals (Radesky *et al.,* 2018).

With the millennial generation accounting for the majority of new births (Pew Research Centre, 2017), understanding how this 'tech-savvy' generation includes technology in common family interactions is important, both in terms of how parents interact with their children, and in terms of how these young consumers are being raised in the presence of such a barrage of exciting entertainment technologies.

Canadian food dining culture may be different from that observed in other countries, and as such, these results have to be considered within the Canadian context. In a recent survey of 39 countries, the Canadian millennial population had the third highest percentage of smartphone ownership (94%) and this is forecast to continue to grow over the next five years (Statista, 2017). With high global rates of smartphone usage and internet connectivity, Canadian millennial parents may well be the bellwether of future consumer behaviour in other countries.

A limitation of this study is that it focused exclusively on in-restaurant behaviours. There was no visibility of the parent/child interaction prior to entering the restaurant, nor visibility to behaviours after they left the restaurant. Therefore, the restaurant provided toy and associated e-game may play a larger role than what was observed in-restaurant.

This research relied on observed behaviours and on the subjective abilities of the researchers. Future research considerations should include follow-up interviews with families to provide a greater depth of information about their dining experience. Other future research should also include restaurant locations without an indoor play area, to examine if this would change the amount of time spent by children and adults using personal mobile technology.

9.6 Conclusions

This study suggests that fast-food restaurants could be used by consumers as a 'third place', with many observed activities unrelated to traditional fine dining restaurants (Harrington *et al.,* 2011), such as use of an indoor play area (average time 33 minutes) and adults using the time for independent activities (70% used their smartphone).

Regarding toys, children spent more time playing with the technology that they brought from home (14 minutes) than playing with any restaurant provided toys (10 minutes). With

the declining role that the toy in the child's meal bundle plays, it contributes to the experience but may not be the hoped-for lever to nudge healthier food choice decisions.

Both children and adults were frequently observed using technology in the restaurant. As a result, technoference appeared to be present during the family dining experience for many families, with 40% of children using technology during the restaurant visit.

Young children are now growing up in a culture of frequent family dining moments outside of the home and this trend, driven by convenience, is unlikely to reverse itself in the future. Further exploration is needed into how this high usage of technology during family dining might be an untapped opportunity to educate and influence consumers.

Chapter 10 - Discussion

10.1 Research drivers and main findings of the study

The goal of the thesis research was to explore aspects of millennial families dining in fast-food restaurants, with a special emphasis on families with children under the age of 6. A key area of interest was to gain a better understanding of why certain food choices are made and how these choices might be influenced (nudged) in-restaurant.

The research for this thesis came out of the author's personal interest, a Canadian mother with two children under the age of 6, who had also worked with a major fast-food company in the past on the development of child meal bundles as part of her corporate research mandate. The lack of published research on fast food and very young children, as well as her experience with many consumer's unwillingness to select any of the healthier options available on the menu for their children, led to this choice of topic for research.

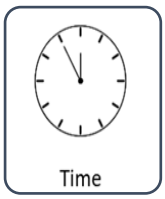
The high number of Millennials becoming parents at this time and their different perspectives on parenting, due to the prevalence of social media as an information source, was the reason behind a major focus on millennial parents. In addition, in the role of nutritional gatekeepers, millennial parents of young children have a key role in influencing how their children will choose their own food in the future. By conducting surveys in four countries, not just in Canada, the hope was that this would allow for wider applicability of the information coming out of the study.

This thesis research has made contributions to our knowledge of millennial parents in fast-food restaurants, an area where the related literature is still limited. The research covered four countries, with a target of millennial parents and their young children, and this research specifically focused on in-restaurant nudging. The investigation of the perceived peer judgment of parents and children dining in fast-food restaurants and the expectations of future millennial parents increased the originality of the study. The highlights of the study are summarized in Figure 10.1

'Sensory Appeal', 'Convenience' and 'Price' are the top motives in food choice, in Australia, Canada, the UK, and the US.

Millennial parents have fond memories of eating fast food as a child and they view it as a treat occasion.

They want healthy options but do not necessarily worry about eating healthy food when dining in fast-food restaurants.



The time to influence families while ordering in the restaurant is very short.

Family visit time in the restaurant may be long, but the time spent eating is often short and staggered amongst family members.

Incentive pricing, while effective at nudging behaviours, is cost-prohibitive to restaurants.

Punitive pricing to nudge consumers has potential but requires further exploration.

Changes to the product design can shift consumer perceptions of the product, without necessarily significantly changing the nutritional elements of the food.

Listing calories on the menu, has not yet improved consumer calorie knowledge, but may have an important role in influencing food design at the restaurant level.

While children as young as 4 years old were able to recognize certain fast food brands, branding healthy items did not result in increased consumption intent.

Whole fruits were perceived as healthier than sliced, packaged, or branded fruits.

Technoference is growing in its role during family dining.

Fast food restaurants have taken on a home-away-from-home role in the lives of young families.

Toys provided with child meals are unlikely to play a key leverage role in nudging ordering behaviours.

Figure 10.1 Overview of key insights.

10.1.1 Mindset

The FCQ survey showed that there was value in studying Australia, Canada, the UK, and the US together. With similar food motives, growing consumption of fast food in all four countries and similar attitudes towards the food and the in-restaurant experiences, nudges which prove to be effective in one country, may have broader applications across similar cultures.

Nudging in a fast food restaurant setting for healthier food choices will require the addressing of very different priorities in order to be successful – those of the child, the parent, and the restaurant (Figure 10.2). These three priorities, child, parent and restaurant, may not have aligned needs in the development of food and offerings. For example, using the restaurant priority of profitability, there is more of an incentive to encourage the purchase of french fries (a high margin item), than apple slices (a fresh product with a shorter shelf life and a lower margin). 'Sensory Appeal' is the top driver of food motives of adult consumers in the four countries under study, based on the results of the FCQ survey. This is followed by 'Price' and 'Convenience'. Addressing the 'Sensory Appeal' motive of the adult consumers, while balancing the priorities of the child and restaurant, may prove to be a challenge.

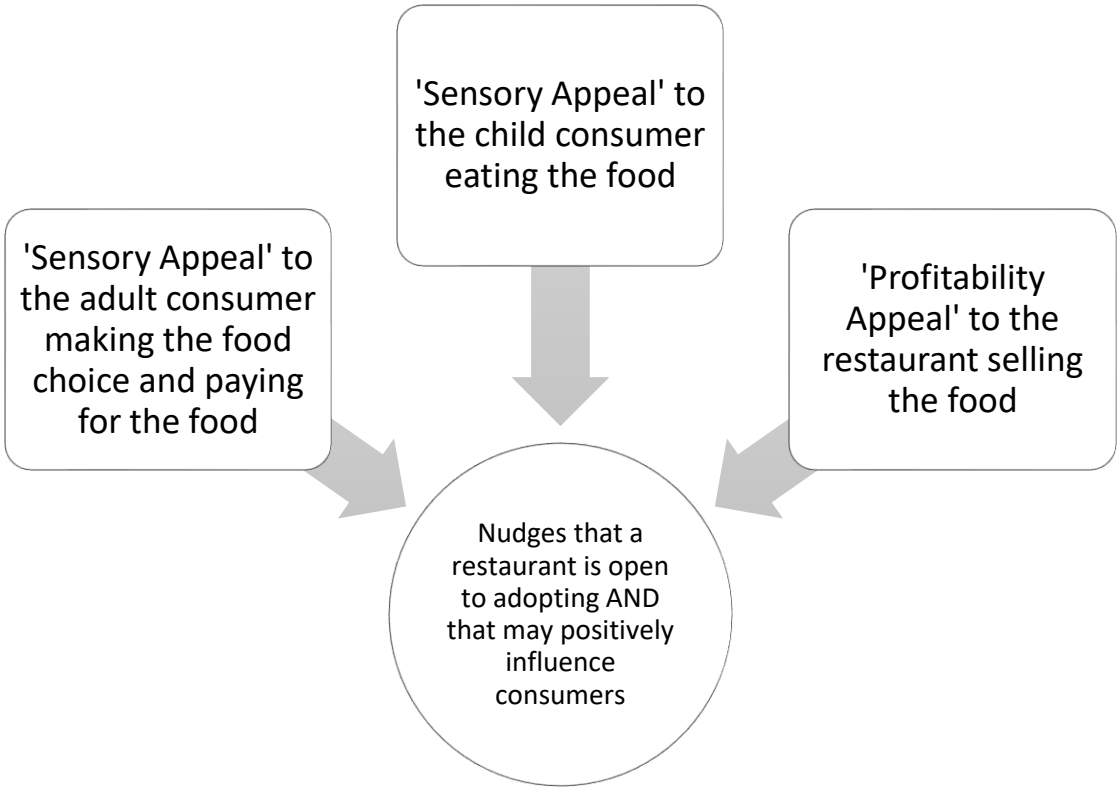


Figure 10.2 Competing priorities in the development of effective consumer nudges.

10.1.2 Timing

The time window for the in-restaurant ordering process was shown to be an extremely short window in which to exert influence. During peak weekend restaurant volume time, it was an average of 1 minute and 39 seconds from when the family first enters the restaurant to when they begin to order their food (Chapter 6). If in-restaurant nudges are to be effective, they must be disruptive and quick acting, in order to influence the rapid and habitual decisions made in the restaurant environment. For example, using geo-fencing to provide localized alerts to consumers upon entering the restaurant, may alert them to healthier options they were unfamiliar with or using symbol cues on the menu to identify lower calorie options.

10.1.3 Pricing

As discussed in Chapter 8, an incentive (i.e., a financial discount) for selecting a healthy option did not appear to be viable due to the large discount (≥ 15%) required before a statistical difference in purchase intent was seen. Such a large discount would be problematic for many restaurants. The punitive option appears as a more promising route. On surveys, some Millennials indicated a willingness to pay a premium for choosing unhealthier options, while for others, a small upcharge was a sufficient deterrent for them to report that they would keep the default healthier side option as a part of their meal choice. However, whether stated intent would be reflected in behaviour, still needs to be explored with in-restaurant studies. In addition, research around consumer acceptance to the concept of punitive pricing requires further investigation.

10.1.4 Menu design and branding

Nudging is an intervention tool that has shown success in a number of areas. It is about altering the microenvironment, with the purpose of changing a health-related behaviour (Valet *et al.,* 2016). A number of nudging opportunities that could encourage a change in behaviour in terms of healthier food choices were explored. The findings suggest that for millennial parents and their children, as suggested by other researchers in the past for non-millennials, calorie visibility, product image, and branding could all be considered viable options for nudging but would require use in tandem and careful implementation to be effective. However, they may not be effective as individual elements in isolation.

Over time, calorie visibility may have an influence on peoples' ability to estimate the calorific content of standard QSR menu items (Chapter 7). However, the impact of calorie visibility on consumer food choices may only ever influence the small subsection of

consumers concerned about, and educated about calories, while for the majority, increased calorie visibility on menus may have minimal impact.

Food product design is a balance of art and science. Increased calorie visibility may discourage the development of high calorie new products. However, strategic product design, such as the addition of a single leaf of lettuce, may have an impact on consumer perceptions of a product, where a small change in food design (such as the addition of one leaf of lettuce), can have a statistically significant impact on perceptions of the food (Chapter 7). Thus, careful thought must be put towards using food design as a tool to nudge consumers towards healthier options.

Branding of food items must be used with caution, as adding a well-known brand to a healthy item, may discourage rather than incentivize purchases. Understanding children's perceptions of branded healthy items can help in presenting healthier options to encourage their selection in fast-paced environments such as those encountered in a fast-food restaurant (Chapter 8). Thus, testing the preconceived notions and halos associated with brands is critical before applying them to specific food items as a nudging technique.

10.1.5 Family dining

As seen in the observational in-restaurant study (Chapter 9), family dining is evolving, and family eating was mostly staged, with few 'family moments', other than sharing fries in many instances. Immersion in digital technology appears to be rapidly overtaking traditional play and family interactions in the QSR setting.

The in-restaurant study in this thesis also suggests that the toy no longer generates the same interest with children as in the past, now that the children often have the option of using their own technology for entertainment in-restaurant. The family dining experience is changing with both the use of fast-food restaurants as 'third places' and the influence of technoference on family interactions in-restaurant. The use of technology, especially mobile technology, is a key area to consider regarding future ordering processes and future nudging opportunities. The role of the parents, in particular that of fathers with children under the age of 6, suggests that there is an opportunity to better leverage modelling of healthy choices by fathers.

Although this study's findings are generally compatible with the literature on fast-food dining, there are several areas of note that differ from past findings. The role of the restaurant as a meeting place and as a home-away-from-home continues to increase in frequency for families with young children. A key difference to past studies is that although

the consumer considers bringing their child to a fast-food restaurant a treat, it has become, for many, a large portion of their weekly food intake. As shown in the thesis research, a small change in a food image can have a large impact on the perception of the healthiness and desirability of a product, and these images may grow in increasing importance with the growth of mobile ordering. The role of technology in ordering food before one arrives at the restaurant will change how consumers may be nudged, as the food decisions will be made less frequently inside of the restaurant, and the in-restaurant nudging opportunities may need to evolve into digital nudges outside of the restaurant.

10.2 Implications of the findings

In the Pricing Study (Chapter 8) french fries were the preferred side item chosen by parents for their child. Viewed as family together time and a treat occasion (Chapter 5), the sharing of french fries within the family dining moment is an important aspect of these occasions, when most of the time spent in the restaurant is staged eating (Chapter 9). Current parents and future parents (Chapter 5) look favourably upon time spent in fast-food restaurants with their children and the sharing of french fries.

French fries should not be vilified. Indeed, any food, in moderation, can be included in a healthy diet. The challenge becomes in that french fries and other fast-food items have stopped being an occasional treat and have become a dietary staple. It is this frequency of consumption that needs nudging. A study of over 4,000 participants demonstrated that increased fried potato consumption is associated with increased mortality risk, specifically those who consumed fried potatoes at least twice a week (Veronese *et. al.*, 2017).

The terms fast food and junk food are often incorrectly used interchangeably, but fast food does not have to mean junk food. Junk food, a term coined in 1972 by Michael Jacobson, director of the American Centre for Science in the Public Interest, today is usually generally defined as an energy dense food with high salt, fat, or sugar content and low nutrient value in terms of protein, fibre, vitamins, and minerals (Finardi and Tognon, 2014). The dilemma is not that the consumption of a certain food on an occasional visit to a fast-food restaurant for a meal poses a health risk, but rather it is about the regular consumption of processed foods that are high in salt, fat, or sugar at the exclusion of foods high in the required nutrients for good health.

Habit is one of the key drivers of fast-food choices (Lassen *et al.,* 2016), as is tradition (Anderson and Mirosa, 2014; Wang *et al.,* 2018). Therefore, the goal is to try to change an unhealthy behavioural habit to a healthier one. Habits are defined as actions (without the goal in mind) in response to stimuli (Marteau *et al*., 2012). Habits prompt automatic

behaviour by situational cues (as a result of learned cue-behaviour associations) (Gardner, 2015). There is an abundance of stimuli inside of a fast-food restaurant order line (e.g., tempting aromas, the sizzling sounds of food cooking, and visuals of food options on menu boards), all situational clues that drive familiar choices.

Rituals, habits and food memories appear to play a strong role in fast-food visits (Kottak, 2002; Bugge and Almås, 2006; McIntosh *et al.,* 2011; Anzman-Frasca *et al.,* 2017). Thaler *et al.* (2010) discuss what they call "choice architecture" and the "choice architect". The "choice architect" having the responsibility for organizing the context in which people make decisions. Responsible "choice architects" can nudge consumers in a direction that will encourage people to make positive changes. They reinforce how the default option, since that is the path that requires the least effort or least resistance, is the option most will choose (whether it is good for them or not). There has been a rapid increase in the number of choice architecture (nudging) studies in the literature, due to the low resource demand and broad applicability of the intervention tool.
Insights from behavioural science are being used in marketing products to nudge consumers into desired behaviours. Whether these behaviours benefit the consumer or the seller is the area where there is often controversy. For example, in one major fast-food chain, the counter person is trained to only offer the customer the cup size choice of medium or large when they order a soft drink, even though a small sized drink is an option. If the consumer does not ask for a specific size, medium rather than small is the default. Supersizing of fast-food products, as noted by Vermeer *et al.* (2014), is one of the key factors leading to increased obesity. Supersizing options are heavily marketed (nudged) with price incentives and are often set as the default option.

Nudging studies in this thesis conducted in Canada will help to fill the gap in the literature on Canadian fast-food behaviours. The majority of the studies have been conducted in the US (49%), followed by Europe (38%) (predominantly in the UK) (Szaszi *et al.,* 2017). With similar food motives in Australia, Canada, the UK, and the US, nudges that prove to be effective in one country, may have broader applications across similar cultures.

Traditionally children's menu bundles do not drive restaurant profits and therefore there has been little incentive for restaurants to develop meals that are not just a modification of the adult menu. Restaurants are concerned with the following questions: 1) is there consumer demand and therefore profitability, 2) are there government regulations that need to be observed, and 3) is there a moral obligation (Ansman *et al.,* 2017). Nudging in a fast-food restaurant setting for healthier food choices will require addressing priorities

beyond just the restaurant needs. In order to be successful, the priorities of the child, the parent, and the restaurant must be addressed concurrently.

Fast-food restaurants fills a need for quick, affordable, and convenient food. While consumers may not go into these restaurants with calories as a top priority, having calories, or some other menu labelling system that increases product transparency, could potentially act as a useful signpost, and nudge some consumers.

Calorie labelling with increased transparency is valuable since consumers have limited knowledge in this area and repeated exposure should over time start to educate consumers. However rather than calorie listings, it has been suggested that perhaps simple icon-based menu labelling would help consumers with food choices, especially those with limited health literacy. An example is the 'heart healthy' symbol but there appears not to be sufficient research to date on the impact of this option versus calorie labelling (Kerins *et al.,* 2017). Another alternative to menu calorie listing to help consumers understand calorie impact would be the use of **p**hysical **a**ctivity **c**alorie **e**quivalent (PACE) labelling. This label conveys in minutes or miles what action would be required from the consumer to expend the energy received from the fast-food choice and could be a more effective and easily understood nudge for some consumers (Kraak *et al.* 2017a, 2017b).

Calorie labelling on fast-food menus, although important in terms of consumer education, does not hold the power one would have hoped in terms of using it as a nudging tool and clearly is just one more part of a larger education program required on healthy food choices.

How millennial consumers define a 'healthy' restaurant food is key to understanding what is needed to encourage healthy choices. It is not just about calories for Millennials. Looking at food choice motives (Chapter 4), the 'Healthy' factor was comprised of 12 different statements, in which the importance of calories had the lowest ranked importance as a 'Health' food motive. Higher in importance to the Millennials were concepts such as 'Is nutritious', 'Keeps me healthy', and 'Contains natural ingredients'.

This suggests that it is not the exact calories of a product that attract the attention of the millennial consumer to guide them as to whether it is a healthy purchase, but rather descriptions suggesting healthy or specific food attributes other than calories. Therefore, using terms such as organic might be a better choice to capture their interest. Although posting the calorie content on menu descriptions is a step in the right direction for menu

transparency, by carefully wording the descriptions of food choices, that wording may have a more direct appeal than just calories in descriptions and would help with nudging choices.

One of the barriers to success is that in the countries studied, there is the perception that "unhealthy food = less tasty food". This is a critical hurdle for consumers, knowing that sensory appeal is key when choosing food. However, in France, there is a different perception where "healthy = tasty" (Werle *et al*., 2013). This cultural difference suggests that an educational component may be needed to change consumer's attitudes towards the taste of healthy food options.

Even for those consumers who are well educated in terms of nutrition, there is consumer internal conflict between short-term indulgences and long-term health considerations (Mai and Hoffman, 2012). Marketers will need to adjust the message for these different consumer considerations.

More than half of food expenditures in the US are spent outside of the home and children get an average of 25 percent of their calories from restaurant foods and beverages (Batada *et al.,* 2013; USDA, 2016). For the child meal bundle, research on changing the default option has been found to be effective as it takes advantage of the tendency to select the option that is the easiest choice (Thaler *et al.,* 2010). A number of fast-food restaurants have implemented healthier default options for sides and drinks since this research project commenced a number of years ago (Anzman-Frasca et *al.,* 2014; McDonald's, 2018a; Washington Post, 2018).

The default option can be a powerful tool when trying to encourage healthier choices. However, it depends upon the restaurant as to whether nudging behaviours benefit the consumer or the seller.

As shown in Chapter 8, when given the option of healthier side dishes, it was the millennial parents under the age of 35 who indicated that they were more likely to order apples as the side dish than french fries for their child. For the dessert option, it was this group of parents who indicated that they would select the perceived healthier option of a low-fat yogurt versus an ice cream cone. This survey was well aligned with what is known about Millennials in that they have a focus on healthy lifestyles for themselves and with this large influx of future parents, this suggests that offering nutritious alternatives as the default food, or as an inclusion in the current food bundles, is a nudge that may be well accepted.

In the past, the default drink option was soda (an inexpensive supplier option) in child meal bundles, but recently the practice of allowing children to drink large quantities of soda has undergone some changes, not only in the fast-food industry, but elsewhere due to increasing concerns on childhood obesity. For example, California introduced child day care legislation for soda, since they found that one in three children in California, between two and five years of age, consumed at least one soda per day and almost 20% of children between two and five years of age in California were overweight or obese. Today, California day cares no longer serve beverages with added sweeteners, either natural or artificial, such as sodas (California Legislative Information, 2012). Although a number of the large chain restaurants have now removed sugary soft drinks from the child menu bundle, in a number of cities in the US, such as Baltimore Maryland and Lafayette Louisiana, they are using local legislation to address the problem of children consuming sugary drinks with child meals, by removing sugary drinks from **all** restaurant child menu options. In 2018, the default drink on child menus in Baltimore is water, milk, 100% fruit juice, sparkling water, or flavoured water without added sweeteners and in Lafayette, the default drink is milk or water (Salud America, 2018).

Reformulation of products has been occurring in some cases due to the greater menu transparency when there is calorie labelling on menus. However, changes are still progressing slowly. A recent QSR restaurant survey showed limited progress and little change in the use of pricing, healthy defaults, promotions to children, and priming/prompting being adopted by restaurants to encourage healthier choices from the years 2006 to 2017 (Kraak *et al.,* 2017a).

Behavioural rewards have been found to be a stronger nudge option than financial rewards (Chan *et al.,* 2017). In a cafeteria study setting, they generated increased salad sales (28.5% with behavioural reward versus a 5.5% financial discount) but researchers cautioned that although these results look promising they cannot be looked at in isolation. The findings must be tempered with additional research as it has been shown that consumers will often compensate for good behaviour with a later indulgence thereby negating any benefit (Khan and Dhar, 2006). In addition, it may be necessary to fold pricing incentives into the nudging approach (such as punitive pricing, which is financially favourable to the restaurants), in order to increase restaurant adoption of this nudging strategy.

Unexpected and unintended consequences often occur, and this was seen when McDonald's offered more salads on their menu boards. The effect of seeing more salads on the menu board resulted in an increase in sales of fries, rather than salads. This has

been described as vicarious goal fulfilment, in that the consumer feels a goal has been met, when they have taken some small action, such as **considering** the salad option, although not ordering it (Wilcox *et al.*, 2009). This illustrates the complexity involved in consumer decisions of fast-food choices and that even good intentions on the part of the restaurants can fail to achieve health goals.

The toy was originally included with child meal bundles as a motivating factor to encourage purchase. However, the in-restaurant study in this thesis (Chapter 9) demonstrated that the toy no longer generates the same interest with children as in the past, and the family's own technology is rapidly replacing toys for in-restaurant entertainment. Although the use of the toy alone as a motivating factor does not appear to offer the hoped-for strong nudge, other researchers have approached the problem from the point of view of whether it drives the initial visit intent. Children and parents were questioned to determine if the toy was an influence on whether they selected a child's meal bundle (Anzman-Frasca *et al.,* 2017). Only 2% of children indicated that it was a factor in their choice. 'Taste' (53%) and 'Habit' (24%) were the top two reasons given for their choice, with 'taste' being the top choice for both the child and the parent. This aligns with the food motives outlined in Chapter 4, where 'Sensory Appeal' is the primary motive in all 4 countries, when choosing food.

By reducing the size of the portion (thus reducing calories consumed) one could gain health benefits, but most consumers would not be satisfied with the concept of receiving less food when supersizing is so popular. However, in studies where the offer was a reduced portion size paired with an incentive (e.g., toy, air miles), there was appeal and a willingness to switch (Reiman *et al.,* 2015, 2016). Using the toy as an incentive paired with reduced meal portions is certainly something that should be explored further and appears to be a promising option for both adult and child meal portions.

Part of the thesis's research unique contribution to the literature was the inclusion of fathers, in addition to mothers, in the research. Differences in how mothers and fathers view fast food and feeding their children were seen throughout the research studies. In general food motives (Chapter 4), women prioritized 'Health' higher than men did, when choosing food. In a fast-food restaurant setting, fathers were more likely to be commended for spending time dining with their children, while mothers were more likely to be criticized by their peers (Chapter 6). Men were more likely to underestimate the calories in a cheeseburger (Chapter 7), and more likely to agree with the statement that the cheeseburger shown was something they would "feel good about eating" (Chapter 7).

The different perspective that the father had on eating fast food than the mothers has larger implications for how the children are being fed. Father's influences on overall family food practises are important (Watterworth *et al.,* 2017) but it appears that fathers are often less concerned about their own and the family dietary health and often choose quick unhealthy options that mothers try to avoid (Fielding-Singh, 2017). In many cases, it appears that the fathers undermine the mother's attempts at healthy options. Evidence of this was also seen in this thesis's branding study, where children related differences in parental food choices for them based on what the mother would want them to eat versus the more 'treat minded' fathers (Chapter 8). As fathers take on a growing role in the feeding of children, their alternate perspective on food choices will have a larger influence on the next generation of children.

In many cases there are no longer the traditional three meals a day and there is increased use of fast-food restaurants as a third place (another home). Making food choices for a child in a staged eating environment, such as a fast-food restaurant, has additional consequences. If a parent makes a healthy food choice for a child, it is important to model that choice by what they themselves eat in front of the child, for it to be effective in the long term. What was seen in the Akkoc study (2015) when the adult made an imposition decision for a child (a decision that is inconsistent with the desires of the target) on a healthy food for the child, this in turn allowed them to make indulgent less healthy food choices for themselves later (i.e., the child gets fruit now while the parent eats cake later). However, when they ate together, the parent was more likely to also eat the healthy choice. This suggests that one area where healthy choices can be addressed is the issue of eating together, rather than at staggered eating times, as was seen with many families in the fast-food in-restaurant study. Making the meal a time to eat together, even around a table in a fast-food restaurant, might result in healthier food consumption by the entire family.

The author agrees with Fulkerson (2018), who suggests that in the long term, the goal should be to educate children so that they understand where their food comes from and that they understand more about marketing and branding and what are healthy foods and what are occasional treats. In this thesis, the branding study (where young children also offered their thoughts on certain foods) suggested that even at the young age of 4-6 years old, many of the children could very clearly articulate which foods were indeed the healthy choices and that these foods would be their parent's choices for them.

As stated by Lee-Kwan *et al.* (2018), today there is still a large lack of information on what motivates parents' food purchase choices for their children in fast-food restaurants and

without this basic information and understanding, it will be difficult to develop intervention strategies to guide better choices.

Would exposing parents to advertising on better fast-food child meal choices have an effect if carefully conducted? Probably, but who would prepare such advertising and more importantly who would pay for it? The industry currently spends significant dollars on advertising fast food to children via traditional television advertisements. Recently, in a yearlong Australian study monitoring one free television network, it was found that children, who watched 80 minutes of television daily, were exposed to 800 junk food advertisements (Smithers *et al.,* 2018). This number was double the advertisements for healthy foods over the one-year study period. During the time of day that cartoons were on television, the junk food advertisements were 2.3 times higher each hour than for healthy food advertisements. However, with new technologies, there is now a decline in standard television viewing due to streaming services, and therefore there is a window of opportunity to rethink the influence and quantity/quality of advertisements that are allowed to be delivered to young children.

10.3 Limitations of the research

The focus in the thesis was on stated consumer intent with the goal of forming a strong base for the next stages of study. Understanding intent is key but it should be stressed that exploring actual food choice behaviour within the fast-food restaurant setting is a necessary next stage of research. Whether what the consumer indicated they would order is what occurs when they are faced with the consequences of their action is a limitation of an intent survey. Other studies have shown that good intentions do not equal what is seen when respondents are faced with the consequences of their stated choice (Lassen *et al*., 2016; Larsen *et al.,* 2018). For example, knowing that their child may throw a tantrum in public when their choice of food was not selected could well affect food choice within the restaurant.

While the online quantitative studies in this thesis included Australia, Canada, the UK and the US, the qualitative studies had a strong focus on Canada, where the researcher is located. It cannot be implied, and should not, that other countries, for example France or China, with different attitudes towards healthy foods and child feeding respectively, would yield similar results. Indeed, more studies with qualitative research from Australia, the UK and the US, as well as quantitative research comparisons with additional countries should be considered in the future.

The observational studies were conducted in one of the largest QSR chains and thus have wider applicability in other countries, due to similarities in these specific restaurants, around the world. However, studies in additional fast-food restaurants chains would provide additional insights.

During data collection there were some challenges. While interviewing young children on their impressions of brands and healthy food items, some children were very quiet, with limited discussion of the images they saw. They were able to sort the cards easily, but some struggled to articulate why they sorted them the way they did, which may be related to their age (4-6 years old).

During the quantitative data collection, a balanced and odd-numbered scale was always used. Since a 5-point scale was used and the mid-point was neutral (neither agree or disagree) this had two key impacts on the data collected: (1) respondents were not given the option of declining to answer but could chose a neutral middle, and (2) with the neutral middle, there was no forced choice. Additional research could include qualitative interviews to provide information not captured by this choice of survey scales and questions.

Since for most of the surveys a paid Toluna panel was used, the demographic information that was collected was the standard information collected by the company to screen participants for these types of surveys. This did not allow for the addition of any additional demographic screening questions that might have allowed for extra insights during the analysis of the responses. For example, respondent's ease of access and use of social media for sourcing information versus newspapers and TV.

The 'Uncle Dads' or 'Disneyland Dads', fathers who no longer live in the home and who have very few rules that they expect the child to follow, is an area where one might expect to see these fathers make different fast-food choices for their child. With the overall scarcity of father studies, not surprisingly, there is a lack of studies to date that have focused on this particular area. In the future, the question of whether a respondent father in a survey is living at home with the child, or is living elsewhere, would be useful information to gather in order to examine if there is an impact on fast-food choices.

The consumer concepts of healthy, perceived healthy, and perceived 'quality' of healthy is an interesting topic for future research. Although it was not a part of the current research, it would be a worthwhile consideration for future research.

Chapter 11 - Conclusions and recommendations

11.1 Conclusions

Australia, Canada, the UK, and the US demonstrated similar food motives, and placed importance on similar key factors. ‘Sensory Appeal’, ‘Price’, and ‘Convenience’ are key factors for millennial consumers in all four countries. These factors may help to explain the growth in fast-food consumption and the low adoption of healthier food options, which are often priced higher or are not as convenient to order.

This cross-cultural similarity suggests that nudging techniques may have the potential to impact consumers in more than one country. Strategies to influence these consumers must not downplay the role of ‘Sensory Appeal’, or overestimate the role of ‘Health’. Leveraging ‘Price’ and ‘Convenience’ are critical in nudging millennial consumers, in all four countries, into healthier food choices.

Across country, age, and gender, the majority of parents (60%) have good memories of going to fast-food restaurants with their families as children. While parents would like restaurants to offer healthy foods, for most, they do not worry about healthy eating when they are there (60%), view the occasion as a treat (67%), and are willing to let their children eat whatever they would like (58%). While the frequency of visits has made fast-food dining a part of their regular food intake, they make food selections based on a treat mentality. On a promising note, they indicate that they would like to see healthy options on the menu (62%), and for many, even government nutrition regulations would be acceptable (56%). There is a consumer expectation of healthy options on fast-food menus regardless of whether consumers are parents (or not). This suggests that there is an opportunity to nudge if instead of the perception of the visit as a special treat, the awareness that the visits are now routine, could be brought to the consumer’s consciousness. Nudges that shift the mentality from treat to regular food intake may be able to address this. For example, a loyalty program, where if a child selects apple slices with their meal three times, on the fourth visit a treat item (such as french fries or an ice cream cone) would be free. This could help to highlight the regularity of visits without asking consumers to forego all treat items.

The average customer time, from the moment the family entered the restaurant to when they first spoke to the order taker, averaged 1 minute and 39 seconds. Two-thirds of adults spoke to the child prior to ordering food, however only 12% of the children spoke to the order taker. This in-restaurant time window to nudge decisions on food choices is brief and in-restaurant interventions will be a challenge. Nudging through the use of

technology, a key aspect for how the next wave of parents will order food, may be key as an approach to intervening in this limited time window. Using new and emerging technologies in the future may be a lever to nudge parents into healthy choices that they can then model for their children, as well as nudging what they order for their children.

For a generation hyper-tuned into the opinions of their peers, the depiction of family dining in fast-food restaurants for millennial parents includes several key themes including an opportunity for family time together (25%), a treat (25%), and an unhealthy food decision (19%). Respondents from the US viewed fast-food family dining more favourably than respondents from Australia, Canada, or the UK. Fathers, when depicted as the parent in the vignette, were more likely to be praised for spending time with their children, while mothers were more likely to be critiqued for making poor nutritional choices. Leveraging the concept of family time together, may be an opportunity to nudge millennial parents into modelling healthier eating behaviours. Offering family meal bundles with healthy shareable options, such as a family pack of apple slices that are meant to be shared, could allow the millennial parents to find a balance between enjoyable family time together and nutrition.

As the populations in Australia, Canada, the UK, the US, and other parts of the world struggle with obesity and its attendant health problems, there is interest in gaining more insights into how products such as inexpensive and popular fast-food burgers are advertised and thus perceived in terms of their calorie content and healthiness. How consumers are influenced by fast-food images is an important potential target for consumer nudging considerations. However, the current approach of mandating calorie labelling may not have the desired nudging effect of shifting consumer behaviours. Most consumers were poor at estimating calories and overall perceptions of the food were influenced by a minor product change. Repeated exposure to the calorie information now posted on most Ontario fast-food menus is an educational initiative expected to show benefits in the future, but additional time may be required to show measurable increases in consumer knowledge. Perhaps, rather than calories, a similar nudging tool such as easy to read symbols that highlight healthier options, may be a path with greater potential to impact consumer behaviour.

Parents, of all ages, who chose french fries for their child were statistically more likely to choose ice cream as a dessert option, perhaps thinking of the visit as a ‘treat’ occasion where calories and nutrition were not a concern. However, parents who chose apples as the side dish were also more likely to select the perceived healthier dessert of yogurt rather than an ice cream cone, perhaps suggesting an overall healthy food mindset.

Perhaps nudging consumers to make a healthy side choice for their child could also have an impact on later decisions such as desserts.

Nudges, using a financial incentive approach, were able to shift food choices away from french fries and into fresh fruit as a side dish, however the monetary incentive required (≥ 15% discount) would probably not be economically feasible from the perspective of the restaurant. While the punitive pricing approach to discourage less healthy choices may be more financially feasible from the perspective of the restaurant owner, the long-term consumer perception and response to punitive nudging measures associated with choosing less healthy options requires further exploration. Rather than a discrete choice, a nudge, which encourages the addition of a healthy food option to a bundled meal at an accessible price, may be an approach that improves the nutritional balance of the meals, without asking consumers to forgo one of their treat items.

When children were asked about snack choices that they thought their parents would choose for them, the children easily identified snacks that they perceived to be healthier. However, perceptions of healthier may not translate into the children's actual snacking behaviour. The branding study suggests that while children have an early awareness of branding, the branding of healthy food items may not necessarily nudge young children into increased consumption of healthier options. When apples were sliced and bagged, perceived taste and healthiness perceptions declined, and this may be detrimental to consumer uptake. Branding healthy foods in this manner may not effectively nudge choices, but there may be an opportunity to nudge through packaging or preparation in a different manner. Making the healthy options easy to eat 'on the go', while still maintaining the cues of freshness, such as by slicing the apple immediately prior to adding it to the meal bundle, could increase consumer uptake and improve positive perceptions of the fast-food healthy item.

The role of fast-food restaurants in the lives of families continues to grow. Fast-food restaurants are increasing being used by consumers as a 'third place', with many observed activities unrelated to traditional restaurant dining, such as use of an indoor play area, or adults using the time for their own independent activities while their children are otherwise occupied. Of the families observed, children spent more time playing with the technology that they brought from home than playing with any restaurant provided toys. The utility of a toy in a child's meal bundle is in decline and its potential as a lever to nudge healthier food choice decisions is likely limited. However, both children and adults were frequently observed using technology in the restaurant. Indeed, technoference appeared to be present during the family dining experience for many families, with 40% of

observed children using technology during their restaurant visit. Nudging, using emerging technologies, may become the key to connecting with families. This may mean offering downloadable games for children, with unique appealing options for those that choose healthier foods, or technology options at the table that not only encourage family interactions but also facilitate more convenient ordering (and digital nudging) in the process. The role of technology for lifestyle improvements such as digital health apps for exercise and for monitoring sleep cycles have found rapid acceptance. There may well be new roles for technology in healthful diets that we have not yet even envisioned.

Habit is a strong choice motivator. Nudges can provide opportunities to shift behaviours to healthier choices. However, multiple nudges may be required, working in concert with each other rather than in isolation, in order to create long-term change.

11.2 Recommendations for future research

Factors studied in this thesis (price, calories, image, branding) were based on elements that could be most easily influenced by changes within the restaurant environment or within the food industry. Nudges to shift purchase decisions can potentially have a positive impact when used with the goal of shifting parental decisions into healthier food items for children. However, care must be taken that the cues are not used to shift decisions only into more profitable choices for the restaurants, which may or may not embrace healthier children's food items. In addition, treats are historically a part of a QSR visit and as such, although there may now be many more visits per week, the visit should still retain some of that element in some manner for the restaurant to maintain its appeal to the customers.

Specific recommendation:

- A growing number of food orders are being placed in the drive-thru and family meals are being consumed inside of vehicles. While, Chapters 6 and 9 explored family orders and family dining inside of the restaurant, there is an opportunity to also explore orders and dining with on-the-go families. A qualitative research study, using families and video cameras in cars, could provide insight into how families make food decisions in the drive-thru and how families dine together in vehicles.

Nudging by food communication with young children is key if we want them to make healthy food choices when they reach the next stage of making independent food choice decisions. Knowing that children recognize branding at an early age suggests that branding a product for healthiness is a possibility. Visual clues on menus next to images

of food, such as the ‘heart healthy’ icon for adults, but appropriate for younger children, is something that could be explored further.

Specific recommendation:

- A qualitative exploration of alternate visual cues, designed for younger children, could help to inform future menu design. Expanding on the branding research in Chapter 8, conducting interviews with young children, testing a variety of icons, could help to inform if visual clues on menus could nudge different choices for children.

With the increase in the number of family QSR visits, it is important that parents realize that for most, this is now no longer a rare treat visit and as a result, a different approach is required when contemplating menu choices. They are also the role models in demonstrating what healthy eating habits look like for their children, as father’s eating habits, in particular, tend to be carefully watched and mimicked by young children. Parents must work in concert with their children on selecting healthy options.

The surveys have shown that Millennials expect QSRs to offer healthy options, but Millennials must also do their part in not just expecting those options to be available but in ordering these options on a more regular basis.

In addition, there is much that the industry can do to support healthier family eating. First, they can ensure that the child meal bundles meet nutritional requirements and calorie recommendations for children. They can make menu changes that add additional healthy items and promote these in-restaurant, acknowledging that it will be a slow process until consumers are willing to make them a part of their regular selection. Listing of calories and making nutritional information widely accessible is easily achievable in a number of forms (menus, online, place mats, etc.). Incentives can be offered that add a variety of small nudges to help select the healthy options, especially in terms of what the default options are on child meal bundles. The default option on food orders is one of the most powerful tools when trying to encourage healthier food choices.

Specific recommendation:

- A study, in partnership with a fast-food restaurant, to explore the development of shared meal experiences in a fast-food restaurant and how that could be used to encourage healthy eating modelling by the parent, and still address the *Sensory Appeal* and *Convenience* needs of the family dining occasion.

- A future partnership with a sharing of data [e.g., cash register receipts such as in the Starbuck survey by Bollinger *et al.* (2011)] or the trialling of healthy menu items (such as smaller defaults of unhealthy sides) with various promotions, would allow valuable information to be gained in terms of a better understanding of which nudges are the most effective.

Surveys conducted before the actual in-restaurant experience and where the food selection could be evaluated afterwards, based on items such as use of coupons (mobile order monitoring) issued to participants to use at a later time, could be tracked without the respondent being aware of the purpose, and might be a possibility to better evaluate professed intent versus actual action.

More studies in the field are needed (i.e., within the restaurant setting with both probing beforehand of a participant's intentions and then monitoring of their actual behaviour). This would help to determine the connection between 'what the respondents say they will do' and 'what they actually do' in a particular fast-food situation.

Since it can be very difficult to implement menu changes in a large restaurant chain, with their set menus and lack of flexibility without corporate permission, approaching a privately owned smaller child-friendly restaurant for a study on default foods would be feasible. This would allow for the testing of menu defaults and interviews both pre- and post-meals. It is important to conduct studies in-restaurant when possible, to ensure that most of the external motivating factors that affect fast-food choices are present during the restaurant visit. Care must be taken if there is questioning before food choices are made, that this does not result in an unintended influence on subsequent selections.

Specific Recommendation:

- A longer-term investigation of the effect of calorie labelling in Ontario Canada fast-food restaurants using the same survey questions and demographics, after a 2-year period, would help to establish if indeed there is a trend that calorie labelling is educating a segment of the population.

The rise in mobile ordering, so that all decisions are made, and the food is ordered before arrival at the QSR (despite the family eating inside of the QSR), will rely heavily on food images that appeal to the consumer and on pricing (specials). Mobile ordering offers the opportunity to provide consumers with easy to access to nutritional information on the various choices. It can also provide an environment free of restaurant distractions and food triggers, such as aromas, and the easy use of coupons that can be used to nudge healthy choices. The time window inside of the restaurant to make a food decision, where

there are line-ups and a server waiting to take your order is very short, however, mobile ordering allows for increased contemplation time without the pressure of a cashier or fellow restaurant patron waiting on you.

The use of technology, especially mobile technology, will change how we order food in the future, whether it is kiosks in fast-food restaurants, fast-food apps on smartphones, or how we are influenced by peers sending us Instagram images of their food choices. These are relatively new areas, where little research has been published to date on how these constantly improving technologies affect our food motives.

Specific Recommendation:

- The next generation of millennial parents have already begun to adopt mobile ordering for themselves. A study exploring how fast food decisions are made in mobile ordering, and how this differs from the in-restaurant ordering experience, would help to inform the development of digital nudges that may influence consumers. A study on mobile ordering would have two parts. A qualitative exploration of how Millennials use their mobile phones to order food to provide a baseline of understanding of their considerations and motives. This would be followed by a quantitative study, testing different mobile ordering images and approaches, to identify ways to digitally nudge food ordering intent.

References

ABC News Australia. 2017. Toy promotions have powerful influence on what kids want to eat, study finds. 31 July. [Online]. ABC. Available from: http://www.abc.net.au/news/2017-08-01/toy-promotions-powerful-effect-on-what-kids-want-to-eat/8761222 [Accessed 15 May 2018].

ACCEO. 2017. Mobile apps are shaping the food consumption trends of millennials. [Online]. ACCEO. Available from: https://tender-retail.acceo.com/blog/mobile-apps-are-shaping-the-food-consumption-trends-of-millennials/ [Accessed 11 May 2018].

Adams, E. L. and Savage, J. S. 2017. From the children's perspective: What are candy, snacks, and meals? *Appetite*, 116, pp. 215-222.

Afshin, A., Peñalvo, J.L., Del Gobbo, L., Silva, J., Michaelson, M., O'Flaherty, M., Capewell, S., Spiegelman, D., Danaei, G. and Mozaffarian, D. 2017. The prospective impact of food pricing on improving dietary consumption: A systematic review and meta-analysis. *PloS ONE*, 12 (3). [Online]. PloS ONE. Available from: https://doi.org/10.1371/journal.pone.0172277 [Accessed 8 May 2018].

AIHW (Australian Institute of Health and Welfare). 2018. Overweight and obesity. [Online]. AIHW. Available from: https://www.aihw.gov.au/reports-statistics/behaviours-risk-factors/overweight-obesity/overview [Accessed 11 March 2018].

Akkoc, A.U. 2015. *How choosing for others affects consumption for the self: The consequences of p*reference *imposition and accommodation submitted for the award of a Doctoral degree by the University of Alberta*. Edmonton: University of Alberta.

Alderson, T.S.J. and Ogden, J. 1999. What do mothers feed their children and why? *Health Education Research*, 14 (6), pp.717-727.

Aldiabat, K. and Le Navenec, C-L. 2011. Clarification of the blurred boundaries between grounded theory and ethnography: Differences and similarities. *Turkish Online Journal of Qualitative Inquiry,* 2 (3), 1-13. [Online]. Available from: http://dergipark.ulakbim.gov.tr/tojqi/article/viewFile/5000093452/5000086924 [Accessed 8 May 2018].

Alexander, C.S. and Becker, H.J. 1978. The use of vignettes in survey research. *Public Opinion Quarterly*, 42 (1) pp.93-104.

Almiron-Roig, E., Navas-Carretero, S., Emery, P. and Martínez, J.A. 2018. Research into food portion size: Methodological aspects and applications. *Food and Function,* 9 (2), pp. 715-739.

Althubaiti, H., Hambly, C., Mitchell, S. E. and Speakman, J. R. 2017. Children's perception on healthy snacks using a card sorting exercise in Aberdeenshire nursery and primary schools. *Proceedings of the Nutrition Society*, 76 (OCE2): E39. doi:10.1017/S0029665117000957 [Accessed 8 May 2018].

Anderson, K. and Mirosa, M. 2014. Revealing barriers to healthier fast food consumption choices. *British Food Journal,* 116 (5), pp.821-831.

Andrews, D., Nonnecke, B. and Preece, J. 2003. Electronic survey methodology: A case study in reaching hard-to-involve internet users. *International Journal of Human Computer Interaction*, 16 (2), pp.185-210.

Andrews, T. 2012. What is social constructionism? *Grounded Theory Review*, 11 (1), pp.39-46.

Anzman-Frasca, S., Dawes, F., Sliwa, S., Dolan, P.R., Nelson, M.E., Washburn, K. and Economos, C.D. 2014. Healthier side dishes at restaurants: an analysis of children's perspectives, menu content, and energy impacts. *International Journal of Behavioral Nutrition and Physical Activity,* 11 (1), p.81. [Online]. doi: 10.1186/1479-5868-11-81 [Accessed 6 September 2018].

Anzman-Frasca, S., Folta, S.C., Glenn, M.E., Jones-Mueller, A., Lynskey, V.M., Patel, A.A., Lisa, L.T. and Lopez, N.V. 2017. Healthier children's meals in restaurants: An exploratory study to inform approaches that are acceptable across stakeholders. *Journal of Nutrition Education and Behavior*, 49 (4), pp.285-295.

Anzman-Frasca, S., Ventura, A.K., Ehrenberg, S. and Myers, K.P. 2018. Promoting healthy food preferences from the start: a narrative review of food preference learning from the prenatal period through early childhood. *Obesity Reviews*, 19 (4), pp.576-604.

Apple. 2017. Apple's revenue worldwide from 2004 to 2017 (in billion U.S. dollars). Statista. In: Statista - The Statistics Portal. Available from: https://www.statista.com/statistics/265125/total-net-sales-of-apple-since-2004/ [Accessed 14 May, 2018].

Ares, G. 2018. Methodological issues in cross-cultural sensory and consumer research. *Food Quality and Preference*, 64, pp.253-263.

Arlinghaus, K.R. and Johnston, C.A. 2017. Engaging fathers in the promotion of healthy lifestyle behaviors. *American Journal of Lifestyle Medicine*, 11 (3), pp.216-219.

Arno, A. and Thomas, S. 2016. The efficacy of nudge theory strategies in influencing adult dietary behaviour: A systematic review and meta-analysis. *BMC Public Health,* 16 (1), 676. doi: 10.1186/s12889-016-3272-x [Accessed 8 May 2018].

Arredondo, E., Castaneda, D., Elder, J.P., Slymen, D. and Dozier, D. 2009. Brand name logo recognition of fast food and healthy food among children. *Journal of Community Health*, 34 (1), pp.73-78.

Australian Bureau of Statistics. 2014. Australian social trends 2014. Issue 4102.0. [Online]. ABS. Available from: http://www.abs.gov.au/ausstats/abs@.nsf/mf/4102.0 [Accessed 11 March 2018].

Australian Food News. 2018. Australian fast food menu labelling schemes to be reviewed. 28 February. [Online]. AUSFOODNEWS. Available from: http://www.ausfoodnews.com.au/2018/02/28/australian-fast-food-menu-labelling-schemes-to-be-reviewed.html [Accessed 7 April 2018].

Ayadi, K. and Bree, J. 2010. An ethnography of the transfer of food learning within the family. *Young Consumers*, 11 (1), pp. 67-76.

Bahadoran, Z., Mirmiran, P. and Azizi, F. 2015. Fast food pattern and cardiometabolic disorders: A review of current studies. *Health Promotion Perspectives*, 5 (4), pp.231-240.

Bankrate. 2017. Millennials struggle with financial vices. Average Millennial eats out 5 times per week. [Online]. Bankrate. Available from: https://www.bankrate.com/pdfs/pr/20170626-Financial-Vices.pdf [Accessed 17 February 2018].

Bankwest. 2015. Food and beverages industry report. [Online]. Bankwest. Available from: https://www.bankwest.com.au/Blob/pdf/.../food-services---bus-insights-pdf [Accessed 10 March 2016].

Barkley. 2013. Millennials as new parents: the rise of new American pragmatism. [Online]. Barkley. Available from: http://www.millennialmarketing.com/wp-content/uploads/2016/05/FutureCast_Millennials-as-New-Parents-Report-1.pdf [Accessed 12 February 2018].

Barkley. 2016. The Millennial mindset - Quantifying the impact on consumer spend and brand preference across generations. [Online]. Barkley. Available from: https://www.barkleyus.com/insights/how-to-identify-new-growth-potential-with-the-millennial-mindset/ [Accessed 10 February 2018].

Barkley. 2018. The millennial parenthood brief. Inside the life of modern parents. [Online]. Barkley. Available from: https://www.barkleyus.com/millennialparents/ [Accessed 11 May 2018].

Barlett, J.E., Kotrlik, J.W. and Higgins, C.C. 2001. Organizational research: Determining appropriate sample size in survey research. *Information Technology, Learning, and Performance Journal,* 19 (1), pp.43-50.

Barter, C. and Renold, E. 1999. The use of vignettes in qualitative research. University of Surrey, Social Research Update 25 (Summer) URL: http//sru.soc.surrey.ac.uk/SRU25.html

Bartlett, M.S. 1954. A note on the multiplying factors for various χ 2 approximations. *Journal of the Royal Statistical Society. Series B (Methodological)*, 16 (Series B), pp. 296-298.

Basch, C.H., Ethan, D. and Rajan, S. 2013. Price, promotion, and availability of nutrition information: A descriptive study of a popular fast food chain in New York City. *Global Journal of Health Science,* 5 (6), pp.73-80.

Batada, A., Flewelling, L., Goode, A. and Wootan, M.G. 2013**.** *Kids' Meals II: Obesity on the Menu***.** Washington, DC: CSPI. [Online]. CSPINET. Available from: https://cspinet.org/sites/default/files/attachment/cspi-kids-meals-2013.pdf [Accessed 30 April 2018].

Bava, C.M., Jaeger, S. R. and Park, J. 2008. Constraints upon food provisioning practices in 'busy' women's lives: Trade-offs which demand convenience. *Appetite,* 50 (3), pp.486-498.

BBC News. 2018. Sugar tax is already producing results. 12 March. [Online]. BBC. Available from: http://www.bbc.com/news/health-43372295 [Accessed 24 March 2018].

Beltran, A., Sepulveda, K.K., Watson, K., Baranowski, T., Baranowski, J., Islam, N. and Missaghian, M. 2008. Grains are similarly categorized by 8- to 13-year-old children. *Journal of the American Dietetic Association*, 108 (11), pp.1921-1926.

Berger, P.L. and Luckmann, T. 1991. *The social construction of reality: A treatise in the sociology of knowledge* (No. 10). UK: Penguin.

Bernhardt, A. M., Wilking, C., Adachi-Mejia, A. M., Bergamini, E., Marijnissen, J. and Sargent, J. D. 2013. How television fast food marketing aimed at children compares with adult advertisements. *PloS ONE,* 8 (8). [Online]. PloS ONE. Available from: https://doi.org/10.1371/journal.pone.0072479 [Accessed 8 May 2018].

Bernhardt, A. M., Wilking, C., Gilbert-Diamond, D., Emond, J. A. and Sargent, J. D. 2015. Children's recall of fast food television advertising—Testing the adequacy of food marketing regulation. *PloS ONE,* 10 (3). [Online]. PloS ONE. Available from: https://doi.org/10.1371/journal.pone.0119300 [Accessed 8 May 2018].

Bertol, K.E., Broilo, P.L., Espartel, L.B. and Basso, K. 2017. Young children's influence on family consumer behavior. *Qualitative Market Research: An International Journal*, 20 (4), pp. 452-468.

Black, J.L. and Billette, J.M. 2015. Fast food intake in Canada: Differences among Canadians with diverse demographic, socio-economic and lifestyle characteristics. *Canadian Journal of Public Health,* 106 (2), pp.52-58.

Blake, C.E., Devine, C.M., Wethington, E., Jastran, M., Farrell, T.J. and Bisogni, C.A. 2009. Employed parents' satisfaction with food-choice coping strategies. Influence of gender and structure. *Appetite*, 52 (3), pp.711-719.

Blecher, E. 2015. Taxes on tobacco, alcohol and sugar sweetened beverages: Linkages and lessons learned. *Social Science and Medicine*, 136 (July), pp.175-179.

Bleich, S. N., Economos, C. D., Spiker, M. L., Vercammen, K. A., VanEpps, E. M., Block, J. P., Elbel, B., Story, M. and Roberto, C. A. 2017. A systematic review of calorie labeling and modified calorie labeling interventions: Impact on consumer and restaurant behaviour. *Obesity*, 25 (12), pp.2018-2044.

Bleich, S. N., Wolfson, J. A. and Jarlenski, M. P. 2016. Calorie changes in large chain restaurants: Declines in new menu items but room for improvement. *American Journal of Preventive Medicine,* 50 (1), e1-e8. [Online]. doi: 10.1016/j.amepre.2015.05.007 [Accessed 8 May 2018].

Bleich, S.N., Wolfson, J.A., Jarlenski, M.P. and Block, J.P. 2015. Restaurants with calories displayed on menus had lower calorie counts compared to restaurants without such labels. *Health Affairs,* 34 (11), pp.1877-1884.

Blissett, J. and Bennett, C. 2013. Cultural differences in parental feeding practices and children's eating behaviours and their relationships with child BMI: A comparison of Black Afro-Caribbean, White British and White German samples. *European Journal of Clinical Nutrition*, 67 (2), pp.180-184.

Blissett, J. and Haycraft, E. 2008. Are parenting style and controlling feeding practices related? *Appetite*, 50 (3), pp.477-485.

Blissett, J. and Haycraft, E. 2011. Parental eating disorder symptoms and observations of mealtime interactions with children. *Journal of Psychosomatic Research*, 70 (4), pp.368-371.

Blissett, J., Meyer, C. and Haycraft, E. 2006. Maternal and paternal controlling feeding practices with male and female children. *Appetite*, 47 (2), pp.212-219.

Block, J.P., Condon, S.K., Kleinman, K., Mullen, J., Linakis, S., Rifas-Shiman, S. and Gillman, M.W. 2013. Consumers' estimation of calorie content at fast food restaurants: Cross sectional observational study. *BMJ,* 346. [Online]. doi: https://doi.org/10.1136/bmj.f2907 [Accessed 8 May 2018].

BLS (Bureau of Labor Statistics). 2017. American time use survey —2016 Results. [Online]. BLS. Available from: https://www.bls.gov/news.release/pdf/atus.pdf [Accessed 14 May, 2018].

Bødker, M., Pisinger, C., Toft, U. and Jørgensen, T. 2015. The Danish fat tax – effects on consumption patterns and risk of ischaemic heart disease. *Preventive Medicine*, 77, pp.200-203.

Bollinger, B., Leslie, P. and Sorensen, A. 2011. Calorie posting in chain restaurants. *American Economic Journal: Economic Policy*, 3 (1), pp.91-128.

Bord Bia. 2017. Frequent fast food restaurant visitors in Great Britain 2007-2017. In: Statista - The Statistics Portal. Available from https://www.statista.com/statistics/751591/fast-food-restaurants-regular-visitors-in-great-britain-uk/. [Accessed 8 May 2018].

Boutelle, K. N., Fannin, H., Newfield, R. S. and Harnack, L. 2011. Nutritional quality of lunch meal purchased for children at a fast-food restaurant. *Childhood Obesity*, 7 (4), pp.316-322.

Boyland, E.J. and Halford, J.C. 2013. Television advertising and branding. Effects on eating behaviour and food preferences in children. *Appetite,* 62, pp.236-241.

Braun, V. and Clarke, V. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology,* 3 (2), pp.77-101.

Brembeck, H. 2005. Home to McDonald's: Upholding the family dinner with the help of McDonald's, *Food, Culture and Society*, 8 (2), pp.215-226.

Brug, J., Tak, N.I., Te Velde, S.J., Bere, E. and De Bourdeaudhuij, I. 2008. Taste preferences, liking and other factors related to fruit and vegetable intakes among schoolchildren: Results from observational studies. *British Journal of Nutrition*, 99 (S1), pp.S7-S14.

Bryman, A. and Bell, E. 2007. *Business research methods*. 2nd ed. Oxford: Oxford University Press.

Bucher, T., Rollo, M.E., Smith, S.P., Dean, M., Brown, H., Sun, M. and Collins, C. 2018. Position paper on the need for portion-size education and a standardised unit of measurement. *Health Promotion Journal of Australia*, 28 (3), pp.260-263.

Bugge, A. B. and Almås, R. 2006. Domestic dinner representations and practices of a proper meal among young suburban mothers. *Journal of Consumer Culture,* 6 (2), pp.203-228.

Business*of*apps. 2016. Women spend more time using their smartphones than men. [Online]. Businessofapps. Available from: http://www.businessofapps.com/women-spend-more-time-using-their-smartphones-than-men/ [Accessed 10 January 2018].

Business*of*apps.com. 2016. App statistics report- 2016 edition. [Online]. Businessofapps. Available from: http://www.businessofapps.com/data/app-statistics/ [Accessed 20 January 2018].

Byrd-Bredbenner, C. and Abbot, J.M. 2008. Food choice influencers of mothers of young children: Implications for nutrition educators. *Topics in Clinical Nutrition*, 23 (3), pp.198-215.

Cabral, D., de Almeida, M.D.V. and Cunha, L.M. 2017. Food Choice Questionnaire in an African country–Application and validation in Cape Verde. *Food Quality and Preference*, 62, pp.90-95.

Cairns, G., Angus, K., Hastings, G. and Caraher, M. 2013. Systematic reviews of the evidence on the nature, extent and effects of food marketing to children. A retrospective summary. *Appetite,* 62, pp.209-215.

California Legislative Information. 2012. Assembly Bill No. 2084 Child day care facilities. Available from: http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200920100AB2084 [Accessed 30 April 2018].

Cancer Denmark. 2014. Summary of international menu labelling implementation status. [Online]. Cancer Denmark. Available from: https://www.cancer.dk/dyn/resources/File/file/3/4683/1428667792/ml-implementation-status-dec-2014.pdf [Accessed 7 April 2018].

Cantor, J., Torres, A., Abrams, C. and Elbel, B. 2015. Five years later: Awareness of New York City's calorie labels declined, with no changes in calories purchased. *Health Affairs,* 34 (11), pp.1893-1900.

Capaldi-Phillips, E.D. and Wadhera, D. 2014. Associative conditioning can increase liking for and consumption of brussels sprouts in children aged 3 to 5 years. *Journal of the Academy of Nutrition and Dietetics,* 114 (8), pp.1236-1241.

Carels, R. A., Konrad, K. and Harper, J. 2007. Individual differences in food perceptions and calorie estimation: An examination of dieting status, weight, and gender. *Appetite*, 49 (2), pp.450-458.

Carifio, J. and Perla, R.J. 2007. Ten common misunderstandings, misconceptions, persistent myths and urban legends about Likert scales and Likert response formats and their antidotes. *Journal of Social Sciences*, 3 (3), pp.106-116.

Carrie, F., Keller, L., Olson, J. and Plymale, A. 2005. Helping preschoolers become healthy eaters. *Journal of Pediatric Health Care*, 19 (3), pp.178-182.

CASRO. 2015. Annual CASRO benchmarking financial survey. Cited p.94 of Hulland, J., Baumgartner, H. and Smith, K.M. 2018. Marketing survey research best practices: Evidence and recommendations from a review of JAMS articles. *Journal of the Academy of Marketing Science*, 46 (1), pp.92-108.

Castro, I.A., Williams, C.B., Madanat, H., Pickrel, J.L., Jun, H.J., Zive, M., Gahagan, S. and Ayala, G.X. 2016. Food ordering for children in restaurants: Multiple sources of influence on decision making. *Public Health Nutrition*, 19 (13), pp.2404-2409.

Catalyst. 2017. Canadian smartphone behaviour in 2017: Continued shifts to virtual spaces. [Online]. Catalyst. Available from: http://catalyst.ca/2017-canadian-smartphone-behaviour/ [Accessed 19 February 2018].

Cawley, J. and Wen, K. 2018. Policies to prevent obesity and promote healthier diets: A critical selective review. *Clinical Chemistry*, 64 (1), pp.163-172.

CDC (Centre for Disease Control and Prevention). 2015. Caloric intake from fast food among children and adolescents in the United States, 2011–2012 NCHS Data Brief No. 213, September 2015. Available from: https://www.cdc.gov/nchs/data/databriefs/db213.htm [Accessed 29 January 2018].

CDC (National Centre for Health and Statistics). 2015. Caloric intake from fast food among children and adolescents in the United States, 2011–2012. Products - Data Briefs - Number 213 - September 2015. [Online]. CDC. Available from: https://www.cdc.gov/nchs/data/databriefs/db213.htm [Accessed 20 January 2018].

Cerny, C.A. and Kaiser, H.F. 1977. A study of a measure of sampling adequacy for factor-analytic correlation matrices. *Multivariate Behavioral Research,* 12 (1), 43-47.

Chan, E.K., Kwortnik, R. and Wansink, B. 2017. McHealthy: How marketing incentives influence healthy food choices. *Cornell Hospitality Quarterly*, 58 (1), pp.6-22.

Chandon, P. and Wansink, B. 2007. The biasing health halos of fast-food restaurant health claims: Lower calorie estimates and higher side-dish consumption intentions. *Journal of Consumer Research,* 34 (3), pp.301-314.

Chao, A. M., Loughead, J., Bakizada, Z. M., Hopkins, C. M., Geliebter, A., Gur, R. C. and Wadden, T. A. 2017. Sex/gender differences in neural correlates of food stimuli: A systematic review of functional neuroimaging studies. *Obesity Reviews*, 18 (6), pp.687-699.

Charmaz, K. and Mitchell, R. G. 2001. Grounded theory in ethnography. In: Atkinson, P., Coffey, A., Delamont, S., Lofland, J. and Lofland, L. *eds. Handbook of ethnography.* London, UK: Sage Publications. pp.160-174.

Cheang, M. 2002. Older adults' frequent visits to a fast-food restaurant: Nonobligatory social interaction and the significance of play in a “third place”. *Journal of Aging Studies*, 16 (3), pp.303-321.

Chen, A. W., Resurreccion, A. V. A. and Paguio, L. P. 1996. Age appropriate hedonic scales to measure food preferences of young children. *Journal of Sensory Studies,* 11 (2), pp.141-163.

Chenitz, W. and Swanson. J. 1986. Qualitative research using grounded theory. In: Chenitz, W. and Swanson, J. *eds. From practice to grounded theory.* Menlo Park, CA: Addison-Wesley. pp.3-15.

Chernev, A. 2011. The dieter's paradox. *Journal of Consumer Psychology,* 21 (2), pp.178 -183.

Chernev, A., Chandon, P., Batra, R., Keller, P.A. and Strecher, V.J. 2010. Calorie estimation biases in consumer choice. In: Batra, R., Keller, P. and Strecher, V., *eds. Leveraging consumer psychology for effective health communications: The obesity challenge*. Armonk NY: M.E. Sharpe, pp.104-121.

Chou, C. Y. and Liu, H. R. 1999. Simulation study on the queuing system in a fast-food restaurant. *Journal of Restaurant and Foodservice Marketing,* 3 (2), pp.23-36.

Cint. 2016. How often do you eat fast food (any quick service restaurant) in any given week (on average)? In: Statista - The Statistics Portal. Available from: https://www.statista.com/statistics/561254/canada-average-fast-food-consumption-per-week/ [Accessed 10 February 2018].

Cint. 2017. Canada - average fast food consumption per week in 2016. In: Statista - The Statistics Portal. Available from https://www.statista.com/statistics/561254/canada-average-fast-food-consumption-per-week/ [Accessed 8 May 2018].

Close, M.A., Lytle, L.A. and Viera, A.J. 2016. Is frequency of fast food and sit-down restaurant eating occasions differentially associated with less healthful eating habits? *Preventive Medicine Reports*, 4, pp.574-577.

CNN Money. 2004. McDonald's adult Happy Meal arrives - The Go Active! package for grown-ups includes salad, water and even exercise tips. 11 May. [On-line]. CNN. Available from : http://money.cnn.com/2004/05/11/news/fortune500/mcdonalds_happymeal/ [Accessed 20 January 2017]

Coall, D.A. and Hertwig, R. 2010. Grandparental investment: Past, present, and future. *Behavioral and Brain Sciences*, 33 (1), pp.1-19.

Coca-Cola Company. 2018. Global revenue and financial results of the Coca-Cola Company from 2009 to 2017 (in million U.S. dollars). In: Statista - The Statistics Portal. Available from: https://www.statista.com/statistics/264423/revenue-and-financial-results-of-coca-cola/ [Accessed 14 May, 2018].

Cohen, D.A. and Babey, S.H. 2012. Contextual influences on eating behaviours: Heuristic processing and dietary choices. *Obesity Reviews*, 13 (9), pp.766-779.

Cohen, J.F., Roberts, S.B., Anzman-Frasca, S., Gamache, M.M., Lynskey, V.M., Matthews, E., Mueller, M.P., Sharma, S. and Economos, C.D. 2017. A pilot and feasibility study to assess children's consumption in quick-service restaurants using plate waste methodology. *BMC Public Health*, 17 (1) 259. [Online]. doi: 10.1186/s12889-017-4171-5 [Accessed 8 May 2018].

Collins, C., Duncanson, K. and Burrows, T. 2014. A systematic review investigating associations between parenting style and child feeding behaviours. *Journal of Human Nutrition and Dietetics*, 27 (6), pp.557-568.

comScore. 2017. The 2017 U.S. mobile app report. [Online]. ComScore. Available from: http://www.comscore.com/Insights/Presentations-and-Whitepapers/2017/The-2017-US-Mobile-App-Report [accessed 20 January 2018].

Contento, I.R., Basch, C., Shea, S., Gutin, B., Zybert, P., Michela, J. L. and Rips, J. 1993. Relationship of mothers' food choice criteria to food intake of preschool children: Identification of family subgroups. *Health Education and Behavior,* 20 (2), pp.243-259.

Cooper, J. 2015. Cooking trends among Millennials. Welcome to the digital kitchen. Available from: https://www.thinkwithgoogle.com/consumer-insights/cooking-trends-among-millennials/ [Accessed 17 February 2018].

Copperstone, C.S., Douglas, F.C., Craig, L.C. and Jackson, D.M. 2018. Parents and schoolchildren talking about food and drink choices–A focus group study. *Health Behavior and Policy Review*, 5 (1), pp.28-39.

Creswell, J.W. 2009. *Research design: Qualitative, quantitative, and mixed methods approaches*. 3rd ed. Thousand Islands, CA: Sage Publications.

Creswell, J.W. 2014. *Research design: Qualitative, quantitative and mixed methods.* 4th ed. Thousand Oaks, CA: Sage Publications.

Creswell, J.W. and Creswell, J.D. 2017. *Research design: Qualitative, quantitative, and mixed methods approaches*. 5th ed. London: Sage Publications.

Creswell, J.W. and Poth, C.N. 2017. *Qualitative inquiry and research design: Choosing among five approaches*. 4th ed. London: Sage Publications.

Crockett, R.A., King, S.E., Marteau, T.M., Prevost, A.T., Bignardi, G., Roberts, N.W., Stubbs, B., Hollands, G.J. and Jebb, S.A. 2018. Nutritional labelling for healthier food or non-alcoholic drink purchasing and consumption. *Cochrane Database of Systematic Reviews*, Issue 2. Art. No.: CD009315. [Online]. Cochrane. Available from: https://doi.org/10.1002/14651858.CD009315.pub2 [Accessed 8 May 2018].

Crotty, M. 1998. *The foundations of social research: Meaning and perspective in the research process*. London: Sage Publications.

Cunha, L.M., Cabral, D., Moura, A.P. and de Almeida, M.D.V. 2018. Application of the Food Choice Questionnaire across cultures: Systematic review of cross-cultural and single country studies. *Food Quality and Preference*, 64, pp.21-36.

Dallacker, M., Hertwig, R. and Mata, J. 2018. The frequency of family meals and nutritional health in children: A meta-analysis. *Obesity Reviews.* [Online]. Available from: doi: 10.1111/obr.12659 [Accessed 8 May 2018].

David, M.E., Roberts, J.A. and Christenson, B. 2018. Too much of a good thing: Investigating the association between actual smartphone use and individual well-being. *International Journal of Human–Computer Interaction*, 34 (3), pp.265-275.

Davidov, E., Schmidt, P. and Schwartz, S.H. 2008. Bringing values back in: The adequacy of the European Social Survey to measure values in 20 countries. *Public Opinion Quarterly*, 72 (3), pp.420-445.

Dawes, J. 2008. Do data characteristics change according to the number of scale points used *International Journal of Market Research*, 50 (1), pp.61-77.

De Bourdeaudhuij, I., Te Velde, S., Brug, J., Due, P., Wind, M., Sandvik, C., Maes, L., Wolf, A., Rodrigo, C.P., Yngve, A. and Thorsdottir, I. 2008. Personal, social and environmental predictors of daily fruit and vegetable intake in 11-year-old children in nine European countries. *European Journal of Clinical Nutrition*, 62 (7), pp.834-841.

De Coen, V., De Bourdeaudhuij, I., Verbestel, V., Maes, L. and Vereecken, C. 2014. Risk factors for childhood overweight: A 30-month longitudinal study of 3-to 6-year-old children. *Public Health Nutrition*, 17 (9), pp.1993-2000.

De Droog, S.M., Valkenburg, P.M. and Buijzen, M. 2010. Using brand characters to promote young children's liking of and purchase requests for fruit. *Journal of Health Communication*, 16 (1), pp.79-89.

Denzin, N.K. and Lincoln, Y.S. *eds.,* 2011. *The Sage handbook of qualitative research*. London: Sage Publications.

DeVellis, R. F. 2003. *Scale Development: Theory and Applications,* Thousand Oaks, CA: Sage Publications.

Dexter, B., Frank, S. and Seguin, L. 2016. How and where parents of infants and young children want to receive nutrition information. *Canadian Journal of Dietetic Practice and Research*, 77 (4), pp.203-205.

Diabetes UK. 2018. People with diabetes say all companies should use the same food labelling. [Online]. Diabetes UK. Available from: https://www.diabetes.org.uk/about_us/news/consistent-food-labelling-for-all [Accessed 7 April 2018].

Dixon, H., Niven, P., Scully, M. and Wakefield, M. 2017. Food marketing with movie character toys: Effects on young children's preferences for unhealthy and healthier fast food meals. *Appetite*, 117, pp.342-350.

Droms Hatch, C.M. 2016. Examining the use of nutrition information on restaurant menus. *Journal of Food Products Marketing,* 22 (1), pp.118-135.

Easterby-Smith, M., Thorpe, R. and Jackson, P.R. 1991. *Management research*. London: Sage Publications.

Ebneter, D.S., Latner, J.D. and Nigg, C.R. 2013. Is less always more? The effects of low-fat labeling and caloric information on food intake, calorie estimates, taste preference, and health attributions. *Appetite,* 68, pp.92-97.

Eertmans, A., Victoir, A., Notelaers, G., Vansant, G. and Van den Bergh, O. 2006. The Food Choice Questionnaire: Factorial invariant over western urban populations? *Food Quality and Preference*, 17 (5), pp.344-352.

Eertmans, A., Victoir, A., Notelaers, G., Vansant, G. and Van den Bergh, O. 2006. The Food Choice Questionnaire: Factorial invariant over western urban populations? *Food Quality and Preference*, 17 (5), pp.344-352.

Elbel, B. 2011. Consumer estimation of recommended and actual calories at fast food restaurants. *Obesity,* 19 (10), pp.1971-1978.

Elliott, C.D., Carruthers Den Hoed, R. and Conlon, M.J. 2013. Food branding and young children's taste preferences: A reassessment. *Canadian Journal of Public Health*, 104 (5). [Online]. Available from: https://journal.cpha.ca/index.php/cjph/article/viewFile/3957/2849 [Accessed 10 February 2018].

Emond, J. A., Bernhardt, A. M., Gilbert-Diamond, D., Li, Z. and Sargent, J. D. 2016. Commercial television exposure, fast food toy collecting, and family visits to fast food restaurants among families living in rural communities. *The Journal of Pediatrics*, 168, pp.158-163.

Evans, C. 2018. How successful will the sugar levy be in improving diet and reducing inequalities in health? *Perspectives in Public Health,* 138 (2), pp.85-86.

Evans, M.D., Kelley, J. and Sikora, J. 2014. Scholarly culture and academic performance in 42 nations. *Social Forces*, 92 (4), pp.1573-1605.

FDA (US Food and Drug Administration). 2017. Menu and vending machines labeling requirements. [Online]. FDA. Available from: https://www.fda.gov/food/guidanceregulation/guidancedocumentsregulatoryinformation/labelingnutrition/ucm217762.htm [Accessed 10 February 2018].

Ferrante, M., Robbins, R., Miller, J., Mohr, G.S. and Bellows, L.L. 2018. “Should we go out for dinner tonight?” Understanding restaurant-related food choices in the family. *Journal of Nutrition Education and Behavior*, 50 (7), p.S173.

Field Agent. 2016. Special toys report. [Online]. Field Agent. Available from: https://info.fieldagent.net/all-things-toys-download [Accessed 1 February 2017].

Field, A.P. 2006. I don't like it because it eats sprouts: Conditioning preferences in children. *Behaviour Research and Therapy*, 44 (3), pp.439-455.

Fieldhouse, P. 2015. (Still) eating together. The culture of the family meal. *Transition*, 45 (1), pp.9-13.

Fielding-Singh, P. 2017. Dining with dad: Fathers' influences on family food practices. *Appetite*, 117, pp.98-108.

Finardi, C. and Tognon, G. 2014. Is 'junk food' a 'healthy' concept? The challenges of the current debate: From policy making back to science. *British Food Journal*, 116 (8), pp.1222-1232.

Finch, J. 1987. The vignette technique in survey research. *Sociology*, 21 (1), pp.105-114.

Fincher, S. and Tenenberg, J. 2005. Making sense of card sorting data. *Expert Systems*, 22 (3), pp.89-93.

Finegood, D.T., Merth, T.D. and Rutter, H. 2010. Implications of the foresight obesity system map for solutions to childhood obesity. *Obesity*, 18 (S1), pp.S13-S16.

Fisher, J.O. and Kral, T.V. 2008. Super-size me: Portion size effects on young children's eating. *Physiology and Behavior*, 94 (1), pp.39-47.

Forbes. 2017. Starbucks mobile ordering is working too well. 12 April. [Online]. Forbes. Available from: https://www.forbes.com/sites/retailwire/2017/04/12/starbucks-mobile-ordering-is-working-too-well/#aec8633ea288 [Accessed 17 February 2018].

Forbes. 2018. Millennials are driving the worldwide shift away from meat. 23 March. [Online]. Forbes. Available from: https://www.forbes.com/sites/michaelpellmanrowland/2018/03/23/millennials-move-away-from-meat/2/#523cac611865 [Accessed 2 May 2018].

Ford, C. N., Ng, S. W. and Popkin, B. M. 2015. Targeted beverage taxes influence food and beverage purchases among households with preschool children. *The Journal of Nutrition,* 145 (8), pp.835-1843.

Forwood, S. E., Ahern, A., Hollands, G. J., Fletcher, P. C. and Marteau, T. M. 2013. Underestimating calorie content when healthy foods are present: an averaging effect or a reference-dependent anchoring effect? *PloS ONE*, 8 (8). [Online]. PloS ONE. Available from: https://doi.org/10.1371/journal.pone.0071475 [Accessed 8 May 2018].

Fotopoulos, C., Krystallis, A., Vassallo, M. and Pagiaslis, A. 2009. Food Choice Questionnaire (FCQ) revisited. Suggestions for the development of an enhanced general food motivation model. *Appetite*, 52 (1), pp.199-208.

Franchisehelp. 2018. Fast food industry analysis 2018. [Online]. Franchisehelp. Available from: https://www.franchisehelp.com/industry-reports/fast-food-industry-analysis-2018-cost-trends/ [Accessed 8 May 2018].

Frega, R. and da Silva, F.C. 2011. Pragmatism and the social sciences. A century of influences and interactions. *European Journal of Pragmatism and American Philosophy*, 3 (2), pp.5-10.

French, S.A., Story, M., Neumark-Sztainer, D., Fulkerson, J.A. and Hannan, P. 2001. Fast food restaurant use among adolescents: Associations with nutrient intake, food choices and behavioral and psychosocial variables. *International Journal of Obesity*, 25 (12), pp.18-23.

Frew, E., Ng, S.W., Coast, J., Hollingsworth, B. and Smith, R. 2018. How can economics help tackle obesity? *Obesity,* 26 (7), pp.1112-1113.

Friborg, O., Martinussen, M. and Rosenvinge, J.H. 2006. Likert-based vs. semantic differential-based scorings of positive psychological constructs: A psychometric comparison of two versions of a scale measuring resilience. *Personality and Individual Differences,* 40 (5), pp.873-884.

Fromm, J. and Garton, C. 2013. *Marketing to Millennials: Reach the largest and most influential generation of consumers ever.* New York, NY: AMACOM.

Fromm, J. and Vidler, M. 2015. *Millennials with kids: Marketing to this powerful and surprisingly different generation of parents*. New York, NY: AMACOM.

FTC (Federal Trade Commission). 2012. Review of food marketing to children and Adolescents -- Follow-Up Report. December 2012. [On-line]. FTC. Available from: https://www.ftc.gov/reports/review-food-marketing-children-adolescents-follow-report [Accessed 20 January 2017].

Fulkerson, J.A. 2018. (in press) Fast food in the diet: Implications and solutions for families. *Physiology and Behavior*. Available from: https://doi.org/10.1016/j.physbeh.2018.04.005 [Accessed 8 May 2018].

Future Food. 2017. Eating out in Australia: 2016 in review. [Online]. Future Food. Available from: http://futurefood.com.au/blog/2017/1/18/eating-out-in-australia-2016-in-review [Accessed 8 May 2018].

Futurecast Millennial Marketing. 2012. Millennials are the tastemakers in food. [Online]. Futurecast. Available from: http://www.millennialmarketing.com/2012/06/millennials-are-literally-the-tastemakers-in-food/ [Accessed 17 February 2018].

Futurecast Millennial Marketing. 2016. Millennials as new parents. [Online]. Futurecast. Available from: http://www.millennialmarketing.com/wp-content/uploads/2016/05/FutureCast_Millennials-as-New-Parents-Report-1.pdf [Accessed 17 February 2018].

Gallo, K., Swaney-Stueve, M. and Chambers, D. 2016. Cross-country research with kids: Observations and learnings. *Proceedings of Spise 2016*, *Vietnam,* pp.93-99.

Gallo, K.E., Swaney-Stueve, M. and Chambers, D.H. 2017. A focus group approach to understanding food-related emotions with children using words and emojis. *Journal of Sensory Studies*, 32 (3), [Online]. doi.org/10.1111/joss.12264 [Accessed 8 May 2018].

Gardner, B. 2015. A review and analysis of the use of 'habit' in understanding, predicting and influencing health-related behaviour. *Health Psychology Review*, 9 (3), pp.277-295.

GBD 2015 Obesity Collaborators. 2017. Health effects of overweight and obesity in 195 countries over 25 years. *New England Journal of Medicine*, 377 (1), pp.13-27.

GE Capital Franchise Finance. 2015. Sales of quick-service restaurants in Canada 2010-2015. In: Statista - The Statistics Portal. Available from: https://www.statista.com/statistics/323626/sales-of-quick-service-restaurants-in-canada/ [Accessed 8 May 2018].

Gelperowic, R. and Beharrell, B. 1994. Healthy food products for children: Packaging and mothers′ purchase decisions. *British Food Journal,* 96 (11), pp.4-8.

Gibson, E.L., Kreichauf, S., Wildgruber, A., Vögele, C., Summerbell, C.D., Nixon, C., Moore, H., Douthwaite, W. and Manios, Y. 2012. A narrative review of psychological and

educational strategies applied to young children's eating behaviours aimed at reducing obesity risk. *Obesity Reviews*, 13 (s1), pp.85-95.

Glaser, B.G. 1992. *Basics of grounded theory analysis: Emergence vs forcing*. Mill Valley, CA: Sociology Press.

Globe and Mail. 2018. Would you like pics with that? How fast-food chains are appealing to customers' social feeds. 14 March. [Online]. *Globe and Mail.* Available from: https://www.theglobeandmail.com/life/food-and-wine/would-you-like-pics-with-that-how-fast-food-chains-are-appealing-to-customers-socialfeeds/article38231737/ [Accessed 20 March 2017].

Gorn, G.J. and Goldberg, M.E. 1982. Behavioral evidence of the effects of televised food messages on children. *Journal of Consumer Research*, 9 (2), pp.200-205.

Gortmaker, S.L., Wang, Y.C., Long, M.W., Giles, C.M., Ward, Z.J., Barrett, J.L., Kenney, E.L., Sonneville, K.R., Afzal, A.S., Resch, S.C. and Cradock, A.L. 2015. Three interventions that reduce childhood obesity are projected to save more than they cost to implement. *Health Affairs,* 34 (11), pp.1932-1939.

Gray, D.E. 2013. *Doing research in the real world*. 3rd ed. London: Sage Publications.

Gregori, D., Ballali, S., Gafare, C. E., Casella, A., Stefanini, G., de Sousa Alves, R., Franchin, L., Amador, I., Da Silva, N.M.A.and Dibildox, J. 2013. Investigating the obesogenic effects of marketing snacks with toys: An experimental study in Latin America. *Nutrition Journal,* 12 (1). [Online]. doi:10.1186/1475-2891-12-95 [Accessed 8 May 2018].

Grønhøj, A. and Bech-Larsen, T. 2010. Using vignettes to study family consumption processes. *Psychology and Marketing*, 27 (5), pp.445-464.

Guba, E. G. and Lincoln, Y. S. 1989. *Fourth generation evaluation.* Newbury Park, CA: Sage Publications.

Guba, E. 1990. The alternative paradigm dialog. In: Guba, E.D. *ed. The paradigm dialog* Newbury Park, CA: Sage Publications. pp.17-21.

Guba, E.G. and Lincoln, Y.S. 1994. Competing paradigms in qualitative research*.* In: Denzin, N.K. and Lincoln, Y.S. *eds. Handbook of qualitative research*, Chapter 6, pp.105-117. Thousand Oaks, CA, US: Sage Publications.

Guba, E.G. and Lincoln, Y.S. 2005. Paradigmatic controversies, contradictions, and emerging influences. In: Denzin, N.K. and Lincoln, Y.S. *eds. The Sage handbook of qualitative research*, 3rd ed. London: Sage Publications.

Gunnarsdottir, I. and Thorsdottir, I. 2010. Should we use popular brands to promote healthy eating among children? *Public Health Nutrition*, 13 (12), pp.2064-2067.

Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. and Tatham, R.L. 2006. 6th ed. *Multivariate data analysis,* Upper Saddle River, NJ: Prentice Hall.

Hales, C.M., Carroll, M.D., Fryar, C.D. and Ogden, C.L. 2017. Prevalence of obesity among adults and youth: United States, 2015-2016. NCHS data brief, no 288. Hyattsville, MD: National Center for Health Statistics.

Halford, J.C., Boyland, E.J., Hughes, G., Oliveira, L.P. and Dovey T.M. 2007. Beyond-brand effect of television (TV) food advertisements/commercials on caloric intake and food choice of 5–7-year-old children. *Appetite,* 49 (1), pp.263-267.

Hallebone, E. and Priest, J. 2009. *Business and management research: Paradigms and practices*, New York: Palgrave Macmillan.

Hammersley, M. 1983. *Ethnography*. London: Tavistock Publications Ltd.

Hammond, D., Lillico, H.G., Vanderlee, L., White, C.M. and Reid, J.L. 2015. The impact of nutrition labeling on menus: A naturalistic cohort study. *American Journal of Health Behavior*, 39 (4), pp.540-548.

Hanks, A., Wansink, B., Just, D., Smith, L., Cawley, J., Kaiser, H., Sobal, J., Wethington, E. and Schulze, W. 2013. From Coke to Coors: a field study of a fat tax and its unintended consequences. *Journal of Nutrition Education and Behavior,* 45 (S4), pp.S1-S40.

Hannon, P.A., Bowen, D.J., Moinpour, C.M. and McLerran, D.F. 2003. Correlations in perceived food use between the family food preparer and their spouses and children. *Appetite*, 40 (1), pp.77-83.

Harrington, R.J., Ottenbacher, M.C. and Kendall, K.W. 2011. Fine-dining restaurant selection: Direct and moderating effects of customer attributes. *Journal of Foodservice Business Research*, 14 (3), pp.272-289.

Harrington, R.J., Ottenbacher, M.C. and Way, K.A. 2013. QSR choice: Key restaurant attributes and the roles of gender, age and dining frequency. *Journal of Quality Assurance in Hospitality and Tourism*, 14 (1), pp.81-100.

Harris and Kalnova. 2018. Food and beverage TV advertising to young children: Measuring exposure and potential impact. *Appetite*, 123, pp.49-55.

Hartmann, M., Cash, S. B., Yeh, C. H., Landwehr, S. C. and McAlister, A. R. 2017. Children's purchase behavior in the snack market: Can branding or lower prices motivate healthier choices? *Appetite*, 117, pp. 247 -254.

Hastings, G., Stead, M. and McDermott. L. 2003. Review of research on the effects of food promotion to children. Glasgow, UK: The University of Strathclyde Centre for Social Marketing.

Health Canada. 2016. Final amendments to the Food and Drug Regulations - Nutritional Labelling. Other Labelling provisions and food colours. [Online]. Health Canada. Available from: http://www.inspection.gc.ca/food/labelling/food-labelling-for-industry/amendments/eng/1481233314298/1481233354104 [Accessed 10 February 2018].

Healthy Eating Research (HER) - A National Program of the Robert Wood Johnson Foundation (RJWF). 2013. Impact of menu labelling on consumer behaviour: A 2008 - 2012 update. [Online]. HER. Available from: https://healthyeatingresearch.org/wp-content/uploads/2013/12/HER-RR-Menu-Labeling-FINAL-6-2013.pdf [Accessed 10 February 2018].

Heart and Stroke. 2017. The kids are not alright. The 2017 report on the health of Canadians. [Online].Heart and Stroke. Available from: https://www.heartandstroke.ca/-/media/pdf-files/canada/2017-heart-month/heartandstroke-reportonhealth2017.ashx [Accessed 11 March 2018].

Heise, T.L., Katikireddi, S.V., Pega, F., Gartlehner, G., Fenton, C., Griebler, U., Sommer, I., Pfinder, M. and Lhachimi, S.K. 2016. Taxation of sugar-sweetened beverages for reducing their consumption and preventing obesity or other adverse health outcomes. *The Cochrane Library*, doi 10.1002/14651858.CD012319 [Accessed 8 May 2018].

Hendy, H.M. and Raudenbush, B. 2000. Effectiveness of teacher modeling to encourage food acceptance in preschool children. *Appetite*, 34 (1), pp.61-76.

Henry, H.K. and Borzekowski, D.L. 2015. Well, that's what came with it. A qualitative study of US mothers' perceptions of healthier default options for children's meals at fast-food restaurants. *Appetite*, 87, pp.108-115.

Herédia, A.M., Hipólito, J., Nunes, O., Ribeiro, L., Moura, T. and Laneiro, T. 2017. Fast-food marketing strategies and their impact on childhood obesity. *Journal of Spatial and Organizational Dynamics*, 5 (3), pp.296-315.

Hobin, E. P., Hammond, D. G., Daniel, S., Hanning, R. M. and Manske, S. 2012. The Happy Meal® effect: The impact of toy premiums on healthy eating among children in Ontario, Canada. *Canadian Journal of Public Health,* 103 (4). [Online]. Available from: https://journal.cpha.ca/index.php/cjph/article/view/3181/2646 [Accessed 10 February 2018].

Hobin, E., Lebenbaum, M., Rosella, L. and Hammond, D. 2014. Availability, location, and format of nutrition information in fast-food chain restaurants in Ontario, Canada. *Canadian Journal of Dietetic Practice and Research,* 76 (1), pp.44-48.

Hobin, E., Lillico, H., Zuo, F., Sacco, J., Rosella, L. and Hammond, D. 2016. Estimating the impact of various menu labeling formats on parents' demand for fast-food kids' meals for their children: An experimental auction. *Appetite*, 105, pp.582-590.

Horn, J.L. and McArdle, J.J. 1992. A practical and theoretical guide to measurement invariance in aging research. *Experimental Aging Research*, 18 (3), pp.117-144.

Horodynski, M.A. and Arndt, M.J. 2005. "Eating-together" mealtimes with African-American fathers and their toddlers. *Applied Nursing Research*, 18 (2), pp.106-109.

Howard, A. J., Mallan, K. M., Byrne, R., Magarey, A. and Daniels, L. A. 2012. Toddlers' food preferences. The impact of novel food exposure, maternal preferences and food neophobia. *Appetite*, 59 (3), pp.818-825.

Howe, N. and Strauss, W. 2009. *Millennials rising: The next great generation.* New York: Vintage Books.

Hu, Y., Manikonda, L. and Kambhampati, S. 2014. What we Instagram: a first analysis of Instagram photo content and user types. *Proceedings of the Eighth International AAAI Conference on Weblogs and Social Media*. [Online]. AAAI. Available from: https://www.aaai.org/ocs/index.php/ICWSM/ICWSM14/paper/viewFile/8118/8087 [Accessed 10 February 2018].

Hughes, R. and Huby, M. 2012. The construction and interpretation of vignettes in social research. *Social Work and Social Sciences Review*, 11 (1), pp.36-51.

Hulland, J., Baumgartner, H. and Smith, K.M. 2018. Marketing survey research best practices: Evidence and recommendations from a review of JAMS articles. *Journal of the Academy of Marketing Science*, 46 (1), pp.92-108.Hussey, J. and Hussey, R. 1997. *Business research: A practical guide for undergraduate and postgraduate students*. Basingstoke: Macmillan.

Institute of Medicine (US). 2006. Committee on food marketing and the diets of children and youth. In: McGinnis, J. M., Gootman, J. A. and Kraak, V. I. *eds. Food Marketing to Children and Youth: Threat or Opportunity?* Washington, DC: Committee on Food Marketing and the Diets of Children and Youth, Food and Nutrition Board, Board on Children, Youth, and Families.

Internet World Stats. 2017. Usage and population statistics. 30 June. Available from www.internetworldstats.com [Accessed 11 January 2018].

Iqbal, Q., Whitman, L. E. and Malzahn, D. 2012. Reducing customer wait time at a fast food restaurant on campus. *Journal of Foodservice Business Research,* 15 (4), pp.319-334.

Jaeger, S. R., Vidal, L., Kam, K. and Ares, G. 2017. Can emoji be used as a direct method to measure emotional associations to food names? Preliminary investigations with consumers in USA and China. *Food Quality and Preference*, 56, pp.38-48.

James, W.P.T. 2009. WHO recognition of the global obesity epidemic. *International Journal of Obesity*, 32 (S7). [Online]. Available from: https://www.nature.com/articles/ijo2008247 [Accessed 8 May 2018].

Janssen, H.G., Davies, I.G., Richardson, L.D. and Stevenson, L. 2018. Determinants of takeaway and fast food consumption: A narrative review. *Nutrition Research Reviews*, 31 (1), pp.16-34.

Januszewska, R., Pieniak, Z. and Verbeke, W. 2011. Food choice questionnaire revisited in four countries. Does it still measure the same? *Appetite*, 57 (1), pp.94-98.

Jeffres, L.W., Bracken, C.C., Jian, G. and Casey, M.F. 2009. The impact of third places on community quality of life. *Applied Research in Quality of Life*, 4 (4). [Online]. Available from: https://doi.org/10.1007/s11482-009-9084-8 [Accessed 8 May 2018].

Jones, M. and Nash, J. 2017. Eating ourselves into identity? An investigation into the relationship between dining-out experiences and identity production on Instagram amongst female young professionals. *Journal of Promotional Communications,* 5 (2), pp. 156-175.

Johns, R. 2010. Likert items and scales. [Online]. UK Data Service. Available from: https://www.ukdataservice.ac.uk/media/262829/discover_likertfactsheet.pdf [Accessed 17 March 2018].

Johnson, C. 2018. Sugar tax works before it starts in UK. *Australian Medicine,* 30 (6), p.19.

Johnson, R.B. and Onwuegbuzie, A.J. 2004. Mixed methods research: A research paradigm whose time has come. *Educational Researcher,* 33 (7), pp.14–26.

Joshi, A., Kale, S., Chandel, S. and Pal, D.K. 2015. Likert scale: Explored and explained. *British Journal of Applied Science & Technology*, 7 (4), pp.396-403.

Jue, J.J.S., Press, M.J., McDonald, D., Volpp, K.G., Asch, D.A., Mitra, N., Stanowski, A.C. and Loewenstein, G. 2012. The impact of price discounts and calorie messaging on beverage consumption: a multi-site field study. *Preventive Medicine*, 55 (6), pp.629-633.

Kahneman, D. and Tversky, A. 1979. Prospect theory: An analysis of decision under risk. *Econometrica*, 47 (2), pp.263-291.

Kahneman, D. 2011. *Thinking, fast and slow.* Basingstoke, UK: Macmillan.

Kaiser Family Foundation. 2016. Percent of children (ages 10-17) who are overweight or obese. [Online]. Kaiser Family Foundation. Available from: https://www.kff.org/other/state-indicator/overweightobese-children/ [Accessed 11 March 2018].

Kaiser, H.F. 1974. An index of factorial simplicity. *Psychometrika*, 39 (1), pp.31-36.

Kalof, L., Dan, A. and Dietz, T. 2008. *Essentials of social research,* New York: McGraw-Hill.

Karalexi, M.A., Mitrogiorgou, M., Georgantzi, G.G., Papaevangelou, V. and Fessatou, S. 2018. Non-nutritive sweeteners and metabolic health outcomes in children: A systematic review and meta- analysis. *The Journal of Pediatrics,* 197 (6), pp.128-133.

Kasparian, M., Mann, G., Serrano, E.L. and Farris, A.R. 2017. Parenting practices toward food and children's behavior: Eating away from home versus at home. *Appetite,* 114 (July), pp.194-199.

Kearney, J. 2010. Food consumption trends and drivers. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 365 (1554), pp.2793-2807.

Kelly, B., King, L., Chapman, K., Boyland, E., Bauman, A.E. and Baur, L.A. 2015. A hierarchy of unhealthy food promotion effects: Identifying methodological approaches and knowledge gaps. *American Journal of Public Health*, 105 (4). [Online]. doi: 10.2105/AJPH.2014.302476 [Accessed 8 May 2018].

Kerins, C., Cunningham, K., Finucane, F.M., Gibson, I., Jones, J. and Kelly, C. 2017. Effects of an icon-based menu labelling initiative on consumer food choice. *Perspectives in Public Health*, 137 (1), pp.45-52.

Khan, U. and Dhar, R. 2006. Licensing effect in consumer choice. *Journal of Marketing Research*, 43 (2), pp.259-266.

Khandpur, N., Blaine, R.E., Fisher, J.O. and Davison, K.K. 2014. Fathers' child feeding practices: A review of the evidence. *Appetite*, 78, pp.110-121.

Khandpur, N., Charles, J. and Davison, K.K. 2016. Fathers' perspectives on coparenting in the context of child feeding. *Childhood Obesity*, 12 (6), pp.455-462.

Khandpur, N., Charles, J., Blaine, R.E., Blake, C. and Davison, K. 2016. Diversity in fathers' food parenting practices: A qualitative exploration within a heterogeneous sample. *Appetite*, 101, pp.134-145.

Kim, S., Choe, J.Y. and Lee, S. 2018. How are food value video clips effective in promoting food tourism? Generation Y versus non–Generation Y. *Journal of Travel and Tourism Marketing*, 35 (3), pp.377-393.

Kiszko, K.M., Martinez, O.D., Abrams, C. and Elbel, B. 2014. The influence of calorie labeling on food orders and consumption: A review of the literature. *Journal of Community Health*, 39 (6), pp.1248-1269.

Kloek, G., Salmon, S. and de Vries, S. 2017. Explorative research of food presentation on Instagram among young adults. *Journal of Nutrition Education and Behavior*, 49 (7). [Online]. doi: https://doi.org/10.1016/j.jneb.2017.05.195 [Accessed 8 May 2018].

Konstan, J. A., Rosser, B. R. S., Ross, M. W., Stanton, J. and Edwards, W. M. 2005.The story of subject naught: A cautionary but optimistic tale of internet survey research. *Journal of Computer-Mediated Communication*, 10 (2), [Online]. doi: 10.1111/j.1083-6101.2005.tb00248.x [Accessed 8 May 2018].

Kothari, C.R. 2004. *Research methodology: Methods and techniques*, New Delhi: New Age International.

Kotler, J.A., Schiffman, J.M. and Hanson, K.G. 2012. The influence of media characters on children's food choices. *Journal of Health Communication*, 17 (8), pp.886-898.

Kottak, C. P. 2002. Rituals at McDonald's. In: Hirschberg, S. and T. Hirschberg, T. eds. *Every day, everywhere: Global perspectives on popular culture.* Boston: McGraw Hill. pp.72-79.

Kraak, V., Englund, T., Misyak, S. and Serrano, E. 2017b. Progress evaluation for the restaurant industry assessed by a voluntary marketing-mix and choice-architecture framework that offers strategies to nudge American customers toward healthy food environments, 2006–2017. *International Journal of Environmental Research and Public Health*, 14 (7). [Online]. doi:10.3390/ijerph14070760 [Accessed 8 May 2018].

Kraak, V.I. 2018. US restaurant sector can promote healthy food environments to reduce obesity risk. *The American Journal of Clinical Nutrition,* 107 (2), pp.288-290.

Kraak, V.I. and Story, M. 2015. Influence of food companies' brand mascots and entertainment companies' cartoon media characters on children's diet and health: a systematic review and research needs. *Obesity Reviews*, *16*(2), pp.107-126.

Kraak, V.I., Englund, T., Misyak, S. and Serrano, E.L. 2017a. A novel marketing mix and choice architecture framework to nudge restaurant customers toward healthy food environments to reduce obesity in the United States. *Obesity Reviews*, 18 (8), pp.852-868.

Krebs, P. and Duncan, D.T. 2015. Health app use among US mobile phone owners: A national survey. *JMIR mHealth and uHealth*, 3 (4) [Online]. doi: 10.2196/mhealth.4924 [Accessed 8 May 2018].

Kuhns, A. and Saksena, M. 2017. *Food purchase decisions of millennial households compared to other generations,* EIB-186, Washington, DC: U.S. Department of Agriculture, Economic Research Service.

Ladner, S. 2014. *Practical ethnography: A guide to doing ethnography in the private sector*. Walnut Creek, California: Left Coast Press.

Lagomarsino, M. and Suggs, L.S. 2018. Choosing imagery in advertising healthy food to children: Are cartoons the most effective visual strategy? *Journal of Advertising Research*, February. [Online]. doi: 10.2501/JAR-2018-003 [Accessed 8 May 2018].

Lambert, C. and Mizerski, R. 2011. Kids, toys and fast food: An unhealthy mix? [Online]. Available from: http://ro.ecu.edu.au/cgi/viewcontent.cgi?article=1349&context=ecuworks2011 [Accessed 20 January 2017].

Larsen, J.K., Hermans, R.C., Sleddens, E.F., Engels, R.C., Fisher, J.O. and Kremers, S.P. 2015. How parental dietary behavior and food parenting practices affect children's dietary behavior. Interacting sources of influence? *Appetite*, 89, pp.246-257.

Larsen, J.K., Hermans, R.C., Sleddens, E.F., Vink, J., Kremers, S., Ruiter, E. and Fisher, J.O. 2018. How to bridge the intention-behavior gap in food parenting: Automatic constructs and underlying techniques. *Appetite*, 123, pp.191-200.

Larson, N., MacLehose, R., Fulkerson, J.A., Berge, J.M., Story, M. and Neumark-Sztainer, D. 2013. Eating breakfast and dinner together as a family: Associations with sociodemographic characteristics and implications for diet quality and weight status. *Journal of the Academy of Nutrition and Dietetics*, 113 (12), pp.1601-1609.

Lassen, A.D., Lehmann, C., Andersen, E.W., Werther, M.N., Thorsen, A.V., Trolle, E., Gross, G. and Tetens, I. 2016. Gender differences in purchase intentions and reasons for meal selection among fast food customers–Opportunities for healthier and more sustainable fast food. *Food Quality and Preference*, 47, pp.123-129.

Lee-Kwan, S.H., Park, S., Maynard, L.M., Blanck, H.M., McGuire, L.C. and Collins, J.L. 2018. Parental characteristics and reasons associated with purchasing kids' meals for their children. *American Journal of Health Promotion*, 32 (2), pp.264-270.

Lepp, A., Barkley, J. E. and Karpinski, A. C. 2014. The relationship between cell phone use, academic performance, anxiety, and satisfaction with life in college students. *Computers in Human Behavior*, 31, pp.343–350.

Leschewski, A.M., Weatherspoon, D.D. and Kuhns, A. 2018. Household acquisition of healthy food away from home. *British Food Journal*, 120 (3), pp.588-601.

Levin, A.M. and Levin, I.P. 2010. Packaging of healthy and unhealthy food products for children and parents: The relative influence of licensed characters and brand names. *Journal of Consumer Behaviour*, 9 (5), pp.393-402.

Levy, D.E., Riis, J., Sonnenberg, L.M., Barraclough, S.J. and Thorndike, A.N. 2012. Food choices of minority and low-income employees: a cafeteria intervention. *American Journal of Preventive Medicine*, 43 (3), pp.240-248.

Likert, R. 1932. A technique for the measurement of attitudes. *Archives of Psychology*, 22 (140), pp.1–55.

Lindeman, M. and Väänänen, M. 2000. Measurement of ethical food choice motives. *Appetite*, 34 (1), pp.55-59.

Lindeman, M. and Väänänen, M. 2000. Measurement of ethical food choice motives. *Appetite*, 34 (1), pp.55-59.

Llieva, J., Baron, S., and Healey, N.M. 2002. Online surveys in marketing research: Pros and cons. *International Journal of Market Research*, 44 (3), pp.361-367.

Lobstein, T., Jackson-Leach, R., Moodie, M.L., Hall, K.D., Gortmaker, S.L., Swinburn, B.A., James, W.P.T., Wang, Y. and McPherson, K. 2015. Child and adolescent obesity: part of a bigger picture. *The Lancet*, 385 (9986), pp.2510-2520.

Loeb, K.L., Radnitz, C., Keller, K., Schwartz, M.B., Marcus, S., Pierson, R.N., Shannon, M. and DeLaurentis, D. 2017. The application of defaults to optimize parents' health-based choices for children. *Appetite*, 113, pp.368-375.

Long, M.W., Tobias, D.K., Cradock, A.L., Batchelder, H. and Gortmaker, S.L. 2015. Systematic review and meta-analysis of the impact of restaurant menu calorie labeling. *American Journal of Public Health*, 105, e11-e24. [Online]. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4386504/ [Accessed 8 May 2018].

Longacre, M. R., Drake, K. M., Titus, L. J., Cleveland, L. P., Langeloh, G., Hendricks, K. and Dalton, M. A. 2016. A toy story: Association between young children's knowledge of fast food toy premiums and their fast food consumption. *Appetite,* 96, pp.473-480.

Lopez, N.V., Folta, S.C., Glenn, M.E., Lynskey, V.M., Patel, A.A. and Anzman-Frasca, S. 2017. Promoting healthier children's meals at quick-service and full-service restaurants: Results from a pilot and feasibility study. *Appetite,* 117, pp.91-97.

Los Angeles Times. 2018. The real problem with McDonald's Happy Meals. 27 February. [Online]. *Los Angeles Times*. Available from: https://www.thespec.com/opinion-story/8287207-the-real-problem-with-mcdonald-s-happy-meals/ [Accessed 15 May 2018].

Loureiro, M. L. and Rahmani, D. 2016. The incidence of calorie labeling on fast food choices: A comparison between stated preferences and actual choices. *Economics & Human Biology,* 22, pp.82-93.

Lupton, D. 2017. Cooking, eating, uploading: digital food cultures In: Lebesco, K. and Naccarato, P. eds. *The Bloomsbury Handbook of Food and Popular Culture*. New York, NY: Bloomsbury. pp.66-82.

Lynskey, V.M., Anzman-Frasca, S., Harelick, L., Korn, A., Sharma, S. and Simms, S. 2017. Economos CD. Low parental awareness about energy (calorie) recommendations for children's restaurant meals: Findings from a national survey in the USA. *Public Health Nutrition*, 20 (11), pp.1921-1927.

Mai, R. and Hoffmann, S. 2012. Taste lovers versus nutrition fact seekers: How health consciousness and self-efficacy determine the way consumers choose food products. *Journal of Consumer Behaviour*, 11 (4), pp.316-328.

Maniadakis, N., Kapaki, V., Damianidi, L. and Kourlaba, G. 2013. A systematic review of the effectiveness of taxes on nonalcoholic beverages and high-in-fat foods as a means to prevent obesity trends. *Clinico Economics and Outcomes Research*, 5 (October), pp.519-543.

Marchiori, R. R., Adriaanse, M. A. and De Ridder, D.T.D. 2017. Unresolved questions in nudging research: Putting the psychology back in nudging. *Social Personality Psychological Compass*, 11 (e12297). [Online]. Available from: doi: https://doi.org/10.1386/ijfd.2.2.225_1 [Accessed 8 May 2018].

Marcus, M.D., Foster, G.D., Baranowski, T., Goldberg, L., Jago, R., Linder, B., Steckler, A. and Treviño, R. 2012. Shifts in BMI category and associated cardiometabolic risk: Prospective results from HEALTHY study. *Pediatrics*, 129 (4). [Online]. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3313640/ [Accessed 8 May 2018].

Marteau, T.M., Hollands, G.J. and Fletcher, P.C. 2012. Changing human behavior to prevent disease: the importance of targeting automatic processes. *Science*, 337 (6101), pp.1492-1495.

Maru/Matchbox. 2016. The future of food. Are you ready for the millennials? [Online]. Maru Matchbox. Available from: https://marumatchbox.com/resources/lp-the-future-of-food-are-you-ready-for-the-millennials/ [Accessed 20 January 2018].

Mazzone and Associates. 2015. Revenue of the quick service restaurant (QSR) industry in the United States from 2002 to 2020 (in billion U.S. dollars). In: Statista - The Statistics Portal. Available from: https://www.statista.com/statistics/196614/revenue-of-the-us-fast-food-restaurant-industry-since-2002/ [Accessed 8 May 2018].

MCA. 2016. The UK food service market- the complexity, the trends and the opportunities. [Online]. OFC. Available from: https://www.ofc.org.uk/sites/ofc/files/papers/Simon%20Stenning%20Paper%20OFC%202017.pdf [Accessed 8 May 2018].

McAlister, A.R. and Cornwell, T.B. 2010. Children's brand symbolism understanding: Links to theory of mind and executive functioning. *Psychology and Marketing*, 27 (3), pp.203-228.

McAlister, A. R. and Cornwell, T.B. 2012. Collectible toys as marketing tools: Understanding preschool children's responses to foods paired with premiums. *Journal of Public Policy and Marketing,* 31 (2), pp.195-205.

McDaniel, B.T. 2013. Technoference: Everyday intrusions and interruptions of technology in couple and family relationships. In: Bruess, C.J. *ed., Family communication in the age of digital and social media*, New York, NY: Peter Lang Publishing. pp. 228-244.

McDaniel, B.T. and Radesky, J.S. 2018. Technoference: Parent distraction with technology and associations with child behavior problems. *Child Development*, 89 (1), pp.100-109.

McDaniel, B.T., Galovan, A.M., Cravens, J.D. and Drouin, M. 2018. “Technoference” and implications for mothers' and fathers' couple and coparenting relationship quality. *Computers in Human Behavior*, 80, pp.303-313.

McDonald’s. 2017. McDonald's USA to celebrate literacy month with popular children's books in Happy Meals. 17 August. [Online]. McDonald’s. Available from: http://news.mcdonalds.com/news-releases/news-release-details/mcdonalds-usa-celebrate-literacy-month-popular-childrens-books-0 [Accessed 11 March 2018].

McDonald’s. 2018a. McDonald's announces global commitment to support families with increased focus on happy meals. 15 February. [Online]. McDonald’s. Available from: http://news.mcdonalds.com/news-releases/news-release-details/mcdonalds-announces-global-commitment-support-families-0 [Accessed 11 March 2018].

McDonald’s. 2018b. Every Happy Meal comes with your choice of book or toy. 15 February. [Online]. McDonald’s. Available from: https://www.mcdonalds.com/ca/en-ca/full-menu/happy-meal.html [Accessed 11 March 2018].

McGale, L.S., Halford, J.C.G., Harrold, J.A. and Boyland, E.J. 2016. The Influence of brand equity characters on children's food preferences and choices. *The Journal of Pediatrics*, 177, pp.33-38.

McGuffin, L.E., Price, R.K., McCaffrey, T.A., Hall, G., Lobo, A., Wallace, J.M. and Livingstone, M.B.E. 2015. Parent and child perspectives on family out-of-home eating: A qualitative analysis. *Public Health Nutrition*, 18 (1), pp.100-111.

McIntosh, A., Kubena, K.S., Tolle, G., Dean, W., Kim, M.J., Jan, J.S. and Anding, J. 2011. Determinants of children's use of and time spent in fast-food and full-service restaurants. *Journal of Nutrition Education and Behavior*, 43 (3), pp.142-149.

McManus, P., Mulhall, S., Ragab, M. and Arisha, A. 2017. An investigation in the methodological approaches used in doctoral business research in Ireland. In: *ECRM 2017 16th European Conference on Research Methods in Business and Management*. Reading UK: Academic Conferences and Publishing Limited. p. 233.

McNab, A. and Scheible, T. 2017. *Use of mobile applications in the quick service industry: Implications on operations, marketing and customer perceptions.* Human-Computer Interaction (SIGHCI): Twenty-third Americas Conference on Information Systems, Boston, 2017.

Mhurchu, C.N. 2010. Food costs and healthful diets: the need for solution-oriented research and policies. *The American Journal of Clinical Nutrition,* 92 (5), pp.1007-1008.

Miles, M.B. 1990. New methods for qualitative data collection and analysis: Vignettes and pre-structured cases. *International Journal of Qualitative Studies in Education*, 3 (1) pp.37-51.

Milošević, J., Žeželj, I., Gorton, M. and Barjolle, D. 2012. Understanding the motives for food choice in Western Balkan Countries. *Appetite*, 58 (1), pp.205-214.

Mo Kwon, J., Bae, J.I. and Blum, S.C. 2013. Mobile applications in the hospitality industry. *Journal of Hospitality and Tourism Technology*, 4 (1), pp.81-92.

Moorhead, A., Bond, R. and Zheng, H. 2015. Smart food: Crowdsourcing of experts in nutrition and non-experts in identifying calories of meals using smartphone as a potential tool contributing to obesity prevention and management. In: *Bioinformatics and Biomedicine (BIBM), 2015 IEEE International Conference on 2015 Nov 9*. Washington, DC: IEEE. pp.1777-1779.

Moran, A.J., Ramirez, M. and Block, J.P. 2017. Consumer underestimation of sodium in fast food restaurant meals: Results from a cross-sectional observational study. *Appetite*, 113, pp.155-161.

Mordor Intelligence. 2017. Global wine market- growth trends and forecasts (2018-2023). [Online]. Mordor. Available from: https://www.mordorintelligence.com/industry-reports/wine-market [Accessed 14 May, 2018].

Morgan, D.L. 2014. Pragmatism as a paradigm for social research. *Qualitative Inquiry*, 20 (8), pp.1045-1053.

Morgan Stanley Research. 2015. Restaurants - AlphaWise survey: What Millennials want. [Online]. Morgan Stanley. Available from: http://studylib.net/doc/8210222/restaurants--alphawise-survey--what-millennials-want [Accessed 11 March 2018].

Morrison, M. 2011. KFC in Australia tries to put stop to 'Pester Power'. Chain eliminates toys in kids' meals. In: *Advertising Age,* 24 August.

Muller, L., Lacroix, A., Lusk, J.L. and Ruffieux, B. 2016. Distributional impacts of fat taxes and thin subsidies. *The Economic Journal.* [Online]. Available from: https://doi.org/10.1111/ecoj.12357 [Accessed 8 May 2018].

Myers, C.K., Bellows, M., Fakhoury, H., Hale, D., Hall, A. and Ofman, K. 2010. Ladies first? A field study of discrimination in coffee shops. *Applied Economics*, 42 (14), pp.1761-1769.

Mytton, O.T., Clarke, D. and Rayner, M. 2012. Taxing unhealthy food and drinks to improve health. *British Medical Journal*, 344. [Online]. doi: https://doi.org/10.1136/bmj.e2931 [Accessed 8 May 2018].

Nardi, P.M. 2016. *Doing survey research. A guide to quantitative methods.* 3rd ed. New York, NY: Routledge.

Neuman, W.L. 2011. *Social research methods: Qualitative and quantitative approaches*, 7th ed. Boston, MA: Pearson/Allyn and Bacon.

Neumark-Sztainer, D., Wall, M. and Perry, C. and Story, M. 2003. Correlates of fruit and vegetable intake among adolescents. Findings from Project EAT. *Preventive Medicine*, 37 (3), pp.198-208.

NHS. 2017. Statistics on obesity, physical activity and diet. 30 March. [Online]. NHS. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/613532/obes-phys-acti-diet-eng-2017-rep.pdf [Accessed 11 March 2018].

Nicklas, T.A., Baranowski, T., Baranowski, J.C., Cullen, K., Rittenberry, L. and Olvera, N. 2001. Family and child-care provider influences on preschool children's fruit, juice, and vegetable consumption. *Nutrition Reviews*, 59 (7), pp.224-235.

Niebylski, M.L., Redburn, K.A., Duhaney, T. and Campbell, N.R. 2015. Healthy food subsidies and unhealthy food taxation: A systematic review of the evidence. *Nutrition*, 31 (6), pp.787-795.

Nielsen. 2015. We are what we eat. Healthy eating trends around the world. [Online]. Nielsen. Available from: https://www.nielsen.com/content/dam/nielsenglobal/eu/nielseninsights/pdfs/Nielsen%20Global%20Health%20and%20Wellness%20Report%20-%20January%202015.pdf [Accessed 30 January 2018].

Nielsen, S.J., Siega-Riz, A.M. and Popkin, B.M. 2002. Trends in energy intake in US between 1977 and 1996: Similar shifts seen across age groups. *Obesity*, 10 (5), pp.370-378.

Nikolaou, C.K., Hankey, C.R. and Lean, M.E. 2015. Calorie-labelling: Does it impact on calorie purchase in catering outlets and the views of young adults? *International Journal of Obesity,* 39 (3), pp.542-545.

Nikolaou, C.K., Hankey, C.R. and Lean, M.E.J. 2016. Effects of calorie labelling on macro- and micro-nutrients in main-meal choices made by young adults. *European Journal of Clinical Nutrition*, 70 (3), pp.386-392.

Nothwehr, F.K., Snetselaar, L., Dawson, J. and Schultz, U. 2013. Promoting healthy choices in non-chain restaurants: effects of a simple cue to customers. *Health Promotion Practice*, 14 (1), pp.132-138.

NPD. 2016. A generational study: The evolution of eating. [Online]. NPD. Available from: https://www.npd.com/latest-reports/fbc-consumption-evolution-of-eating/ [Accessed 30 February 2018].

NSW Government. 2017. Report of the Chief Health Officer – What NSW children eat and drink. [Online]. NSW Government. Available from: http://www.health.nsw.gov.au/hsnsw/Publications/chief-health-officers-report-2017.pdf [Accessed 8 May 2018].

Nudelman, G. and Shiloh, S. 2018. Connectionism and behavioral clusters: Differential patterns in predicting expectations to engage in health behaviors. *Annals of Behavioral Medicine.* [Early Online]. Available from: doi: 10.1093/abm/kax063 [Accessed 8 May 2018].

OECD. 2017. Obesity update. [Online]. OECD. Available from: http://www.oecd.org/els/health-systems/Obesity-Update-2017.pdf [Accessed 11 March 2018].

Ogle, A.D., Graham, D.J., Lucas-Thompson, R.G. and Roberto, C.A. 2017. Influence of cartoon media characters on children's attention to and preference for food and beverage products. *Journal of the Academy of Nutrition and Dietetics*, 117 (2), pp.265-270.

Okumus, B., Bilgihan, A. and Ozturk, A.B. 2016. Factors affecting the acceptance of smartphone diet applications. *Journal of Hospitality Marketing and Management*, 25 (6), pp.726-747.

Oldenburg, R. 1989. The great good place: Café, coffee shops, community centers, beauty parlors, general stores, bars, hangouts, and how they get you through the day. New York, NY: Paragon House Publishers.

Oldenburg, R. 1999. The great good place: Cafes, coffee shops, bookstores, bars, hair salons, and other hangouts at the heart of a community. 3rd ed. Cambridge: De Capo Press.

Oldenburg, R. and Brissett, D. 1982. The third place. *Qualitative Sociology*, 5 (4), pp.265-284.

Olstad, D.L., Goonewardene, L.A., McCargar, L.J. and Raine, K.D. 2014. Choosing healthier foods in recreational sports settings: A mixed methods investigation of the impact of nudging and an economic incentive. *International Journal of Behavioral Nutrition and Physical Activity*, 11 (1). [Online]. Available from: https://doi.org/10.1186/1479-5868-11-6 [Accessed 8 May 2018].

Ontario Healthy Menu Choices Act 2015, S.O. 2015, c. 7, Sched. 1. 2015. [Online]. Available from: https://www.ontario.ca/laws/statute/15h07 [Accessed 10 February 2018].

Onwuegbuzie, A.J., Johnson, R.B. and Collins, K.M. 2009. Call for mixed analysis: A philosophical framework for combining qualitative and quantitative approaches. *International Journal of Multiple Research Approaches*, 3 (2), pp.114–139.

Orbell, S. and Verplanken, B. 2010. The automatic component of habit in health behavior: Habit as cue-contingent automaticity. *Health Psychology*, 29 (4), pp.374-383.

Orrell-Valente, J. K., Hill, L. G., Brechwald, W. A., Dodge, K. A., Pettit, G. S. and Bates, J. E. 2007. "Just three more bites": An observational analysis of parents' socialization of children's eating at mealtime. *Appetite,* 48 (1), pp.37-45.

OTA (Organic Trade Association). 2016. Millennials pushing organic to new heights. [Online]. OTA. Available from: https://www.ota.com/news/industry-news/19265 [Accessed 11 March 2018].

Otten, J. J., Hekler, E. B., Krukowski, R. A., Buman, M. P., Saelens, B. E., Gardner, C. D. and King, A. C. 2012. Food marketing to children through toys: Response of restaurants to the first US toy ordinance. *American Journal of Preventive Medicine*, 42 (1), pp.56-60.

Otten, J.J. 2014. *Food Marketing: Using Toys to Market Children's Meals.* Minneapolis, MN: Healthy Eating Research. [Online]. HER. Available from: http://healthyeatingresearch.org/wp-content/uploads/2014/07/her_marketing_toys_AUGUST_14.pdf [Accessed 20 January 2018].

Otten, J.J., Saelens, B.E., Kapphahn, K.I., Hekler , E.B., Buman, M.P., Goldstein, B.A., Krukowski, R.A., O'Donohue, L.S., Gardner, C.D. and King , A.C. 2014. Impact of San Francisco's toy ordinance on restaurants and children's food purchases, 2011–2012. *Preventing Chronic Disease,* 11 (E122). Available from: http://dx.doi.org/10.5888/pcd11. 140026 [Accessed 20 January 2017]. [Accessed 8 May 2018].

Paarlberg, R., Mozaffarian, D. and Micha, R. 2017. Viewpoint: Can US local soda taxes continue to spread? *Food Policy (Elsevier)* 71, pp.1-7.

Parikh, S., Hamadeh, M.J. and Kuk, J.L. 2015. Estimating serving sizes for healthier and unhealthier versions of food according to Canada's food guide. *Canadian Journal of Dietetic Practice and Research,* 76 (4) pp.204-207.

Patton, M. Q. 1990. *Qualitative evaluation and research methods*. Newbury Park, CA: Sage Publications.

Perkins, K.L. 2012. *Nutrition knowledge of consumers and health professionals and the use of menu calorie labeling for a master's thesis by University of Kentucky.* Lexington KY: University of Kentucky. Available from: http://uknowledge.uky.edu/foodsci_etds/7 [Accessed 10 February 2018].

Pettigrew, S. and Roberts, M. 2006. Mothers' attitudes towards toys as fast food premiums. Y*oung Consumers,* 7 (4), pp.60-67.

Pettigrew, S., Rosenberg, M. and Ferguson, R. 2013. Consumers' (in)ability to estimate the energy content of unhealthy foods. *Nutrition and Dietetics*, 70 (4) pp. 307-311.

Pew Research. 2015. *Parenting in America.* [Online]. Pew Research. Available from: http://www.pewsocialtrends.org/2015/12/17/parenting-in-america/ [Accessed 10 February 2018].

Pew Research. 2016a. What's on your table? How America's diet has changed over the decades. [Online]. Pew Research. Available from: http://www.pewresearch.org/fact-tank/2016/12/13/whats-on-your-table-how-americas-diet-has-changed-over-the-decades/ [Accessed 10 February 2018].

Pew Research. 2016b. Social media update 2016. [Online]. Pew Research. Available from: http://www.pewinternet.org/2016/11/11/social-media-update-2016/ [Accessed 20 January 2018].

Pew Research. 2017. Pew Research Center analysis of National Center for Health Statistics data. [Online]. Pew Research. Available from: http://www.pewresearch.org/fact-tank/2017/01/03/more-than-a-million-millennials-are-becoming-moms-each-year/ [Accessed 20 January 2018].

Pew Research. 2018. Methods-US survey research sampling. [Online]. Pew Research. Available at: http://www.pewresearch.org/methodology/u-s-survey-research/sampling/ [Accessed 25 January 2018].

Phillips, D.C. and Burbules, N.C. 2000. *Postpositivism and educational research*. Lanham, MD: Rowman and Littlefield.

Phull, S., Wills, W. and Dickinson, A. 2015. Is it a pleasure to eat together? Theoretical reflections on conviviality and the Mediterranean Diet. *Sociology Compass*, 9 (11), pp.977-986.

Pinho, M.G.M., Mackenbach, J.D., Charreire, H., Oppert, J.M., Bárdos, H., Glonti, K., Rutter, H., Compernolle, S., De Bourdeaudhuij, I., Beulens, J.W.J. and Brug, J. 2017. Exploring the relationship between perceived barriers to healthy eating and dietary behaviours in European adults. *European Journal of Nutrition*, pp.1-10. [Online]. Available from: https://doi.org/10.1007/s00394 [Accessed 8 May 2018].

Pollard, T.M., Steptoe, A.N. and Wardle, J.A. 1998. Motives underlying healthy eating: Using the Food Choice Questionnaire to explain variation in dietary intake. *Journal of Biosocial Science,* 30 (2), pp.165-179.

Pomeranz, J.L., Wilde, P., Huang, Y., Micha, R. and Mozaffarian, D. 2018. Legal and administrative feasibility of a federal junk food and sugar-sweetened beverage tax to improve diet. *American Journal of Public Health*, 108 (2), pp.203-209.

Poti, J.M., Duffey, K.J. and Popkin, B.M. 2014. The association of fast food consumption with poor dietary outcomes and obesity among children: Is it the fast food or the remainder of the diet? *The American Journal of Clinical Nutrition*, 99 (1), pp.162-171.

Powell, L.M. and Nguyen, B.T. 2013. Fast-food and full-service restaurant consumption among children and adolescents: Effect on energy, beverage, and nutrient intake. *JAMA Pediatrics*, 167 (1), pp.14-20.

Prescott, J., Young, O., O'Neill, L., Yau, N.J.N. and Stevens, R. 2002. Motives for food choice: a comparison of consumers from Japan, Taiwan, Malaysia and New Zealand. *Food Quality and Preference*, 13 (7-8), pp.489-495.

Prescott, J., Young, O., O'Neill, L., Yau, N.J.N. and Stevens, R. 2002. Motives for food choice: a comparison of consumers from Japan, Taiwan, Malaysia, and New Zealand. *Food Quality and Preference*, 13 (7-8), pp.489-495.

Puder, J.J. and Munsch, S. 2010. Psychological correlates of childhood obesity. *International Journal of Obesity*, 34 (S2). [On-line]. Available from: https://www.nature.com/articles/ijo2010238 [Accessed 20 January 2017].

Pulley, C., Galloway, A.T., Webb, R.M. and Payne, L.O. 2014. Parental child feeding practices: how do perceptions of mother, father, sibling, and self vary? *Appetite,* 80, pp.96-102.

QSR Magazine. 2016. The QSR 50 - An inside look at the top 50 brands in quick service and fast casual. August 2016. [On-line]. *QSR Magazine.* Available from: https://www.qsrmagazine.com/reports/qsr50-2016-top-50-chart [Accessed 20 January 2017].

Quick, V., Golem, D., Alleman, G.P., Martin-Biggers, J., Worobey, J. and Byrd-Bredbenner, C. 2018. Moms and dads differ in their family food gatekeeper behaviors. *Topics in Clinical Nutrition*, 33 (1), pp.3-15.

Radesky, J., Leung, C., Appugliese, D., Miller, A.L., Lumeng, J.C. and Rosenblum, K.L. 2018. Maternal mental representations of the child and mobile phone use during parent-child mealtimes. *Journal of Developmental and Behavioral Pediatrics*, 39 (4), pp.310-317.

Radesky, J.S., Kistin, C.J., Zuckerman, B., Nitzberg, K., Gross, J., Kaplan-Sanoff, M., Augustyn, M. and Silverstein, M. 2014. Patterns of mobile device use by caregivers and children during meals in fast food restaurants. *Pediatrics,*133 (4), [Online]. Available from: doi:10.1542/peds.2013-3703 [Accessed 8 May 2018].

Raman, L. 2014. Children's and adults' understanding of the impact of nutrition on biological and psychological processes. *British Journal of Developmental Psychology*, 32 (1), pp.78-93.

Rao, D.P., Kropac, E., Do, M.T., Roberts, K.C. and Jayaraman, G.C. 2017. Status report--Childhood overweight and obesity in Canada: An integrative assessment. *Health Promotion and Chronic Disease Prevention in Canada: Research, Policy and Practice*, 37 (3), pp.87-93.

Reimann, M. and Lane, K. 2017. Can a toy encourage lower calorie meal bundle selection in children? A field experiment on the reinforcing effects of toys on food choice. *PloS ONE*, 12 (1). [Online]. PloS ONE. Available from: https://doi.org/10.1371/journal.pone.0169638 [Accessed 8 May 2018].

Reimann, M., Bechara, A. and MacInnis, D. 2015. Leveraging the happy meal effect: Substituting food with modest nonfood incentives decreases portion size choice. *Journal of Experimental Psychology: Applied*, 21 (3), pp.276-286.

Reimann, M., MacInnis, D. and Bechara, A. 2016. Can smaller meals make you happy? Behavioral, neurophysiological, and psychological insights into motivating smaller portion choice. *Journal of the Association for Consumer Research*, 1 (1), pp.71-91.

Reja, U., Manfreda, K.L., Hlebec, V. and Vehovar, V. 2003. Open-ended vs. close-ended questions in web questionnaires. *Developments in Applied Statistics,* 19 (1), pp.159-177.

Remenyi, D. and Williams, B. 1998. *Doing research in business and management: An introduction to process and method*. London: Sage Publications.

Rice, S., McAllister, E.J. and Dhurandhar, N.V. 2007. Fast food: friendly? *International Journal of Obesity*, 31 (6), pp.884-886.

Rising, C. J. and Bol, N. 2017. Nudging our way to a healthier population: The effect of calorie labeling and self-control on menu choices of emerging adults. *Health Communication*, 32 (8), pp.1032-1038.

Roberto, C.A., Baik, J., Harris, J.L. and Brownell, K.D. 2010. Influence of licensed characters on children's taste and snack preferences. *Pediatrics*, 126 (1), pp.88-93.

Robinson, T.N., Borzekowski, D.L., Matheson, D.M. and Kraemer, H.C. 2007. Effects of fast food branding on young children's taste preferences. *Archives of Pediatrics and Adolescent Medicine,* 161 (8), pp.792-797.

Robson, S.M., Crosby, L.E. and Stark, L.J. 2016. Eating dinner away from home: Perspectives of middle-to high-income parents. *Appetite*, 96, pp.147-153.

Rodgers, M. 2018. McMorris Rodgers's common sense nutrition disclosure act passes House. 6 February. [Online]. Cathy McMorris Rodgers. Available from: https://mcmorris.house.gov/common-sense-menu-labeling/ [Accessed 7 April 2018].

Rosenbaum, M.S., Ward, J., Walker, B.A. and Ostrom, A.L. 2007. A cup of coffee with a dash of love: An investigation of commercial social support and third-place attachment. *Journal of Service Research*, 10 (1), pp.43-59.

Roy, C.L. 1995. Developing nursing knowledge: Practice issues raised from four philosophical perspectives. *Nursing Science Quarterly,* 8 (2), pp.79-85.

Rozin, P., Ashmore, M. and Markwith, M. 1996. Lay American conceptions of nutrition: Dose insensitivity, categorical thinking, contagion, and the monotonic mind. *Health Psychology*, 15 (6), pp.438-447.

Rozin, P., Scott, S., Dingley, M., Urbanek, J.K., Jiang, H. and Kaltenbach, M. 2011. Nudge to nobesity I: Minor changes in accessibility decrease food intake. *Judgment and Decision Making*, 6 (4), pp.323-332.

Rydell, S.A., Harnack, L.J., Oakes, J.M., Story, M., Jeffery, R.W. and French, S.A. 2008. Why eat at fast-food restaurants: reported reasons among frequent consumers. *Journal of the American Dietetic Association*, 108 (12), pp.2066-2070.

Rylatt, L. and Cartwright, T. 2016. Parental feeding behaviour and motivations regarding pre-school age children: a thematic synthesis of qualitative studies. *Appetite*, 99, pp.285-297.

Sabin, M.A., Kao, K.T., Juonala, M., Baur, L.A. and Wake, M. 2015. Viewpoint article: Childhood obesity–looking back over 50 years to begin to look forward. *Journal of Paediatrics and Child Health*, 51 (1), pp.82-86.

Sacco, J., Lillico, H.G., Chen, E. and Hobin, E. 2017. The influence of menu labelling on food choices among children and adolescents: A systematic review of the literature. *Perspectives in Public Health*, 137 (3), pp.173-181.

Saldaña, J. 2015. *The coding manual for qualitative researchers*. 3rd ed. Thousand Oaks, CA: Sage Publications.

Salud America. 2018. Baltimore pushes sugary drinks off kid's menus. 6 April. [Online]. Salud America. Available from: https://salud-america.org/baltimore-pushes-sugary-drinks-off-kids-menus/ [Accessed 30 April 2018].

Saunders, M., Lewis, P. and Thornhill, A. 2009. *Research methods for business students,* London: Pearson Education.

Saunders, M., Lewis, P. and Thornhill, A. 2012. *Research methods for business students*, 6th ed. Essex: Pitman Publishing.

Schermel, A., Wong, C.L. and L'Abbé, M.R. 2016. Are foods with fat-related claims useful for weight management? *Appetite,* 96, pp.154-159.

Schifferstein, H. 2017. Differentiating consumption contexts as a basis for diversity in food design education: Eating in or eating out? *International Journal of Food Design,* 2 (1), pp.83 -101.

Schlossen, M. 2011. Jack in the Box yanks toys from kids' meals. 21 June. [On-line]. *Reuters News*. Available from: http://www.reuters.com/article/us-toys-fastfood-idUSTRE75K6RZ20110621 [Accessed 20 January 2018].

Schoen, E., Brock, R. and Hannon, J. 2018. Gender bias, other specified and unspecified feeding and eating disorders, and college students: a vignette study. *Eating Disorders,* pp.1-14. Early online 6 August. Available from: https://doi.org/10.1080/10640266.2018.1504536 [Accessed 6 September 2018].

Schoffman, D.E., Davidson, C.R., Hales, S.B., Crimarco, A.E., Dahl, A.A. and Turner-McGrievy, G.M. 2016. The fast-casual conundrum: Fast-casual restaurant entrees are higher in calories than fast food. *Journal of the Academy of Nutrition and Dietetics*, 116 (10), pp.1606-1612.

Schouteten, J.J., Verwaeren, J., Lagast, S., Gellynck, X. and De Steur, H. 2018. Emoji as a tool for measuring children's emotions when tasting food. *Food Quality and Preference,* 68, pp.322-321.

Scientific American. 2013. Burger with a side of toys: How is fast food being marketed to children? 29 August. [Online]. *Scientific American.* Available from: https://blogs.scientificamerican.com/anthropology-in-practice/burger-with-a-side-of-toys-how-is-fast-food-being-marketed-to-children/ [Accessed 15 May 2018].

Sepulveda, K.K., Beltran, A., Watson, K., Baranowski, T., Baranowski, J., Islam, N. and Missaghian, M. 2009. Fruit and vegetables are similarly categorised by 8-13-year-old children. *Public Health Nutrition,* 12 (2), pp.175-187.

Shah, R. and Tewari, R. 2016. Demystifying 'selfie': a rampant social media activity. *Behaviour and Information Technology*, 35 (10), pp.864-871.

Sherman, L.W. and Strang, H. 2004. Experimental ethnography: The marriage of qualitative and quantitative research. *The Annals of the American Academy of Political and Social Science*, 595 (1), pp.204-222.

Shloim, N., Edelson, L.R., Martin, N. and Hetherington, M.M. 2015. Parenting styles, feeding styles, feeding practices, and weight status in 4–12 year-old children: A systematic review of the literature. *Frontiers in Psychology,* 6. [Online]. Available from: https://doi.org/10.3389/fpsyg.2015.01849 [Accessed 8 May 2018].

Sinclair, S.E., Cooper, M. and Mansfield, E.D. 2014. The influence of menu labeling on calories selected or consumed: A systematic review and meta-analysis. *Journal of the Academy of Nutrition and Dietetics*, 114 (9), pp.1375-1388.

Skinner, J.D., Carruth, B.R., Bounds, W. and Ziegler, P. 2002. Children's food preferences: A longitudinal analysis. *Journal of the American Dietetic Association*, 102 (11), pp.1638-1647.

Slater, J., Sevenhuysen, G., Edginton, B. and O'Neil, J. 2012. 'Trying to make it all come together': Structuration and employed mothers' experience of family food provisioning in Canada. *Health Promotion International*, 27 (3), pp.405-415.

Small, L., Lane, H., Vaughan, L., Melnyk, B. and McBurnett, D. 2013. A systematic review of the evidence: The effects of portion size manipulation with children and portion education/training interventions on dietary intake with adults. *Worldviews on Evidence-Based Nursing*, 10 (2), pp.69-81.

Smed, S., Scarborough, P., Rayner, M. and Jensen, J.D. 2016. The effects of the Danish saturated fat tax on food and nutrient intake and modelled health outcomes: An econometric and comparative risk assessment evaluation. *European Journal of Clinical Nutrition*, 70, pp.681-686.

Smith, E., Scarborough, P., Rayner, M. and Briggs, A.D. 2018. Should we tax unhealthy food and drink? *Proceedings of the Nutrition Society*, pp.1-7. [Online]. Available from: https://doi.org/10.1017/S0029665117004165 [Accessed 8 May 2018].

Smithers, L.G., Haag, D.G., Agnew, B., Lynch, J. and Sorell, M. 2018. Food advertising on Australian television: Frequency, duration and monthly pattern of advertising from a commercial network (four channels) for the entire 2016. *Journal of Paediatrics and Child Health*. [Early Online]. Available from: doi: 10.1111/jpc.13929 [Accessed 8 May 2018].

Sosa, M., Cardinal, P., Contarini, A. and Hough, G. 2015. Food choice and emotions: Comparison between low and middle income populations. *Food Research International*, 76 (Part 2), pp.253-260.

Speakman, J.R. and Mazidi, M. 2018. Reply to VI Kraak. *The American Journal of Clinical Nutrition*, 107 (2), pp.290-291.

Statista. 2017. Is your cellphone a smartphone, such as an iPhone, a Blackberry or the like? In: Statista - The Statistics Portal. Available from: https://www.statista.com/statistics/539409/smartphone-ownership-by-age-in-selected-countries/) [Accessed 20 January 2018].

Statistic Brain. 2016. Fast food eating statistics. [Online]. Statistic Brain. Available from: https://www.statisticbrain.com/fast-food-statistics/ [Accessed 11 March 2018].

Statistics Canada. 2014. Food services and drinking places. [Online]. Statcan. Available from: http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/ [Accessed 30 January 2018].

Statistics Canada. 2015. Women in Canada: A gender-based statistical report. Statistics Canada. [Online]. Statcan. Available from: http://www.statcan.gc.ca/pub/89-503-x/2015001/article/14152-eng.pdf [Accessed 11 January 2018].

Statistics Canada. 2016a. General social survey (Canadians at work and home). Nutritional information on packaged food. [Online]. Statcan. Available from: http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=5221 [Accessed 30 April 2018].

Statistics Canada. 2016b. Data Products, 2016 Census. [Online]. Statcan. Available from: https://www12.statcan.gc.ca/census- recensement/2016/dp-pd/index-eng.cfm [Accessed 6 September 2018].

Statistics Canada. 2017. Results from the General Social Survey. Changes in parents' participation in domestic tasks and care for children from 1986 to 2015. [Online]. Statcan. Available from: http://www.statcan.gc.ca/pub/89-652-x/89-652-x2017001-eng.pdf [Accessed 11 March 2018].

Steenhuis, I.H., Leeuwis, F.H. and Vermeer, W.M. 2010. Small, medium, large or supersize: Trends in food portion sizes in The Netherlands. *Public Health Nutrition*, 13 (6), pp.852-857.

Steinmetz, K. 2015. Help! My parents are millennials. *Time,* 186 (17), pp.36-43.

Stender, S., Dyerberg, J. and Astrup, A. 2007. Fast food: Unfriendly and unhealthy. *International Journal of Obesity,* 31 (6), pp.887-890.

Steptoe, A., Pollard, T.M. and Wardle, J. 1995. Development of a measure of the motives underlying the selection of food: The food choice questionnaire. *Appetite*, 25 (3), pp.267-284.

Stewart, H., Hyman, J. and Dong, D. 2015. Menu labeling fills the gaps in consumers' knowledge of the calorie content of restaurant foods. *Agribusiness*, 31 (4), pp.491-506.

Strauss, A. and Corbin, J. 1990. *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage Publications.

Strauss, A. and Corbin, J. 1994. Grounded theory methodology. In: Denzin, N.K. and Lincoln, Y.S. *eds., Handbook of qualitative research.* Thousand Oaks, CA: Sage Publications. pp.273-285.

Stroebele, N. and De Castro, J.M. 2004. Effect of ambience on food intake and food choice. *Nutrition,* 20 (9), pp.821-838.

Strom, S. 2011. McDonald's trims Its Happy Meal. 26 July. [On-line] *New York Times.* Available from: http://www.nytimes.com/2011/07/27/business/mcdonalds-happy-meal-to-get-healthier.html [Accessed 20 January 2017].

Sunderland, P.L. and Denny, R.M. 2016. *Doing anthropology in consumer research*. New York: Routledge.

Swaney-Stueve, M., Jepsen, T. and Deubler, G. 2018. The emoji scale: A facial scale for the 21st century. *Food Quality and Preference*, 68, pp.183-190.

Szaszi, B., Palinkas, A., Palfi, B., Szollosi, A. and Aczel, B. 2017. A systematic scoping review of the choice architecture movement: toward understanding when and why nudges work. *Journal of Behavioral Decision Making*, [Early Online]. Available from: https://doi.org/10.1002/bdm.2035 [Accessed 8 May 2018].

Taken Smith, K. 2012. Longitudinal study of digital marketing strategies targeting Millennials. *Journal of Consumer Marketing*, 29 (2), pp.86-92.

Tanner, C., Petersen, A. and Fraser, S. 2014. Food, fat and family: Thinking fathers through mothers' words. *Women's Studies International Forum,* 44, pp.209-219.

Tatlow-Golden, M., Hennessy, E., Dean, M. and Hollywood, L. 2013. Big, strong and healthy. Young children's identification of food and drink that contribute to healthy growth. *Appetite*, 71, pp.163-170.

Tatlow-Golden, M., Hennessy, E., Dean, M. and Hollywood, L. 2014. Young children's food brand knowledge. Early development and associations with television viewing and parent's diet. *Appetite*, 80, pp.197-203.

Tebbutt, J. 2018. Sugar tax doubts. *British Dental Journal,* 224 (4), p.200.

Thaler, R. H, Sunstein, C. R. and Balz, John P. 2010. Choice architecture. [Online]. Available from: http://dx.doi.org/10.2139/ssrn.1583509 [Accessed 30 April 2018].

Thaler, R., Sunstein, C. and Balz, J. 2012. Choice architecture. In: *The behavioral foundations of public policy*, Shafir, E., *ed.* Princeton, NJ: Princeton University Press. pp.428-439.

Thaler, R.H. and Sunstein, C.R. 2009. *Nudge – Improving decisions about health, wealth and happiness*. New York, NY: Penguin.

The Canadian Press. 2018. Most vegans, vegetarians in Canada are under 35: Survey. 13 March. [Online]. *Globe and Mail.* Available from: https://www.theglobeandmail.com/canada/article-most-vegans-vegetarians-in-canada-are-under-35-survey/ [Accessed 24 March 2018].

The Food Foundation. 2017. The UKs sugar levy. [Online]. The Food Foundation. Available from: https://foodfoundation.org.uk/wp-content/uploads/2017/07/2-Briefing-Sugar-Levy_v3.pdf [Accessed 24 March 2018].

The Heritage Foundation. 2018. The 2018 index of economic freedom. [Online]. The Heritage Foundation. Available from: https://www.heritage.org/index/ [Accessed 15 May 2018].

The Telegraph. 2010. McDonald's 'Happy Meals' with toys banned to fight childhood obesity. 28 April. [Online]. *The Telegraph.* Available from: https://www.telegraph.co.uk/news/worldnews/northamerica/usa/7647021/McDonalds-Happy-Meals-with-toys-banned-to-fight-childhood-obesity.html [Accessed 15 May 2018].

Thorndike, A.N., Riis, J., Sonnenberg, L.M. and Levy, D.E. 2014. Traffic-light labels and choice architecture: Promoting healthy food choices. *American Journal of Preventive Medicine*, 46 (2), pp.143-149.

Tim, L.S., Beevi, Z. and Yeap, R. 2014. Effects of fast-food branding on children's taste preferences. *Southeast Asia Psychology Journal*, 2, pp.39-56.

Time. 2015. How millennial parents think differently about raising kids. [Online]. *Time Online.* Available from: http://time.com/4070021/millennial-parents-raising-kids-poll/ [Accessed 10 February 2018].

Toronto Public Health. 2013. What's on the menu? Making key nutrition information readily available in restaurants. Technical Report. [Online]. TPH. Available from: http://www.toronto.ca/legdocs/mmis/2013/hl/bgrd/backgroundfile-57582.pdf [Accessed 10 February 2018].

Traphagan, J.W. and Brown, L.K. 2002. Fast food and intergenerational commensality in Japan: New styles and old patterns. *Ethnology*, 41 (2) pp.119-134.

Travers, M. 2014. Using ethnographic methods to strengthen quantitative data-explaining juvenile detention rates in three Australian states. *Bulletin of Sociological Methodology,* 124 (1), pp.66-76.

Tuttle, B. 2013. The real reason Taco Bell killed kids meals. 5 July. [On-line]. *Time Magazine.* Available from: http://business.time.com/2013/07/25/the-real-reason-taco-bell-killed-kids-meals/ [Accessed 20 January 2018].

U.S.News. 2018. Overall best countries rating - The overall ranking of best countries measures global performance on a variety of metrics. 23 January. [Online]. *U.S.News*. Available from: https://www.usnews.com/news/best-countries/overall-full-list [Accessed 15 May 2018].

UK Government. 2017. Draft legislation: Soft drinks industry levy. 13 October. [Online]. UK Government. Available from: https://www.gov.uk/government/consultations/draft-legislation-soft-drinks-industry-levy [Accessed 24 March 2018].

UK National Statistics. 2015. Family Food 2015. United Kingdom: National Statistics. 17 March. [Online]. UK Government. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/597667/Family_Food_2015-09mar17.pdf [Accessed 11 March 2018].

USDA (United States Department of Agriculture Economic Research Service). 2016. U.S. food-away-from-home sales topped food-at-home sales in 2014. 12 April. [Online]. FTC. Available from: https://www.ftc.gov/sites/default/files/documents/reports/review-food-marketing-children-and-adolescents-follow-report/121221foodmarketingreport.pdf [Accessed 30 April 2018].

US Department of Labor. 2013. Women's bureau. Data and statistics. Women in the labour force - 2013 annual averages. [Online]. USDL. Available from: https://www.dol.gov/wb/stats/mother_families.htm [Accessed 11 March 2018].

USDA (U.S. Department of Health and Human Services and U.S. Department of Agriculture). 2015. The 2015–2020 dietary guidelines for Americans, 8th ed. Washington DC: US Government Printing Office.

USDA. 2017. Ag and food statistics charting the essentials. Economic Research Service Administrative Publication Number 075. [Online]. USDA. Available from: https://www.ers.usda.gov/webdocs/publications/83344/ap-075.pdf?v=42853 [Accessed 22 February 2018].

Vandenbroeck, I.P., Goossens, J. and Clemens, M. 2007. Foresight tackling obesities: Future choices-building the obesity system map. London UK: UK Government's Foresight Programme. [Online]. UK Government. Available from: http://www.foresight.gov.uk/Obesity/12.pdf [Accessed 11 March 2018].

Vanderlee, L. 2016. *Examining the impact of a nutrition labelling program on menus in a cafeteria setting: A thesis submitted in partial fulfilment of the requirements for the award of the degree Doctor of Philosophy in Public Health and Health Systems by the University of Waterloo.* Ontario (Canada): University of Waterloo.

Vanderlee, L., Goodman, S., Yang, W.S. and Hammond, D. 2012. Consumer understanding of calorie amounts and serving size: Implications for nutritional labelling. *Canadian Journal of Public Health,* 103 (5). [Online]. Available from: http://journal.cpha.ca/index.php/cjph/article/viewFile/3183/2689 [Accessed 11 March 2018].

Vermeer, W.M., Steenhuis, I.H. and Poelman, M.P. 2014. Small, medium, large or supersize? The development and evaluation of interventions targeted at portion size. *International Journal of Obesity*, 38 (S1). [Online]. Available from: https://www.nature.com/articles/ijo201484 [Accessed 10 March 2018].

Veronese, N., Stubbs, B., Noale, M., Solmi, M., Vaona, A., Demurtas, J., Nicetto, D., Crepaldi, G., Schofield, P., Koyanagi, A. and Maggi, S. 2017. Fried potato consumption is associated with elevated mortality: an 8-y longitudinal cohort study. *The American Journal of Clinical Nutrition*, 106 (1),pp.162-167.

Verplanken, B. and Wood, W. 2006. Interventions to break and create consumer habits. *Journal of Public Policy and Marketing*, 25 (1), pp.90-103.

Vice. 2017. Canadian politicians want to crack down on Happy Meals -It's part of a push to combat childhood obesity. 13 December. [Online]. *Vice*. Available from: https://www.vice.com/en_ca/article/wjzx9w/canadian-politicians-want-to-crack-down-on-happy-meals [Accessed 15 May 2018].

VicHealth. 2015. Fame and Shame awards: Not so happy: McDonald's not lovin' Fame and Shame awards. 8 December. [On-line]. VicHealth. Available from: https://www.vichealth.vic.gov.au/media-and-resources/media-releases/not-so-happy-mcdonalds-not-lovin-fame-and-shame-awards [Accessed 20 January 2017].

Vidal, L., Ares, G. and Giménez, A. 2013. Projective techniques to uncover consumer perception: Application of three methodologies to ready-to-eat salads. *Food Quality and Preference,* 28(1), pp.1-7.

Vizireanu, M. and Hruschka, D. 2018. Lay perceptions of healthy eating styles and their health impacts. *Journal of Nutrition Education and Behavior,* 50 (4), pp.365-371.

Vlaev, I., King, D., Dolan, P. and Darzi, A. 2016. The theory and practice of "nudging": changing health behaviors. *Public Administration Review*, 76 (4), pp.550-561.

Vollmer, R.L. and Mobley, A.R. 2013. Parenting styles, feeding styles, and their influence on child obesogenic behaviors and body weight. A review. *Appetite*, 71, pp.232-241.

Vollmer, R.L., Adamsons, K., Foster, J.S. and Mobley, A.R. 2015. Investigating relationships between paternal perception of the role of the father and paternal feeding practices. *Journal of Child and Family Studies*, 24 (12), pp.3734-3741.

Wahyuni, D. 2012. The research design maze: understanding paradigms, cases, methods and methodologies. *Journal of Applied Management Accounting Research,* 10 (1), pp.69-80.

Walsh, A., Meagher-Stewart, D. and Macdonald, M. 2014. Persistent optimizing how mothers make food choices for their preschool children. *Qualitative Health Research*, 25 (4), pp.527-539.

Wang, W. and Taylor, P. 2011. For Millennials, parenthood trumps marriage. Pew Research Center - Social and Demographic Trends. [Online]. Pew. Available from: http://www.pewsocialtrends.org/2011/03/09/for-millennials-parenthood-trumps-marriage [Accessed 10 February 2018].

Wang, X., Keh, H.T. and Chao, C.H. 2018. Nostalgia and consumer preference for indulgent foods: The role of social connectedness. *International Journal of Consumer Studies*, 42 (3), pp.316-326.

Wang, Y., Beydoun, M.A., Li, J., Liu, Y. and Moreno, L.A. 2011. Do children and their parents eat a similar diet? Resemblance in child and parental dietary intake: Systematic review and meta-analysis. *Journal of Epidemiology and Community Health*, 65 (2), pp.177-189.

Wang, Y., Deng, Q. and Ji, S. 2017. Applying third place theory in mobile social media research: The physical-virtual integration. *CONF-IRM 2017 Proceedings*. 4. [Online]. CONF-IRM. Available from: http://aisel.aisnet.org/confirm2017/4 [Accessed 20 January 2018].

Wansink, B. 2006. Nutritional gatekeepers and the 72% solution. *Journal of the American Dietetic Association,* 106 (9), pp.1324-1327.

Wansink, B. and Hanks, A. S. 2013. Slim by design: Serving healthy foods first in buffet lines improves overall meal selection. *PLoS ONE,* 8 (10). [Online]. PloS ONE. Available from: https://doi.org/10.1371/journal.pone.0077055 [Accessed 8 May 2018].

Wansink, B., Hanks, A.S. and Just, D.R. 2014. From Coke to Coors: a field study of a fat tax and its unintended consequences. 26 May. [Online]. Conscienhealth. Available from: http://conscienhealth.org/wp-content/uploads/2014/05/ ssrn-id2079840.pdf [Accessed 20 January 2018].

Wardle, J. and Cooke, L. 2008. Genetic and environmental determinants of children's food preferences. *British Journal of Nutrition*, 99 (S1). [Online]. Available from: https://doi.org/10.1017/S000711450889246X [Accessed 30 April 2018].

Washington Post. 2016. Why so many men are cooking. 19 July. [Online]. *Washington Post*. Available from: https://www.washingtonpost.com/news/wonk/wp/2016/07/19/why-so-many-millennial-men-are-cooking/?utm_term=.693d29f26b01 [Accessed 17 February 2018].

Washington Post. 2018. Can a Happy Meal ever really be 'healthy'? McDonald's is trying its best. 15 February. [Online]. *Washington Post*. Available from: https://www.washingtonpost.com/news/wonk/wp/2018/02/15/can-a-happy-meal-ever-really-be-healthy-mcdonalds-is-trying-its-best/?utm_term=.74389ba39955 [Accessed 30 April 2018].

Waterlander, W.E. and Zenk, S.N. 2015. Food labelling, food retail availability and food pricing–moving from research to action? *Public Health Nutrition*, 18 (1), pp.2-7.

Watkins, L., Watkins, L., Aitken, R., Aitken, R., Thyne, M., Thyne, M., Robertson, K., Robertson, K., Borzekowski, D. and Borzekowski, D. 2017. Environmental influences on pre-schooler's understanding of brand symbolism. *Marketing Intelligence and Planning,* 35 (7), pp.907-922.

Watterworth, J.C., Hutchinson, J.M., Buchholz, A.C., Darlington, G., Randall Simpson, J.A., Ma, D.W., Haines, J. and Guelph Family Health Study. 2017. Food parenting practices and their association with child nutrition risk status: Comparing mothers and fathers. *Applied Physiology, Nutrition, and Metabolism*, 42 (6), pp.667-671.

Webley, K. 2010. A brief history of the happy meal. *Time Magazine.* 30 April. [On-line]. Available from: http://content.time.com/time/nation/article/0,8599,1986073,00.html [Accessed 20 January 2017].

Wei, W. and Miao, L. 2013. Effects of calorie information disclosure on consumers' food choices at restaurants. *International Journal of Hospitality Management,* 33, pp.106-117.

Weller, S.C. and Romney, A.K. 1988. *Systematic Data Collection.* Thousand Oaks, CA: Sage Publications.

Werle, C.O., Trendel, O. and Ardito, G. 2013. Unhealthy food is not tastier for everybody: The "healthy = tasty" French intuition. *Food Quality and Preference*, 28 (1), pp.116-121.

Whittemore, R., Chase, S.K. and Mandle, C.L. 2001. Validity in qualitative research. *Qualitative Health Research, 11* (4), pp.522-537.

WHO (World Health Organization). 2016. *Report on the Commission on ending childhood obesity*. [Online]. WHO. Available from: http://apps.who.int/iris/bitstream/10665/204176/1/9789241510066_eng.pdf?ua=1&ua=1 [Accessed 25 January 2018].

Wilcox, K., Vallen, B., Block, L., and Fitzsimons, G. J. 2009. Vicarious goal fulfillment: When the mere presence of a healthy option leads to an ironically indulgent decision. *Journal of Consumer Research*, 36 (3), pp.380-393.

Wilson, A.L., Buckley, E., Buckley, J.D. and Bogomolova, S. 2016. Nudging healthier food and beverage choices through salience and priming. Evidence from a systematic review. *Food Quality and Preference*, 51, pp.47-64.

Wisdom, J., Downs, J.S. and Loewenstein, G. 2010. Promoting healthy choices: Information versus convenience. *American Economic Journal: Applied Economics*, 2 (2), pp.164-178.

Wiseman, N. and Harris, N. 2015. A systematic review of data collection techniques used to measure preschool children's knowledge of food and nutrition. *Journal of Nutrition Education and Behavior*, 47 (4), pp.345-353.

Wolfinger, N.H. 2002. On writing fieldnotes: collection strategies and background expectancies. *Qualitative Research*, 2 (1), pp.85-93.

Wood, J.R. and Wood, L.E. 2008. Card sorting: Current practices and beyond. *Journal of Usability Studies*, 4 (1), pp.1-6.

World Health Organization. 2013. Marketing of foods high in fat, salt and sugar to children: Update 2012-2013. Copenhagen, Denmark: WHO Regional Office for Europe.

Worldatlas.com. 2018. Society - Countries with the most McDonald's. [Online]. World Atlas. Available from: https://www.worldatlas.com/articles/countries-with-the-most-mcdonald-s-restaurant.html [Accessed 28 February 2018].

Yoong, S. L., Dodds, P., Hure, A., Clinton-McHarg, T., Skelton, E., Wiggers, J. and Wolfenden, L. 2015. Healthier options do not reduce total energy of parent intended fast food purchases for their young children: a randomised controlled trial. *Nutrition and Dietetics*. [Online]. Available from: https://doi.org/10.1111/1747-0080.12204 [Accessed 8 May 2018].

Young, B. 2003. Does food advertising influence children's food choices? A critical review of some of the recent literature. *International Journal of Advertising,* 22 (4), pp.441-459.

Young, L.R. and Nestle, M. 2002. The contribution of expanding portion sizes to the US obesity epidemic. *American Journal of Public Health*, 92 (2), pp.246-249.

Young, L.R. and Nestle, M. 2007. Portion sizes and obesity: responses of fast-food companies. *Journal of Public Health Policy*, 28 (2), pp.238-248.

Young, K.G., Duncanson, K. and Burrows, T. 2018. Influence of grandparents on the dietary intake of their 2–12-year-old grandchildren: A systematic review. *Nutrition and Dietetics*. [Online]. Available from: https://doi.org/10.1111/1747-0080.12411 [Accessed 8 May 2018].

Young, L.R. and Nestle, M. 2007. Portion sizes and obesity: Responses of fast-food companies. *Journal of Public Health Policy*, 28 (2), pp.238-248.

Yvonne-Feilzer, M. 2010. Doing mixed methods research pragmatically: Implications for the rediscovery of pragmatism as a research paradigm. *Journal of Mixed Methods Research*, 4 (1), pp.6-16.

Zhu, L. L., Brescoll, V. L., Newman, G. E. and Uhlmann, E. L. 2015. Macho nachos. *Social Psychology*, 46 (4), pp.182-196.

Zubcsek, P.P., Katona, Z. and Sarvary, M. 2017. Predicting mobile advertising response using consumer colocation networks. *Journal of Marketing,* 81 (4), pp.109-126.

Appendix A

Demographic questions used in all Toluna-based research studies.

Note: This questionnaire was modified to be locally relevant in terms of wording for education, household income, currency and geographic regions.

1. Please select your country? (Extensive drop-down list of 253 countries provided)
    a. Canada (English)
    b. Country selected other than Canada (English) → survey discontinued.

2. Are you….?
    a. Male
    b. Female

3. What is your current age? _____

4. Region:

    a. Western & Northern Canada
    b. Ontario
    c. Quebec
    d. Atlantic Canada

5. Origin

    a. North American Aboriginal origins
    b. Other North American origins
    c. British Isles origins
    d. French origins
    e. Western European origins (except French origins)
    f. Northern European origins (except British Isles origins)
    g. Eastern European origins
    h. Southern European origins
    i. Other European origins
    j. Caribbean origins
    k. Latin, Central and South American origins
    l. Central and West African origins
    m. North African origins
    n. Southern and East African origins
    o. Other African origins
    p. West Central Asian and Middle Eastern origins
    q. South Asian origins
    r. East and Southeast Asian origins
    s. Other Asian origins
    t. Oceania origins
    u. Not sure/Prefer not to say

6. What is your education level?

    a. Elementary school
    b. Middle school/junior high
    c. High school
    d. Some college/university
    e. Graduated 2-year college
    f. Graduated 4-year college/university
    g. Graduate school
    h. Postgraduate
    i. Prefer not to say

7. What is you annual household income?

a. Under $15,000
b. $15,000-$19,999
c. $20,000-$24,999
d. $25,000-$29,999
e. $30,000-$34,999
f. $35,000-$39,999
g. $40,000-$44,999
h. $45,000-$49,999
i. $50,000-$54,999
j. $55,000-$59,999
k. $60,000-$64,999
l. $65,000-$69,999
m. $70,000-$74,999
n. $75,000-$79,999
o. $80,000-$84,999
p. $85,000-$89,999
q. $90,000-$94,999
r. $95,000-$99,999
s. $100,000-$124,999
t. $125,000-$149,999
u. $125,000-$149,999
v. $200,000+

.

8. Employment

a. High managerial, administrative or professional
b. Intermediate managerial, administrative or professional
c. Supervisor; clerical; junior managerial, administrative or professional
d. Intellectual profession, Executive, Freelance
e. Intermediate profession: Public sector (health, teaching…) companies
f. Intermediate Professional Liberal Profession
g. Farmer (farm owner)
h. Craftman, shop owner, managing director
i. Employee, public sector companies
j. Skilled manual worker
k. Semi-skilled or unskilled manual worker
l. Housewife / Homemaker
m. Retired
n. Student
o. Unemployed

9. Are you the primary grocery shopper for your household?
    a. Yes
    b. No
    c. Share responsibility

10. Number of children under 18 in your household:____

11. Number of people in your household including you:_____

Appendix B

Ryerson demographic survey questions.

1. What is your gender?

- ❍ Male
- ❍ Female

2. What is your current age?

_____ Your current age in years

3. I am a...

- ❍ Full-time student
- ❍ Part-time student

4. Are you currently the parent of one or more children aged 12 years old or younger?

- ❍ Yes
- ❍ No

5. With which cultural background(s) do you most closely identify?

6. Aside from my studies, I... (select all that apply)

- ❑ have a part-time job (Less than 30 hours per week)
- ❑ have a full-time job (30 hours per week or more)
- ❑ participate in extracurricular activities at Ryerson
- ❑ participate in extracurricular activities outside of Ryerson
- ❑ volunteer in the community on a regular basis