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Universal Free School Breakfast: a
Socioecological Perspective of Breakfast
Behaviours in a Deprived Town within
the North-West of England, UK.

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PhD

2017

Universal Free School Breakfast: a
Socioecological Perspective of Breakfast
Behaviours in a Deprived Town within
the North-West of England, UK.

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the requirements of Northumbria
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Health

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ABSTRACT

The aim of the current thesis was to undertake a mixed methods investigation into the outcomes associated with a Universal Free School Breakfast (UFSB) programme, from a unique socioecological perspective.

Studies 1 and 2 provided a rich, thick interpretation of the programme from the perspectives of stakeholders. Study 1 explored the views of senior level stakeholders, including issues concerned with the logistics of the USFB scheme and perceived outcomes. Study 2 explored children's, parents' and school staffs' views regarding breakfast and the UFSB programme. It was perceived that the USFB conferred a multitude of benefits for children, families, schools and the community. However, concerns were raised about children consuming a double-breakfast and the provision of sweetened bread items at school breakfast.

Study 3 provided an illustration of children's and parents' breakfast behaviours, food intake and attitudes towards breakfast. Results were mixed and conclusive evidence was not provided for an association between attitudes towards breakfast and food intake at home, with the exception of one significant positive correlation between parents' intake of healthy foods and breakfast attitudes.

Study 4 provided a more in-depth description of children' breakfast behaviours, and food and nutritional intakes, across seven days. Results showed that almost half of the children sampled consumed a double-breakfast on at least 1 school day. Further analysis showed that average energy and macronutrient intakes increased with the frequency of double-breakfast consumption. However, comparisons with UK Dietary Reference Values (DRVs) indicated that a large proportion of children were consuming < 20% of DRVs, which is the percentage recommended for breakfast consumption, with average intakes of dietary fibre being especially low.

The findings of this thesis highlight key areas of consideration for future research into school breakfast provision, and for practitioners and policy makers involved in the implementation and delivery of school breakfast.

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AUTHORS' DECLARATION

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I declare that the work contained in this thesis has not been submitted for any other award and that it is all my own work. I also confirm that this work fully acknowledges opinions, ideas and contributions from the work of others. The work was done in collaboration with Blackpool Public Health.

Any ethical clearance for the research presented in this thesis has been approved. Approval has been sought and granted by the Northumbria University Faculty of Health and Life Sciences Ethics Committee as of March 2014.

I declare that the Word Count of this Thesis is 84,958 words

Name:

Signature:

Date:

CHAPTER 1: Introduction

1.1. Overview of the Thesis

The thesis is presented in seven chapters, comprising of an introduction, methodology, four study chapters and a discussion chapter. Chapters 1 and 2 provide an introduction to the research and research methodology. Firstly, the current chapter provides an overview of the thesis and individual studies. Ensuing sections in the current chapter provide the background and context underpinning the Universal Free School Breakfast Scheme (UFSB); an outline of the research rationale, aims and objectives; and a discussion on the Socioecological theoretical underpinnings of the research. Following this, Chapter 1 also provides a critical review of the relevant research and policy literature. The literature review is presented under three main sections, which relate to Socioecological models of behaviour including: ‘intrapersonal’ outcomes associated with breakfast, ‘interpersonal’ factors associated with breakfast, and ‘macro’ influences of breakfast. Next, Chapter 2 presents the research methodology. The chapter commences with a critical discussion on the epistemological and ontological assumptions of this thesis; followed by critical discussion on the research design, and the measures and methods utilised for data collection and analysis.

Subsequently, Chapter 3 reports findings from Study 1, which comprised of a qualitative process evaluation with senior level stakeholders involved in the implementation and delivery of the UFSB scheme. This study focused on the issues encountered during the implementation and delivery of the UFSB programme, and the perceived outcomes. Findings present subjective positive and negative issues and outcomes associated with the UFSB scheme at Local Authority, school, community, family and individual levels. Perceived positive outcomes included benefits to children, families, schools, and the community. It was considered that the UFSB scheme alleviated hunger, improved health outcomes, and conferred financial benefits, with the potential to cumulate in overall improvements in educational, social, and behavioural outcomes. Reported negative implications included the absence of an effective communication strategy during the implementation of the UFSB program. In addition, there were concerns about the impacts of ‘double-breakfasting’ (consuming breakfast foods at both home and school), and the consumption of high fat and sugar bread items at school, on obesity levels amongst

children, particularly within less deprived communities. These findings provide a unique qualitative insight into the processes, issues and outcomes of a council-wide UFSB program within a socioeconomically deprived community, according to the perceptions of senior level stakeholders.

Following this, Chapter 4 presents findings from Study 2, a qualitative study, with stakeholders including children, parents and school staff affected by the UFSB scheme. The study explored the factors perceived to influence breakfast behaviours within the town. The chapter presents findings from the study via a qualitative theoretical model of breakfast behaviours, which focuses on the internal and external influences of breakfast behaviours for children and adults. The model consists of three domains. The first domain relates to breakfast behaviours, and includes themes relating to regular and later breakfast consumption, breakfast skipping, double-breakfasting (consuming breakfast at both home and school), and breakfast on the way school. The second domain relates to internal factors influencing breakfast consumption; encompassing themes relating to sociocultural beliefs, attitudes, and views about breakfast. The third domain relates to external factors influencing breakfast consumption; comprising of themes relating to poverty, food insecurity, family structure, and employment, educational, family and household responsibilities. These findings present a unique qualitative model for understanding breakfast behaviours, within a deprived town served by a UFSB scheme.

Consecutively, Chapter 5 presents findings from Study 3, a quantitative study, which examined children's and parents' breakfast consumption behaviours, breakfast food intake and attitudes towards breakfast. The purpose of this study was to objectively probe further into key issues highlighted during the qualitative stage of the investigation, and examine children's and parents' breakfast behaviours, breakfast food intake and attitudes towards breakfast. The study utilised a cross-sectional design, gathering data from children attending schools participating in the UFSB scheme, and respective parents. Results from the study provided an illustration of children's and parents' breakfast consumption behaviours, food intake across the morning, and attitudes towards breakfast. The findings showed that children and parents frequently consumed ready to eat breakfast cereals, savoury breads and milks, at home on a school morning. Interestingly, the results also revealed that more fruits were consumed on a school morning at school for children

and outside the home for parents. The most frequently consumed breakfast items at school were sweetened breads, including pre-packaged brioche, waffles, pancakes and fruit breads. For children and parents, breakfast was consumed at home, more frequently than outside the home, including at school for children. Upon further examination of children's and parents' food intake at home, results indicated that children and parents consumed a greater number of healthy than unhealthy items at home on a school morning. Investigations into potential relationships between attitudes towards breakfast, and intakes of healthy and unhealthy foods at home, showed a significant positive relationship between parents' attitudes towards breakfast and the number of healthy breakfast food items consumed at home. However, no other significant associations were identified.

Results from Study 4, are presented in Chapter 6. Study 4 examined children's breakfast consumption and behaviours at different locations, including at home, on the way to school and at school. The aim of this study was to extend on findings from Study 3, and gain a more in-depth knowledge on children's dietary intakes across the school morning. Study 4 also aimed to provide an objective insight into concerns raised during qualitative investigations regarding 'double-breakfasting' and consumption of high sugar and fat items for school breakfast. The study utilised a cross-sectional design, gathering data on food and beverage consumption from a sample of children aged 9-11 years, attending schools participating in the UFSB programme. Detailed dietary data were gathered over the course of seven mornings, including five consecutive school days and two weekend days, using bespoke food diaries, which enabled a macronutrient analysis. The findings from Study 4 provided more in-depth analyses of children's breakfast behaviours, and food and beverage intakes at home, on the way to school and at school, in addition to a description of children's macronutrient intakes at home and school. A descriptive analyses of breakfast behaviours and food intake in the mornings reflected findings from Study 3. Further examinations of children's energy and macronutrient intakes showed that daily average intakes of energy and some macronutrients were higher during the school week, compared to the weekend for children who consumed a double-breakfast occasionally and frequently. However, a comparison of energy and macronutrient intakes in this study with UK Dietary Reference Values (DRVs) revealed that daily average intakes of energy and some macronutrients were < 20%

of the DRVs for a large proportion of children, which is the percentage recommended for breakfast consumption. Daily average dietary fibre intakes were particularly low, irrespective of the frequency of double-breakfast consumption.

Finally, Chapter 7 provides a discussion and conclusion to this PhD thesis. This chapter provides discussion of the main aims and objectives, in relation to the key findings. Following this, the recurrent themes within the key findings of this thesis are critically discussed, including the issues and outcomes associated with the UFSB scheme, and the issues concerned with the provision of sweetened bread items for school breakfast and double-breakfast consumption. To conclude Chapter 7 discusses the methodological considerations and directions for future research.

1.2. Context to the Thesis

Blackpool (England, UK) Public Health and Council delivered the Universal Free School Breakfast (UFSB) Programme, investigated as part of this thesis. The UFSB programme was introduced as a pilot in January 2013 and aimed to improve children's health and wellbeing through the provision of universal free school breakfast and milk to all primary and special school children, attending schools under the jurisdiction of the Council (Blackpool Council, 2017). The scheme delivers in excess of 11,000 breakfasts each day to 33 primary schools, and provides a choice of items including: malt loaf, brioche, waffles, pancakes, bagels, fresh and dried fruits, yoghurts, smoothies, water and milk, with some schools offering cereal and toast options (Blackpool Council, 2017). Unlike school breakfast clubs and schemes, which have corporate sponsors, the UFSB programme is funded at a cost of £1.3 million per year through Blackpool's Public Health budget (Blackpool Council, 2017). Prior to the introduction of the UFSB scheme it was considered that a number of children within the town were arriving to school hungry, having not consumed a breakfast meal or having consumed an inadequate breakfast meal, which was considered to be having adverse effects on learning and educational outcomes (Defeyter & Graham, 2013). The fundamental aim of the UFSB scheme was therefore to alleviate hunger amongst these children, and in the longer-term improve nutritional and educational outcomes, thus contributing to the reduction of health and educational inequality within the town (Defeyter & Graham, 2013; Blackpool Council, 2017).

In 2015, Blackpool was ranked as the most deprived out of 326 Local Authority areas in England, based on a number of indicators including health, income, employment, and education and skills (Blackpool Health and Wellbeing Board, 2016; Patterson & Butterfield, 2015). People living in Blackpool are more likely to experience ill health when compared to national averages, with high levels of morbidity and low life expectancy, largely attributable to lifestyle factors (Blackpool Health and Wellbeing Board, 2016; Public Health England, 2015). Concerning children and young people, those living in Blackpool are also more likely to experience health problems (Public Health England, 2015). Moreover, on average 30% of all children in Blackpool live in poverty (Public Health England, 2015). A key factor of the poverty landscape in Blackpool is poor housing in inner areas of the town. This includes high levels of private rented accommodation, which is heavily supported by housing benefits, and predominantly consists of former guest houses that have been converted into multiple occupation lets. This has created a concentration of low income and vulnerable households, with high levels of transience, crime, antisocial behaviour, and unemployment (Blackpool Health and Wellbeing Board, 2016). For children, growing up in these poverty circumstances in the UK has numerous adverse impacts, such as going cold and hungry, and lacking opportunities and activities afforded to wealthier peers (Department for Work and Pensions, 2016). Research has shown that many low income families find it difficult to maintain healthy diets on a frugal budget (Diss & Jarvie, 2016). Furthermore, it is considered that child poverty in the UK has long-term lasting effects, and recent reports show that nationally there is a 28% gap between children receiving free school meals (FSM) and their wealthier peers, in terms of number achieving at least five good GCSEs (grades A* - C) (Easby, 2015). In Blackpool, GCSE attainment is lower than the national averages, which may be a reflection of the levels of deprivation within the town (Public Health England, 2015). Moreover, the percentage of primary school pupils eligible for and claiming free school meals in Blackpool is 25.1%, which is higher than the national average of 14.5% in primary schools in England (Department for Education, 2016). It is within these contexts that the UFSB scheme was implemented within Blackpool.

1.3. Rationale, Aims and Objectives

Research has shown that school breakfast provision may confer numerous educational benefits, particularly amongst undernourished and low socioeconomic children and adolescents (Acham, Kikafunda, Malde, Oldewage-Theron, & Egal, 2012). However, research evaluating the longer-term impacts of school breakfast provision is limited. Due to the differences in the populations that school breakfast initiatives and clubs may target, and the diversity in the range of foods and beverages available, it is difficult to draw conclusions regarding the actual effects of school breakfast provision (Jenkins, Benton, Tapper, Murphy, & Moore, 2015). Moreover, existing research into the impacts school breakfast has been criticised for several reasons, including the use of methods that lack scientific rigour, such as subjective teacher reports, absence of the use of appropriate control groups, and failure to obtain baseline data before school breakfast programmes and clubs are implemented (Ani & Grantham-McGregor, 1999). Whilst it is considered that randomised control trials address these issues, the use of these trials in schools is inherently complex and potentially unethical, resulting in some children being denied access to breakfast within the same school as it was being offered to other children (Murphy et al., 1998). Cluster randomised control trials may overcome this issue by randomising schools, as opposed to individuals, to conditions, but problems have arisen in these trials with contamination between treatment arms (Murphy et al., 2011; Shemilt, Harvey, et al., 2004). Finally, qualitative research in the field of school breakfast is limited, with a lack of qualitative studies evaluating the longer-term impacts of school breakfast programmes.

The current thesis aims to make a unique contribution to the research literature by undertaking a mixed methods investigation of the individual, family, school and wider community impacts of a council-wide universal free school breakfast programme. The aim of this project was to provide a multifaceted interpretation of the impact that a UFSB intervention may deliver to an area of high deprivation, and social and health inequality. The thesis focused on social, behavioural and dietary outcomes at individual, family, school and community levels. The following objectives underpin the four individual studies that comprise this thesis:

- Explore the perceptions and subjective experiences of the UFSB programme amongst key stakeholders;
- Investigate breakfast behaviours within the town, and determine the internal and external influencing factors of breakfast behaviour, amongst children and families affected by the UFSB programme;
- Identify breakfast behaviours and food intake, amongst children attending schools participating in the UFSB programme, and their respective parents;
- Investigate potential relationships between children's and parents'/ carers' attitudes towards breakfast, breakfast behaviours, and breakfast food intake;
- Examine prevalence of breakfast skipping, habitual breakfast consumption and 'double-breakfasting', amongst children attending schools providing UFSB;
- Identify breakfast food and beverage intake, and energy macronutrient intake, amongst children attending schools providing UFSB;
- Investigate children's energy and macronutrient intake according to frequency of double-breakfast consumption;
- Compare children's energy and macronutrients intakes with UK DRVs.

1.4. Conceptual Framework: Socioecological Models of Behaviour

Framing research within theoretical models is advocated for enhancing understanding of multiple perspectives (Wisdom & Creswell, 2013). Socioecological models of health behaviour underpinned the literature review and research design of this thesis, and facilitated the investigation by enhancing understanding of the individual, social, environmental and macro factors associated with breakfast and the UFSB programme. Social-ecology is an overarching framework for understanding the interrelations between and within personal and environmental factors in human health (Stokols, 1996). The theoretical model is based on two key concepts. Firstly, behaviour affects, and is also affected by, numerous levels of influence including intrapersonal (biological and psychological), interpersonal (social and cultural), organisational, community, environment, institutional and policy. Secondly, individual behaviour shapes, and is also shaped by society and environment (Sallis, Owen, & Fisher, 2008; Stokols, 1996; Townsend et al., 2013). Social-ecology characterises environments as having various physical, social, and cultural dimensions that influence, and have cumulative impacts upon, physical,

developmental, emotional and social health (Stokols, 1996). In addition to the environment, it also considered that health is influenced by various personal attributes including genetics, psychology, and behaviour (Stokols, 1996). A mutual cycle of influence is considered to exist between individuals and the environment, with the social and physical features of an environment affecting health. Concurrently individuals modify and influence health within environments through discrete and collective actions. Thus, the level of compatibility and congruency between individuals and their environments is supposed to be a significant predictor of health and wellbeing in Socioecological research. Social-ecological models recognise that public health challenges are complex, and cannot be adequately understood from a single level analysis, and instead require a more comprehensive approach, which encompasses psychological, organisational, cultural, community, and regulatory perspectives (Stokols, 1996; Townsend et al., 2013). Therefore, Social-ecological research advocates the incorporation of multiple methodologies and analyses. Moreover, Socioecological models have been used to examine eating behaviours in children and adolescents, as they provide useful frameworks for enhancing understanding of the factors and barriers that affect dietary behaviours (Story, Kaphingst, Robinson-O'brien, & Glanz, 2008; Story, Neumark-Sztainer, & French, 2002; Townsend et al., 2013). A visual representation of the Socioecological model underpinning this thesis and the subsequent literature review is provided in Figure 1.1.

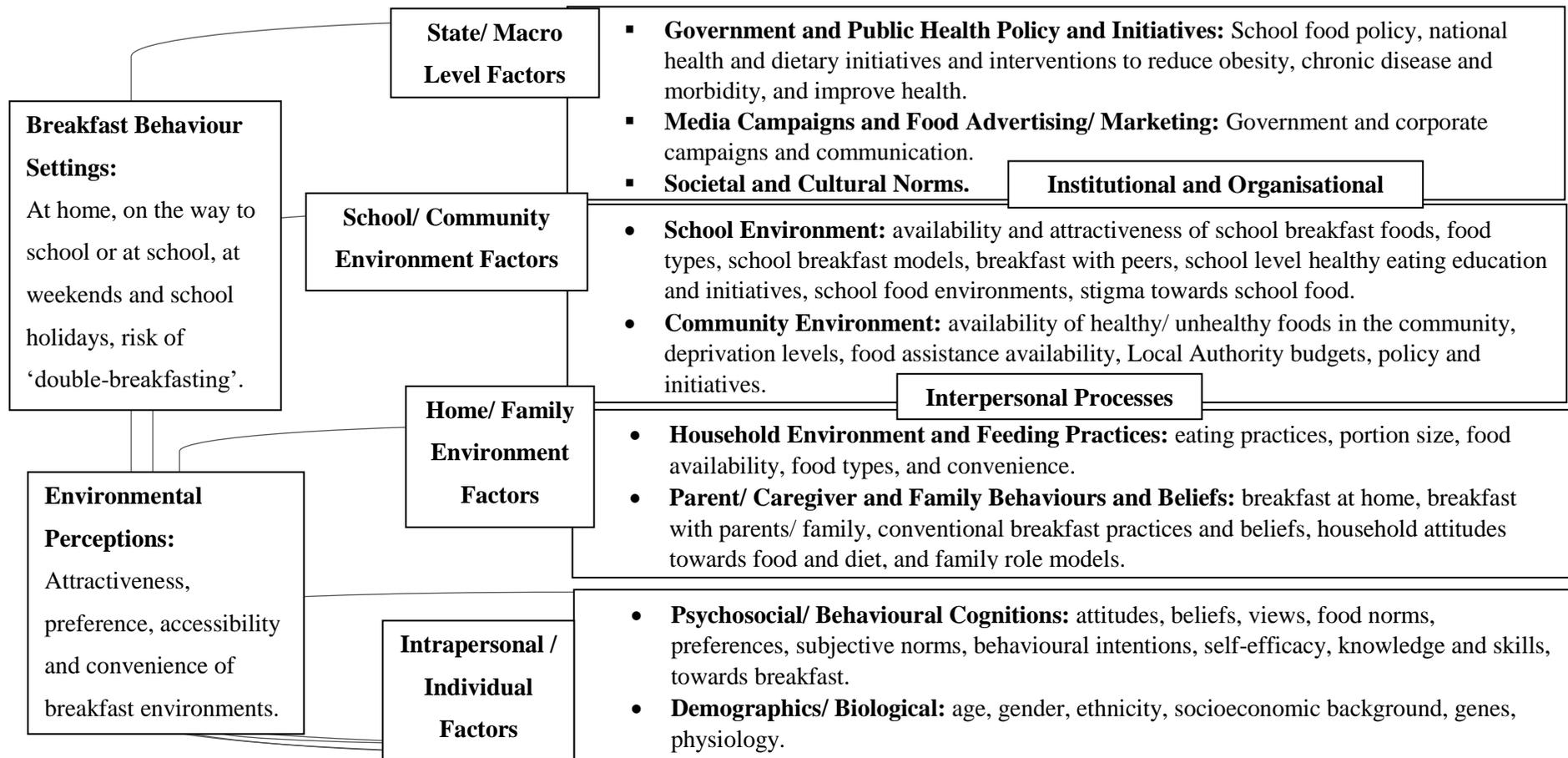


Figure 1.1. Socio-Ecological model for breakfast behaviours, in a socioeconomically deprived town, served by a UFSB scheme

1.5. Review of the Literature

Breakfast is defined in basic terms as, “a meal eaten in the morning; the first of the day” (Oxford Dictionary), and is literally interpreted as the meal that ‘breaks the fast’, typically after an extended period of sleep. However, there are numerous definitions of breakfast and a mixed consensus on what characterises the breakfast meal, with breakfast disposition varying across cultures, customs, geography and history (O’Neil et al, 2014). Timlin and Pereira (2007) provide a broad definition of breakfast: “the first meal of the day, eaten before or at the start of daily activities (e.g., errands, travel, work), within 2 hours of waking, typically no later than 10:00 am, and of a calorie level between 20% and 35% of total daily energy needs”, (p.1). Whilst this description of breakfast provides guidance on proportions of daily energy intakes for breakfast, it is narrow in its specification of precise timings for breakfast consumption in the morning, thereby failing to account for anomalies, perhaps due to later waking times during weekends and school holidays. With the intention of providing a definition that could be applied in research settings, O’Neil et al. (2014) characterise breakfast as: “The first meal of the day that breaks the fast after the longest period of sleep and is consumed within 2 to 3 hours of waking; it is comprised of food or beverage from at least one food group, and may be consumed at any location” (p.1). This latter definition is more accommodating, providing flexibility in terms of breakfast consumption times, and encompassing different breakfast environments and locations, which may be at school, work, or in transit, in addition to the home.

In spite of the debate surrounding its definition, breakfast is often recognised as the most important meal of the day, and the benefits of breakfast consumption have been researched extensively, with support for various positive outcomes for children and adolescents. Research has shown immediate effects of breakfast on cognitive performance and feelings of satiety and well-being (Adolphus, Lawton, & Dye, 2013, 2015). In addition, extended beneficial effects of breakfast consumption have been reported on diet quality, nutritional intake, and weight management, and habitual breakfast consumption is associated with reduced risks of chronic disease and morbidity (Timlin & Pereira, 2007). However, there is currently a lack scientific consensus on what constitutes a nutritionally balanced or ‘healthy’ breakfast meal, with no clear agreement on optimum food composition, timing, and proportions of

recommended daily intakes of nutrients and energy that should be consumed for breakfast (O'Neil et al. 2014). Moreover, definitions of breakfast consumption and breakfast skipping vary across the literature, i.e. frequency, timings, types of foods and beverages consumed, and amount of energy (Keski-Rahkonen, Kaprio, Rissanen, Virkkunen, & Rose, 2003). The outcomes associated with breakfast consumption and behaviours are numerous, resulting in a multidisciplinary and complex field of research, concerned with many outcomes relevant to health, behavioural, cognitive and social sciences. Furthermore, when considering breakfast consumption amongst children and adolescents, it is important to consider that breakfast may be provided at both home and/ or school within individual school breakfast clubs or part of a wider school breakfast initiative.

In recognising, that there are multiple outcomes associated with breakfast behaviours in children and adolescents, this review of the literature is structured under the domains that comprise a socioecological model of health behaviour including: intrapersonal outcomes, interpersonal influences, breakfast environments and macro/ policy level factors (Story et al., 2002). Intrapersonal factors are the individual characteristics, such as the psychological, psychosocial, behavioural, biological and genetic factors, that are concerned with behaviour choices and outcomes within the individual (Sallis, Owen & Fisher, 2008). Whereas, interpersonal factors are the social environmental factors that influence behaviour, including family, peers and social networks (Story et al., 2002). Furthermore, social ecological theory suggests that the physical environment and community settings influence accessibility and availability of foods (Story et al., 2002). These three domains provide a conceptual framework, which allows for an examination of the literature concerned with the individual, social, environmental and macro-level factors associated with breakfast. A visual representation of a social ecological model relating to breakfast utilised in this study is provided in Figure 1.1.

1.5.1. Intrapersonal Factors Associated with Breakfast

This section of the literature review provides a critical discussion of the research literature concerned with the breakfast and school breakfast at an individual level, including outcomes associated with health and health behaviours, cognitive performance, educational outcomes, classroom behaviour and psychosocial cognitions. This commences with a review of the literature concerned with breakfast

and school breakfast, and health; including nutrition, adiposity and health related behaviours. Subsequently, research regarding the effects of breakfast and school breakfast on learning is reviewed, including cognitive performance, educational outcomes, and classroom behaviour. Finally, the literature concerned with psychosocial cognitions is examined, including research into attitudes, self-efficacy, subjective norms, and behavioural intentions, towards breakfast.

1.5.1.1. Breakfast and Health Outcomes

Habitual consumption of breakfast is recommended as part of a healthy, balanced diet, which should provide 20% of daily energy requirements (British Dietetic Association, 2010). The importance of breakfast, in terms of outcomes associated with health, is relatively well documented, particularly in the case of children and adolescents, and research suggests that children who habitually consume breakfast typically have superior nutritional profiles, compared to their peers who skip breakfast (Rampersaud, Pereira, Girard, Adams, & Metz, 2005). Whilst the quality and composition of breakfast across and within studies is variable, research has consistently demonstrated that breakfast consumption is associated with more healthy food choices and dietary behaviours amongst children and adolescents (e.g. Lattimore & Halford, 2003; Pedersen, Meilstrup, Holstein, & Rasmussen, 2012). Moreover, breakfast consumption is associated with lower risk of being overweight and obese (Elgar, Roberts, Moore, & Tudor-Smith, 2005; Huang, Hu, Fan, Liao, & Tsai, 2010), and reduced risk of chronic illness (Huang et al., 2010). Whereas, skipping breakfast has been associated with inadequate diets (Rampersaud, 2008; Serra-Majem et al., 2002), including increased consumption of snack foods, decreased consumption of fruits and vegetables (Resnicow, 1991; Utter, Scragg, Mhurchu, & Schaaf, 2007), and omission of other meals (Sjöberg, Hallberg, Höglund, & Hulthén, 2003). Moreover, skipping breakfast has also been associated with an increased likelihood of other detrimental health risk behaviours, such as lack of physical activity, weight control behaviours, smoking and alcohol consumption (Rampersaud, Pereira, Girard, Adams, & Metz, 2005; Revicki, Sobal, & DeForge, 1991; Timlin, Pereira, Story, & Neumark-Sztainer, 2008).

1.5.1.2. Breakfast Consumption and Nutritional Intake

In spite of the benefits, breakfast remains the most frequently skipped meal, amongst children and adolescents (Deshmukh-Taskar et al., 2010; Hoyland,

McWilliams, Duff, & Walton, 2012; Rampersaud, 2008). Research has also demonstrated that breakfast skipping behaviours have an increased prevalence amongst adolescents, females, and low socioeconomic and certain ethnic minority groups (Barton et al., 2005; Malinauskas et al., 2006; Rampersaud et al., 2005; Siega-Riz, Popkin, & Carson, 1998; Song et al., 2006; Sweeney & Horishita, 2005). Key concerns regarding frequent breakfast skipping are the prolonged effects of nutritional inadequacy and detrimental dietary patterns on health outcomes (Baer et al., 2003; Law, 2000; Rampersaud et al., 2005; Viteri & Gonzalez, 2002). Research has shown that children and adolescents do not tend recompense for the nutritional deficits from skipping breakfast at other meals throughout the day (Rampersaud et al., 2005). This is a matter of concern because it is considered that nutritional intakes impact on growth and development for children and adolescents, and long term micronutrient intakes have a significant role in decreasing the likelihood of developing chronic disease (Ames, 1998; Willett, 1994). Conversely, habitual breakfast consumption is thought to reduce the risk of chronic diseases, via its effect on overall diet, and associations have been reported with better diet quality and food choices throughout the rest of the day (Giovannini, Agostoni, & Shamir, 2010). Moreover, numerous studies have demonstrated that habitual breakfast consumers have superior diet quality, i.e. increased dietary fibre, and micronutrients including calcium, vitamins A and C, riboflavin, zinc and iron (Giovannini et al., 2010; Rampersaud et al., 2005).

It is considered that the consumption of fortified ready to eat breakfast cereals increases wholegrain consumption and contributes positively towards micronutrient intake (Rampersaud et al., 2005). In a review of studies with USA and European children it was reported that the inclusion of breakfast cereals made a substantial contribution to daily fibre intake (Rampersaud et al., 2005). For example, a large scale study with US children (N = 4,320; 9-13 years) and adolescents (N = 5,339; 14-18 years) reported that breakfast cereal consumers had lower intakes of total fat and cholesterol, and higher intakes of total carbohydrate, dietary fibre, and micronutrients (Deshmukh-Taskar, Nicklas, O'Neil, Keast, Radcliffe, & Cho, 2010). Similarly, a further study with US children (N = 603; 4-12 years) found that children who consumed breakfast cereals had lower intakes of total fats and higher micronutrient intakes (Albertson, Anderson, Crockett, & Goebel, 2003). In addition,

frequent consumption of ready to eat breakfast cereals has been associated with reduced BMI and likelihood of being overweight. A systematic review of studies relating to breakfast cereals and body weight, reported that the risk and prevalence of obesity was lower in children and adolescents who habitually consumed breakfast cereals, compared to those who consumed them infrequently (De La Hunty, Gibson, & Ashwell, 2013). For example, in the aforementioned studies, the prevalence of obesity was lower amongst consumers of ready to eat cereals, compared to consumers of other breakfasts and breakfast skippers (Deshmukh-Taskar, Nicklas, O'Neil, Keast, Radcliffe, & Cho, 2010), and children who consumed ready to eat cereals had lower BMIs (Albertson et al., 2003).

There is currently an absence of research examining the associations between consumption of other pre-sweetened, refined grain products, such as pancakes, brioche, waffles, fruit breads and pastries consumed at breakfast, and health outcomes such as overweight/ obesity and BMI (O'Neil et al., 2014). However, research examining the effects of breakfasts with different macronutrient compositions, has reported that carbohydrate rich-high fibre breakfasts, whilst less palatable, were more filling and associated with less food intake across morning and lunch time and increased feelings of alertness, compared with carbohydrate rich-low fibre breakfasts (Holt, Delargy, Lawton, & Blundell, 1999). It has been suggested that the consumption of unrefined, high-fibre, carbohydrate based foods, protects against obesity, and chronic disease including diabetes, heart disease, and certain types of cancer (Slavin & Green, 2007). Moreover, high-fibre foods have much lower energy density compared to high fat foods, and it is proposed that dietary fibre acts as a physiological barrier to energy intake via other mechanisms such as increasing chewing, thus resulting in increased satiety, and by reducing the absorption efficacy of the digestive system (Slavin & Green, 2007). Furthermore, research has shown that consumption of low-fat/high-carbohydrate breakfasts is associated with a decline in fatigue, compared to medium-fat/ medium-carbohydrate, and high-fat/low-carbohydrate breakfasts (Lloyd, Rogers, Hedderley, & Walker, 1996). It is also supposed that consumption of high energy and high fibre, carbohydrate rich breakfasts may be associated with enhanced cognitive performance, which is considered may be as a consequence of the effects of these foods on blood glucose levels (Benton, Brett, & Brain, 1987; Mahoney, Taylor,

Kanarek, & Samuel, 2005). Given that sweetened grain products, i.e. pancakes, waffles and brioche, are commonly served as practical ‘hand-held’ breakfast items, it is evident that there is a requirement for more research into the effects of consuming these foods for breakfast on children’s health outcomes and nutritional profiles.

1.5.1.3. Breakfast Consumption and Adiposity

Research indicates that children and adolescents who skip breakfast are more likely to be overweight/ obese, and have higher BMIs (Affenito et al., 2005; Albertson et al., 2003; Barton et al., 2005; Deshmukh-Taskar et al., 2010). For instance, a US based study examining weight control, dietary, and physical activity behaviours amongst a large sample (N = 8,330) of overweight, obese and non-overweight adolescents, found that overweight adolescents were less likely to consume breakfast and engage in physical activity, compared to their non-overweight peers. Further, a review of breakfast studies found that overweight or obese children and adolescents were more likely to skip breakfast than their normal weight peers (Rampersaud et al., 2005). However, the mechanisms that link breakfast skipping with increased prevalence of overweight and obesity are not that well established and understood. One explanation is that breakfast skipping invariably leads to hunger, and subsequently imbalanced or excessive eating across the day (Lioret, Volatier, Lafay, Touvier, & Maire, 2009; Martin et al., 2000; Miech et al., 2006). Likewise, research has shown that breakfast skippers tend to consume a higher number of foods with low nutrient and/ or higher energy density, such as fast/ junk/ snack foods, throughout the day (Gibson & Osullivan, 1995; Nicklas, Reger, Myers, & O’Neil, 2000; Niemeier, Raynor, Lloyd-Richardson, Rogers, & Wing, 2006; Pastore, Fisher, & Friedman, 1996). Notably, the aforementioned eating behaviours are also associated with overweight and obesity (Carson, Siega-Riz, & Popkin, 1999; Lissner & Heitmann, 1995; Schlundt, Hill, Sbrocco, Pope-Cordle, & Sharp, 1992).

However, the relationship between breakfast skipping and overweight/ obesity may not be solely explained by energy intake, with some studies reporting lower energy intake amongst breakfast skippers, compared to breakfast consumers (Rampersaud et al., 2005). For example, results from a longitudinal US based study, investigating whether skipping breakfast leads to excessive weight gain amongst a large sample of children (N = 14,586; 9-17 years), showed that normal weight and

overweight children who ‘never’ consumed breakfast reported lower energy intakes than those who ate breakfast frequently (Berkey, Rockett, Gillman, Field, & Colditz, 2003). These findings may suggest that alternate mechanisms, other than or in addition to energy intake, may mediate the association between breakfast skipping and overweight/ obesity. However, self-report of dietary intake may also be subject to bias, and it has been suggested that overweight/ obese children and adolescents are more likely to underreport their dietary intake compared to their normal weight peers (Garaulet et al., 2000; Maffeis, Schultz, Zaffanello, Piccoli, & Pinelli, 1994; Rampersaud et al., 2005). Nevertheless, whilst it is commonly assumed that overweight individuals eat more than non-overweight individuals and thereby have higher energy intakes, it has been asserted that there is a lack of conclusive evidence supporting this claim (Rodríguez & Moreno, 2006). Whereas some studies have reported positive correlations between obesity and energy intake, with obese children and adolescents consuming more dietary energy than their non-obese peers (Gillis, Kennedy, Gillis, & Bar-Or, 2002), other studies have shown no correlation of total energy intake with anthropometric factors amongst children (Guillaume, Lapidus, & Lambert, 1998), and even lower energy intakes in obese than non-obese children (Maffeis, Pinelli, & Schutz, 1996). Finally, a systematic review of the evidence on the effects of breakfast consumption on body weight outcomes concluded, that whilst the evidence suggests that consuming breakfast is associated with reduced risk of overweight/ obesity amongst children and adolescents in Europe, almost all the evidence was observational and thus causality should not be assumed (Szajewska & Ruszczyński, 2010).

1.5.1.4. Breakfast Consumption and Health Related Behaviours

Breakfast skipping has also been associated with detrimental health behaviours, such as weight control behaviours, lack of physical activity, increased snacking and poorer food choices, and increased prevalence of smoking (Cohen, Evers, Manske, Bercovitz, & Edward, 2003; Keski-Rahkonen, Kaprio, Rissanen, Virkkunen, & Rose, 2003). It has been suggested that breakfast skipping is used as method of weight control, especially amongst females, adolescents, and overweight children and adolescents (Boutelle, Neumark-Sztainer, Story, & Resnick, 2002; Currie et al., 2012; Rampersaud et al., 2005; Vereecken et al., 2009). For example, a large-scale cross-national study, examining health behaviours in school-aged

children, reported that those who skipped breakfast were more likely to be on a diet and express concerns about body image (Currie et al., 2012; Vereecken et al., 2009). Additionally, a US based largescale longitudinal study reported that adolescents who perceived themselves to be overweight were significantly more likely to skip breakfast (Videon & Manning, 2003). Moreover, UK based research has demonstrated that female adolescents are far more likely to skip breakfast, and have expressed body dissatisfaction and/ or been on a diet, than their male counterparts (Lattimore & Halford, 2003). Similarly, females within a UK sample of adolescents who were currently dieting, were more likely to skip breakfast (Barker, Robinson, Wilman, & Barker, 2000). Comparable findings indicating an increased prevalence of breakfast skipping and associations with weight control behaviours and body dissatisfaction amongst female adolescents, have been reported in further studies from Australia (Shaw, 1998) and the USA (Cohen et al., 2003).

In addition to weight control behaviours, breakfast skipping has also been associated with low levels of physical activity (Cohen et al., 2003; Currie et al., 2012; Rampersaud et al., 2005; Vereecken et al., 2009). For example, a US based study, examining associations between breakfast consumption and physical activity amongst secondary school children (N = 318), reported that those children who habitually skipped breakfast were less likely to engage frequent physical activity (> 3 x per week) (Cohen et al., 2003). Likewise, a population level study, investigating sociodemographic factors and behaviours associated with breakfast skipping, amongst five birth cohorts of adolescent twins and their parents, found that infrequent physical activity was significantly associated with adolescent and adult breakfast skipping (Keski-Rahkonen, Kaprio, Rissanen, Virkkunen, & Rose, 2003). Moreover, a large-scale survey study examining the associations between health related behaviours, social relationships, and health status with persistent physical activity and inactivity, amongst a sample of Finnish adolescent twins (N = 5028), reported that irregular breakfast eating was significantly associated with persistent inactivity (Aarnio, Winter, Kujala, & Kaprio, 2002). Equally, it has been suggested that the reduced likelihood of overweight/ obesity amongst habitual breakfast consumers may be mediated by greater energy expenditure, as higher levels of physical activity have been reported to be associated with increased breakfast consumption (Cohen et al., 2003; Keski-Rahkonen et al., 2003).

1.5.1.5. School Breakfast and Health Outcomes

School breakfast provision generally aims to achieve a range of objectives, although a primary aim is considered to be the contribution to the improvement of the health and nutrition of children (Harrop & Palmer, 2002). School breakfast is advocated to improve the health of children for a number of reasons (Harrop & Palmer, 2002). For example, children may live in homes where no or inadequate foods are available in the mornings, or children may consume high calorie foods and beverages at home or on the way to school. Moreover, children may miss breakfast due to rushed or chaotic mornings, or may arrive to school hungry after long journeys to school. Additionally, children may skip breakfast at home due to a lack of hunger early in the morning. Research has indicated that there may be a number of positive health outcomes relating to school breakfast provision, primarily associated with improved nutritional intake (Bhattacharya, Currie, & Haider, 2006; Kleinman et al., 2002; Murphy et al., 2011). However, studies have also highlighted potential negative effects of school breakfast on health outcomes, such as contributing to obesity, increasing unhealthy snacking behaviours and concerns about the provision of high calorie items for school breakfast (Belderson et al., 2003; Gordon, Devaney, & Burghardt, 1995). In some cases attendance at school breakfast has been associated with declines in nutritional intake, such as greater intakes of fat and saturated fat, and lower intakes of energy from carbohydrates (Belderson et al., 2003; Gordon et al., 1995).

A population level study, investigating the effects of a USA School Breakfast Programme (SBP) on children's nutritional and health outcomes reported that SBP substantially improved the nutritional quality of children's diets (Bhattacharya et al., 2006). The SBP, which is administered by the United States Department of Agriculture, through its Food and Nutrition Service (FNS), provides nutritionally balanced breakfast meals to children from low socioeconomic backgrounds each day. The study utilised data gathered from children (N = 4841; 5-16 years) as part of the National Health and Nutritional Examination Survey; a nationally representative survey on diet, demographics, and health, which collects data on dietary intakes, and laboratory tests of blood and urine. Results showed that children with SBP available were more likely to live in low socioeconomic families. Moreover, results showed that nutritional outcomes tended to be worse for children eligible for the SBP. This

included being less likely to consume breakfast, especially outside of school time, being more likely to consume a higher number of calories from fat, and having low serum values of vitamins A, C, and E, and folate. Further analyses indicated that the SBP significantly improved the diets of children eligible for SBP, with fewer calories consumed from fat and increases in intakes of fibre, vitamin C, vitamin E, folate, potassium and iron. Additionally, the study found that the SBP had no effect on the total number of calories consumed, indicating that SBP may not contribute to increases in overweight and obesity.

Comparatively, a cluster randomised control trial evaluating the impact of a universal free primary school breakfast initiative in Wales, UK, on a range of dietary outcomes, reported an increase in healthy food items consumed at breakfast amongst children attending intervention schools (Murphy et al., 2011). The Welsh Assembly Government's Primary School Free Breakfast Initiative (PSFBI) was introduced as a result of a manifesto commitment to provide free healthy breakfast to all children attending state maintained primary schools in Wales, UK. Collaborations between the research team and the Welsh Assembly Government allowed for a control condition, as some schools were asked to refrain from delivering the breakfast scheme during a 12-month evaluation period. The study encountered issues with 10 of the 55 intervention schools failing to implement the school breakfast scheme, and five of the 56 control schools setting up a breakfast club during the 12 month study period. The trial examined the impact of the school breakfast intervention on a number of health outcomes including breakfast skipping, breakfast diet, frequency of breakfast consumption at home and school, and rest of day diet, in addition to other non-health outcomes, at baseline and 12 month follow-up. Participants including primary school children aged 9-11 years (N = 4350 baseline; N = 4472 follow-up) from 111 schools. A validated dietary recall questionnaire, the 'Day in the Life' questionnaire (Edmunds & Ziebland, 2002; Moore et al., 2007), was utilised to gather data on the foods consumed by children for breakfast on the day of reporting, followed by the previous days consumption. Foods consumed for breakfast for the two days were dichotomised into food groups, then categorised into two variables: healthy (fruit, bread, cereal and milk products) and unhealthy (sweets and crisps). Results showed that children attending breakfast intervention schools reported consuming significantly higher numbers of healthy items for breakfast at 12 months,

compared to their peers in the control condition. However, results also showed no significant differences in the number of unhealthy items consumed for breakfast, or in healthy and unhealthy items consumed across the rest of the day between intervention and control conditions. Furthermore, results indicated that the breakfast intervention did not reduce rates of breakfast skipping, and parental questionnaires showed children substituted breakfast at home for breakfast at school. This study examined the relatively long-term (12 months) impacts of universal free school breakfast provision in the UK, and addressed some of the methodological shortcomings present in previous similar studies, such as small sample sizes, lack of randomisation and appropriate control groups, and contamination between treatment arms. However, the findings on dietary outcomes were dependent upon self-report measures of dietary behaviour, and whilst the measures were previously validated, they are still subject to social desirability bias and misreporting (Stone, 2000).

Comparably, a randomised control trial examined the impact of universal free school provision on school breakfast participation and children's dietary outcomes, in 153 USA elementary schools (Crepinsek, Singh, Bernstein, & McLaughlin, 2006). Schools that offered universal free school breakfast participated in the treatment condition, and schools that continued to offer a means tested school breakfast programme participated in the control condition, with no differences in the nutritional composition of school breakfast provided in either conditions. Data were gathered via a 24 hour dietary recall from randomly selected children (N = 4,358) and their parents, near the end of the first year of the school breakfast pilot programme. Results showed that the introduction of universal free school breakfast led to significant increases in school breakfast participation, and after 1-year participation rates increased from 16% to 40%. Children who attended treatment schools were more likely to consume breakfast at school, compared to those attending control schools, who were more likely to eat breakfast at home. Moreover, the likelihood of children consuming a nutritionally substantive breakfast was significantly higher amongst children attending treatment schools, with higher intakes of calcium, magnesium, and phosphorous, and lower intakes of cholesterol. However, the nutritional differences observed disappeared in all but cholesterol when intakes were analysed over a full day, suggesting that providing universal free school breakfast made little difference to daily nutritional intake. Furthermore,

findings also did not show any indication that universal free school breakfast reduced breakfast skipping amongst children, as no significant differences were reported between treatment and control schools on the likelihood of consuming breakfast on a school day. In addition, children who ate breakfast at home and school (two breakfasts) had higher energy intakes at breakfast and over 24 hours, compared to those children who only consumed one breakfast. However, similar to the study by Murphy et al. (2011), whilst the design of this study was robust, the results on dietary outcomes were also reliant on self-report measures and thus subject to the aforementioned threats to validity (Stone, 2000).

In contrast, findings from a smaller scale study, comparing the energy and nutrient intakes of UK school children attending breakfast clubs, with those who did not attend, indicated that nutritional profiles declined in school breakfast conditions (Belderson et al., 2003). Children (N = 111; 9-15 years) were recruited from three schools in England, UK, where school breakfast clubs were available to all children. The treatment group consisted of children who attended breakfast club at least three times per week, and the control group consisted of randomly selected children from the same classes as school breakfast attendees. Dietary data were collected via a three day weighed food diary. The foods provided to children at School 1 included cereals, semi-skimmed milk, sugar, white sliced bread or toast with margarine, marmite, peanut butter and jam, and a choice of beverage including fruit squash or hot chocolate. School 2 provided fried pork and beef sausage sandwiches with white bread and margarine, and tea and semi-skimmed milk. School 3 provided cereal bars, flap jacks, sausage rolls, doughnuts, crisps, toast with butter and fruit squash. Predictably, considering the provision of high fat and high calorie foods, results showed that children who attended school breakfast had significantly higher intakes of fat and saturated fat. These effects were especially prevalent in School 2, which provided fried sausage sandwiches, and least prevalent in the School 3. However, within School 3 children utilised the school breakfast club in an unconventional way; purchasing snacks for consumption later in the school day. The authors noted that the majority of the foods and beverages available at these school breakfast clubs were not consistent with UK Governmental guidelines for food provision at school breakfast.

1.5.1.6. Breakfast and Cognition

A crucial factor in cognitive functioning is the supply of metabolic fuel to the brain in the form of glucose, which comes from carbohydrate containing foods and is produced in the body from non-carbohydrate sources (Bellisle, 2004). The supply of glucose to the brain is sustained by complex mechanisms, which ensure that the presence of glucose in the blood (glycaemia) is maintained at appropriate levels. In terms of nutrition, glucose is a carbohydrate and an important monosaccharide or ‘simple sugar’, acting as one of the primary molecules that serves as an energy source for the brain, nervous system and red blood cells (Scientific Advisory Committee on Nutrition, 2015). It is therefore understood that inadequate nutritional intake may have adverse effects of cognition, and thus correction of nutritional deficiencies may improve cognitive functioning and performance (Bellisle, 2004). Children’s and adolescents’ cognitive functioning is supposed to be particularly sensitive to nutritional effects due to increased rates of glucose metabolism, compared to adults (Chugani, 1998). From birth to approximately 4 years of age there is an increase in glucose utilisation in children’s brains, at which time the child’s cerebral cortex utilises more than double the amount of glucose compared to adults (Chugani, 1998). These high rates of glucose utilisation persist until approximately 10 years of age, when there is a gradual decline of glucose metabolic rates, reaching adult rates of consumption at around age 16 to 18 years. Breakfast is considered to be of particular importance as it replaces glycogen stores and raises blood sugar levels, following the utilisation of energy during the night, and thus the depletion of glucose supplied from carbohydrates consumed during the previous day (Waggoner, 2001). Breakfast interrupts the overnight fasting period, and provides necessary fuel to the brain in order for efficient cognitive functioning (Bellisle, 2004). It is thought that children are more susceptible to the effects of overnight fasting because of the aforementioned increased metabolic demands (Pollitt, Leibel, & Greenfield, 1981). Moreover, children have higher sleep demands and can deplete glycogen stores during prolonged overnight fasting periods (Adolphus et al., 2016). Consequently, breakfast consumption is deemed crucial in replacing glycogen stores for children and adolescents, and providing them with adequate energy across the morning to sustain mental and physical work at school.

Cognitive performance is assessed using measures that test specific dimensions of intelligence, including functions such as memory, reasoning, attention, and psychomotor coordination (Bellisle, 2004). Memory is also characterised as a set of cognitive processes that contribute to overall cognitive performance, i.e. short-term, long-term, visual, spatial, verbal, declarative, semantic, strategic, all of which can be assessed using various measures. In addition to the complex functions that are involved in cognitive performance, factors such as an individual's skills, motivation, past learning, and fatigue also contribute to overall performance. Due to the complexity of cognition and the number of extraneous factors that may affect performance, assessing the impact of nutrition on cognitive performance is complex. Although, it is considered that some aspects of cognitive performance may be improved following the intake of glucose or carbohydrate rich foods (Bellisle, 2004). Inadequate nutrition, due to children skipping breakfast, may be a contributing factor to poor performance and behaviour amongst children across the school morning, as children they may lack the necessary energy to cope with the requirements of school activities. The mechanisms linking breakfast consumption and cognitive performance are assumed to be both physiological (metabolism of glucose) and subjective (changes in feelings and subjective state including mood and alertness, and alleviation of hunger) (Adolphus et al., 2016; Widenhorn-Müller, Hille, Klenk, & Weiland, 2008). Moreover, research examining the impacts of breakfast consumption on children's cognitive performance has shown that beneficial effects are more pronounced effects amongst undernourished children (Adolphus et al., 2016; Cueto, 2001; Grantham-McGregor, 2005). However, findings are inconclusive, with positive and null effects observed in specific cognitive domains, and effects only being evident during difficult tasks and/ or within sub-groups such as undernourished and deprived groups (Adolphus et al., 2016; Adolphus et al., 2013). A common limitation in studies includes fixed breakfast conditions not representative of habitual eating patterns, thus preventing generalisability to real life contexts. Studies have focused on the effects breakfast consumption verses omission, breakfast composition, and school breakfast consumption/ attendance. Fewer studies have been undertaken examining the prolonged effect of school breakfast programmes on cognitive performance.

1.5.1.6.1. Breakfast Composition and Cognition

Glycaemic index (GI) and glycaemic load (GL) are both measures of the glycaemic characteristics of foods. GI is a measure of the blood glucose response to a particular ingredient or food, specifically the blood glucose raising and maintenance potential of the carbohydrate in different foods (Scientific Advisory Committee on Nutrition, 2015). GI is a ranking of foods from 0 to 100, which provides an indication of whether the carbohydrate in a food or meal will raise blood glucose levels significantly, moderately, or minimally. Low GI carbohydrate containing foods take longer to digest, absorb, and metabolise, and thus result in less rapid, and more moderate sustained increases in blood glucose levels. Low GI is < 55, medium GI is rated between 56 and 69, and high GI is > 70 (Venn & Green, 2007). GL considers both the quality of the carbohydrate food and the amount of available carbohydrate it contains, i.e. the blood glucose raising potential of the carbohydrate in a particular food and the quantity of carbohydrate in a food (Scientific Advisory Committee on Nutrition, 2015). GL describes the overall effect of these two factors on blood glucose levels. GL is calculated by multiplying the amount of carbohydrate in a food by the GI of the food and dividing the result by 100 (Benton, Maconie, & Williams, 2007). Low GL is < 10, medium GL is between 11 – 19, and high GL is > 20 (Venn & Green, 2007). Variation in the GI and GL of foods reflects differences in the rates of carbohydrate digestion and absorption, in addition to the differences in the rates of glucose production and distribution from circulation into tissues (Scientific Advisory Committee on Nutrition, 2015). Following intake of high GI/ GL foods there is a relatively rapid rise in blood glucose levels, ensued by a corresponding decrease in blood glucose (Ingwersen, Defeyter, Kennedy, Wesnes, & Scholey, 2007). Whereas, following consumption of low GI/ GL foods there is a smaller increase in blood glucose, ensued by more stable levels of blood glucose (Ingwersen et al., 2007). Effects on cognitive performance have been reported in studies examining consumption of breakfasts with different GI/ GL, with positive effects most consistently observed following consumption of a low GI/ GL breakfast (Adolphus et al., 2016). It is suggested that the consumption of low GI/ GL breakfasts may be beneficial to cognitive functioning later in the morning, due to a slower rate of glucose release (Benton et al., 2007; Mahoney et al., 2005). Nevertheless, in studies examining the associations between slower rates of

glucose release and better cognitive performance across the mornings there are many differences in the nutritional profiles of the breakfast meals provided, and thus observed effects could be as a result of other nutritional mechanisms (Benton et al., 2007).

For example, a study with UK children (N = 64; 6-11 years) investigated the effects of high GI and low GI cereals on attention and memory (Ingwersen et al., 2007). Participating children were provided with servings of either Coco Pops (high GI: 77) or All Bran (low GI: 42) with semi-skimmed milk, over two consecutive days. Following an overnight fast, children were tested at 9:00am (baseline), breakfast was provided at 9:30am, and children were tested again at 9:40, 10:40 and 11:40 am. Attention and memory were assessed utilising cognitive testing battery, consisting of nine consecutive tasks, including word presentation; immediate word recall; picture presentation; simple reaction time; digit vigilance; choice reaction time; spatial working memory; numeric working memory; delayed word recall; delayed word recognition, and delayed picture recognition. Results showed a significant main effect of GI on secondary memory, with better performance following consumption of low GI cereal, compared to high GI cereal. However, results showed no significant main effects of GI on speed of attention, speed of memory, accuracy of attention and working memory. However, a correction analysis showed a significant GI assessment time interaction in accuracy of attention. Paired sampled *t*-tests demonstrated that this significant interaction was due to decline in performance at 11:40am, following the consumption of high GI cereal, compared to low GI cereal. The results from this study indicated that a low GI breakfast might increase children's cognitive performance, and prevent declines in performance throughout the morning, on certain measures of attention and memory. The authors concluded that the differences in performance observed in the consumption of low and high GI cereals, may reflect postprandial changes in blood glucose levels, as typically a low GI breakfast meal provides a more stable and continuous level of blood glucose. However, as the effects of GI were only observed in two out of five measures, the study provides limited support that low GI breakfast meals aid and sustain cognitive performance in children, and caution should be taken not to generalise the effects across all cognitive domains. Moreover, whilst the study focused on the difference in GIs between the cereals provided in each condition, the

effects of other nutritional differences in the composition of each cereal type cannot be excluded, and at the observed results may be due to nutritional factors other than GL.

A further study assessed the effects of breakfasts with different GL on the cognitive performance of children within a single class, attending a UK primary school in a deprived area (N = 19; 6-7 years) (Benton et al., 2007). Children attended a school breakfast club for four weeks, where each day they consumed one of three meals with similar energy, but differing GLs, between the hours of 8:15am and 8:45am. High GL (39) breakfasts consisted of cornflakes, semi-skimmed milk, sugar, waffles and maple syrup; medium GL (14.8) breakfasts consisted of scrambled eggs, bread, jam, low fat spread, and low calorie yoghurt; and low GL (5.9) breakfast consisted of ham, cheese, high fibre bread, and low fat spread. Nutritional data were obtained via weighed samples of the food supplied and percentage of waste, in addition to manufacturer information and food tables. Cognitive testing took place between the hours of 10:35am and 11:45am, with no food consumed during the interval period. Three tests of cognitive functioning were administered, specifically testing memory functions and attention. Immediate memory, recall memory, spatial memory and delayed memory were assessed using British Ability Scales (Elliot, 1996). In addition, ability to sustain attention and reaction times were assessed utilising the paradigm of Shakow (Shakow et al., 1962). Overall the results of this study reported better scores in measures of memory, and fewer lapses in attention, following consumption of a lower GL breakfast, compared to higher and medium GI breakfasts. Moreover, a regression analysis demonstrated that GL was a better predictor of memory than carbohydrates or other macronutrients. However, the authors highlighted that caution should be taken in considering GL in isolation, as other macronutrients may have influenced the uptake and utilisation of glucose. Further limitations included a small sample size and the recruitment of participants within one class and school, and therefore caution should also be taken in generalising the findings to wider populations. Moreover, findings from this study are based on data from a limited timescale, and given the number of factors that may influence cognitive performance, may not be indicative of longer-term effects of low GL breakfasts on cognitive performance in children.

Comparatively, another study with USA elementary school children (N = 30; aged 9 -11) examined the effects of breakfast composition on cognitive processes (Mahoney et al., 2005). Children were recruited from a middle class background within a private elementary school. Tests of cognition focused on spatial memory, short-term memory, visual perception, visual attention, auditory attention, and verbal memory. In addition, children completed questionnaires to assess their mood, energy level, and hunger level before breakfast, and before and after testing. Children participated in the study at school for one day per week for four weeks, and were instructed not to consume anything after 10:00pm the previous evening. On testing days, children completed a questionnaire and participated in one of three breakfast conditions; including either ready to eat cereal and fat free milk, instant oatmeal and fat free milk, or no breakfast, then were tested an hour later. Children received all three breakfast conditions; thus acting as their own control. Results of the spatial memory tasks showed that children performed better after consuming the oatmeal breakfast, followed by ready to eat cereal, and finally the no breakfast condition. Moreover, results of the short-term memory tests showed that girls performed better when they ate oatmeal, but no performance differences by meal were observed in boys. In the visual perception tasks, when children consumed either oatmeal or ready to eat cereal, scores were better than no breakfast. However, no effect of breakfast condition was found on the visual attention test scores. Analysis of the hunger rating scores predictably showed that children rated themselves as more hungry when they did not receive breakfast, but there were no differences on how tired, happy, relaxed, thirsty, alert or stressed children were feeling between conditions. The results of this study indicate that, for some cognitive tasks, the composition of breakfast may influence performance. For example, children performed better in short term memory tasks, after consuming an oatmeal breakfast, compared with ready to eat cereal. The authors suggested that digestion rate might be a mechanism by which breakfast composition affects cognitive performance, with higher-fibre-lower GI foods being more slowly digested and providing a more sustained release of glucose into the blood and brain. Likewise, prior research has also shown that consumption of oatmeal leads to a more sustained rate of glucose release, compared to a more rapid rise and fall in blood glucose following consumption of high-GI ready to eat cereal (Foster-Powell, Holt, & Brand-Miller, 2002). However, the sample recruited

for this study were children from middle-class backgrounds, attending a private school; indicating that they were from higher socioeconomic families and probably therefore relatively well nourished. Research shows that the effects of breakfast consumption on cognition are more pronounced amongst undernourished children and those from low socioeconomic backgrounds (Adolphus et al., 2016), which may provide an explanation for the mixed results in this study.

1.5.1.6.2. Breakfast Consumption versus Breakfast Omission, and Cognition

Experimental studies have provided evidence suggesting cognitive performance is improved following breakfast consumption, compared to breakfast omission. A recent systematic review, examining the acute effects of breakfast on cognitive performance in children and adolescents, found evidence that breakfast consumption, relative to fasting, has temporary domain specific effects, specifically in tasks requiring attention, executive function and memory (Adolphus et al., 2016). Despite this, findings are inconclusive, with some studies reporting mixed results and null effects in particular domains, and a lack of consensus on the specific cognitive processes affected by breakfast consumption (Adolphus et al., 2016; Rampersaud et al., 2005). Moreover, studies examining the effects of breakfast versus no breakfast on cognitive performance vary in terms of the breakfasts served, test timings, and age, which considered to contribute to the mixed research findings (Defeyter & Russo, 2013). Furthermore, in addition to the role of glucose as a mediator for cognitive performance and functioning, it is also proposed alleviating hunger may result in improvements in mood and thus cognitive performance (Defeyter & Russo, 2013). Therefore, a number of studies examining the effects of breakfast consumption on cognitive performance have also examined the effects on mood using self-report measures, providing evidence that breakfast is beneficial in terms of feelings of satiety, alleviating hunger and improving mood (Cooper, Bandelow, & Nevill, 2011; Defeyter & Russo, 2013; Widenhorn-Müller et al., 2008).

For example, a UK based study with adolescents (N = 40; 13-15 years) from low socioeconomic backgrounds, who were habitual breakfast skippers, investigated the effects of breakfast consumption on cognitive performance, mood, and differing levels of cognitive load (Defeyter & Russo, 2013). The study utilised a randomised cross over design, in which 40 adolescents were given a low GI breakfast of high

fibre bran-based breakfast cereal and semi skimmed milk, or no breakfast. On test days, participants were instructed to arrive at school at 8:00am, having had no caffeine for the previous 12 hours and no food from midnight. Participants were tested on arrival at 8:00am (baseline) and then at 10:45am (120 minute follow-up), for both conditions. Breakfast consumption and omission were counterbalanced, with half the participants consuming breakfast on the first testing day and omitting breakfast on the second testing day, and remaining children undergoing the same conditions in the reverse order. Additionally, participants acted as their own controls, with half of the participants completing low cognitive load tests and subsequently high cognitive load tests, and the remaining participants completing high cognitive load tests, followed by low cognitive load tests. A cognitive testing battery was utilised, encompassing a range of tasks including: Delayed Word recall (Snodgrass & Vanderwart, 1980), Choice reaction time; Rapid Visual Information Processing (RVIP), Stroop, and Serial subtractions tasks. Cognitive load was modulated through the manipulation of task difficulty. Furthermore, following completion of the cognitive test battery, thirst, hunger, and satiety were measured using a visual analogue scale and 16 item Bond–Lader mood scale (Bond & Lader, 1974) measuring alertness, calmness and contentment. Overall, results of this study were mixed. For example, in the word recall tasks, participants in the breakfast consumption trial outperformed participants in the non-breakfast trial, in the easy version of the task. In the more difficult version of the word recall task, participants in the breakfast consumption trials showed better accuracy, by recalling more correct words than participants in the non-breakfast trial. Moreover, in Serial subtractions tasks 3s and 7s, performance increased in the breakfast consumption trials, and performance decreased in the non-breakfast trials, across the morning, with significant effects on task difficulty. However, no significant main effects or interactions between easier and difficult versions of the task were found in Choice reaction time, Rapid Visual Information Processing and Stroop tasks. It was concluded that whilst overall the findings indicated that task difficulty, i.e. cognitive load, is more sensitive to nutritional manipulations, such as breakfast consumption/omission, this was only demonstrated in some aspects of cognition. Moreover, the threshold whereby more cognitively difficult tasks become sensitive to breakfast manipulations was unclear. It was speculated that the provision of a low GI index

breakfast may have limited the availability of glucose to the brain and could account for the absence of an effect in the aforementioned tasks. Similar to previous studies, self-report measures in this study found increases in alertness following breakfast consumption, and greater levels of contentment later in the morning, with reductions feelings of hunger and increases in feelings of satiety. However, generalisability of the findings from this study is limited due to the focus on adolescents from low socioeconomic backgrounds.

A further UK based study examined the effects of '*ad libitum*' breakfast consumption, versus omission, on cognitive function, mood and blood glucose, amongst older school children (N = 96; 12-15 years) (Cooper et al., 2011). The study used a randomised crossover design, consisting of one trial where breakfast was provided upon arrival to school, and another whereby no breakfast was provided, with participants participating in both conditions. Trials were scheduled seven days apart and participants reported to school at the normal time, having fasted from 10pm the previous evening. Participants could choose from a range of foods, including ready to eat cereals, semi-skimmed milk, white and brown toast, butter, margarine and strawberry, blackcurrant, raspberry and apricot jam spreads, fruits, yoghurts, and fruit juices. Cognitive performance was measured using a visual search test, the Stroop test, and the Sternberg paradigm. This study also measured subjective feelings of energy, tiredness, tension and calmness, via a validated mood questionnaire items (Eysenck, 1990). Additionally, two visual analogues scales were utilised to measure participants' hunger and satiety. Following breakfast or no breakfast, participants completed mood questionnaires and cognitive tests, then returned to normal lessons, after which they reported back and repeated mood questionnaires and cognitive tests 120 minutes after baseline measures. Overall, results showed that breakfast consumption improved accuracy of responses in the cognitive tests, particularly in more cognitively demanding tasks, such as on the complex level of the visual search test and the Stroop test. In addition, response times on the more complex levels of the Sternberg paradigm were also improved by breakfast consumption, but this effect was not consistent on response times in other tests. The authors note that although the results indicated that breakfast consumption was beneficial on more cognitively demanding tests, it was evident that less complex tasks could be performed at similar levels following omission of breakfast. In

addition, similar to findings from other studies, breakfast consumption also resulted in a more positive mood state, including higher perceived energy and satiety, and lower feelings tiredness and hunger. However, whilst this study aimed to reflect habitual breakfast intake through the provision of '*Ad libitum*' breakfast, this also results in greater variability in the nutritional composition of breakfasts consumed.

Another study with UK school children (N = 29; 9 – 16 years) aimed to determine the extent to which breakfast cereals, compared to no breakfast, prevents declines in cognitive function (Wesnes, Pincock, Richardson, Helm, & Hails, 2003). The study employed a randomised, four-way crossover design. Testing took place during a half-term holiday, with participants attending a laboratory on five consecutive days (Monday to Friday). The first day involved training. Over the remaining four days, participants were given four breakfast conditions and were requested to refrain from consuming any foods or beverages from 8pm the previous evening. Breakfast conditions included: Shreddies and semi-skimmed milk, Cheerios and semi-skimmed milk, orange-flavoured glucose based drink, and no breakfast. Baseline testing commenced at 8:00am, with breakfasts served immediately afterwards. Testing was then repeated at 9:00, 10:00, 11:00am and 12:00 noon. Participants were tested in a large room, seated in rows, similar to a classroom situation. A range of tests from the Cognitive Drug Research (CDR) computerised assessment system (Wesnes, Ward, McGinty, & Petrini, 2000) assessed attention, working memory, and episodic secondary memory. Additionally, 16 bipolar ratings of mood and alertness (Bond & Lader, 1974) and three ratings of satiety were administered after the cognitive tests. Results showed a general pattern of decline in cognitive performance over time when participants did not receive breakfast, but a reduction in the degree of this deficit by more than half at the end of the morning following consumption of either of the two breakfast cereals. Moreover, deficits in attention were greater soon after the glucose drink than in the no breakfast condition. By midday, following no breakfast and glucose drink conditions participants declined by 12% and 27% respectively in their ability to recall words in the immediate word recall test (indicator of quality of episodic memory), whilst in the two cereal conditions performance increased slightly. The speed at which items could be retrieved from working and secondary memory showed an overall increase across the morning, but improvements were 2-3 times greater in the cereal and

glucose drink conditions. Furthermore, increases in alertness, satiety and contentment were observed in the cereal and glucose drinks conditions, but increases in the glucose drink condition were only observed in the early part of the morning, and levels declined after 10:00am to the same levels as the no breakfast condition. The authors suggest that carbohydrates in breakfast cereals may reduce the deficit of attention by more than half, and for some aspects of memory prevent the deficit completely; whereas, a glucose drink failed to demonstrate such benefits. The limitations of this study include a relatively small sample compared to other similar studies. Moreover, breakfast was served to participants in a laboratory setting, as opposed to a naturalistic setting, and therefore was not representative of a typical breakfast environment at home or school, thus affecting ecological validity and generalisation of the findings (Wegener & Blankenship, 2017).

1.5.1.6.3. School Breakfast and Cognition

Studies have also focused on children's attendance at school breakfast and the impact on cognitive performance. It is considered that poor nutrition may affect children's ability to learn (Pollitt, 1995), and therefore, breakfast programmes are often implemented with the aim of improving nutrition and thus contributing to improved educational outcomes (Bellisle, 2004). It is supposed that the provision of breakfast facilitates learning, especially amongst undernourished children, by mediating nutritional deficiencies and compensating for a decline blood glucose during the night for children who have not consumed breakfast at home (Jacoby, Cueto & Pollitt, 1997). Studies examining the effects of school breakfast on cognitive performance have reported mixed results, and in some cases positive effects are only observed within sub-groups, such as undernourished children and adolescents (Adolphus et al., 2016; Chandler, Walker, Connolly, & Grantham-McGregor, 1995). Limitations in previous studies include non-recording of foods before school, absence of fasting conditions before school, the use of school breakfast attendance without the specification of consumption or non-consumption in categorising conditions, and contamination between treatment arms (Adolphus et al., 2016). Furthermore, few studies have examined the longer-term effects of school breakfast programmes on cognitive performance. Nevertheless, it is acknowledged that measuring the prolonged effects of school breakfast is inherently complex, and

executing large-scale trials in school settings may be difficult and impractical (Adolphus et al., 2016).

For example a study with undernourished (N = 97) and adequately nourished children (N = 97), from four primary schools in rural Jamaica examined the short-term effects of breakfast provided as part of a school feeding programme (Chandler et al., 1995). Breakfast conditions consisted of 225 ml of chocolate milk and a cheese sandwich, and placebo conditions consisted of a quarter of an orange. The study utilised a crossover design, with each child acting as their own control, and being tested twice in both breakfast and placebo conditions. The feeding conditions commenced in schools 1 week before testing began and continued until the last test was completed. Children received either breakfast or the placebo in the first test period, which was then reversed in the second test period, with an interval of at least three weeks between testing sessions. Children ate at 8:30am and testing was conducted from 9:00am to 12:00pm. Cognitive performance was assessed using a cognitive testing battery, encompassing four tests, consisting of a visual search test, a digital span test, a verbal fluency test, and a speed of information processing test. Results showed a significant interaction between nutritional group and treatment, with undernourished children performing better in verbal fluency tests following breakfast, whereas the scores of adequately nourished children did not change significantly. There were no other significant treatment main effects, or treatment/group interactions. The authors posited that the difference in the effect of school breakfast on verbal fluency scores may indicate that undernutrition, and perhaps hunger too, may have adverse effects on particular domains of cognitive functioning. It was suggested that undernourished children may respond differently to breakfast consumption because they have frequent experiences of hunger, and thus may be more sensitive to nutritional manipulations. It was recommended that in instances where resources are limited, free school meals should therefore be targeted at undernourished children. However, the prevalence of severe undernutrition was reported to be low amongst school children in Jamaica at the time of the study, and therefore the 'undernourished' group consisted of predominantly mildly undernourished children. Therefore, the failure to identify a benefit of breakfast consumption on the digital span test was supposed may indicate that that level of undernutrition was probably not severe enough to have an effect. Moreover, in this

study, children's evening meals and breakfast at home were not standardised and it was claimed that many of the children would have had some type of breakfast at home; thus nutritional intake prior to testing could have varied significantly amongst participants.

A further study examined the short-term effects of school breakfast on cognitive performance, amongst nutritionally at-risk children in Peruvian Andes (Jacoby, Cueto & Pollitt, 1997). The Peruvian Government introduced the school breakfast programme in 1993, with the objectives of promoting better nutrition, and improving educational attainment and attendance, amongst children attending public primary schools within poor areas. It was hypothesised that, in the short term, school breakfast would improve children's cognitive performance, in addition to improving educational performance and school attendance. Ten schools were randomly assigned to treatment or control conditions. The treatment condition was a school breakfast consisting four cookies with an instant drink, alternated with cake and drinks of different flavours, although nutritional content remained similar providing approximately 30% of energy requirements. Breakfast consumption was monitored at each school three times, to ascertain participation in the scheme. A test battery consisting a test of digit discrimination, and the coding and digit span subtests of the Wechsler Intelligence Scale for Children were utilised to assess cognitive performance. In addition, reading comprehension, vocabulary and mathematics tests, were utilised to assess 'complex mental abilities'. Results showed no significant effects between groups in performance on cognitive tests, and the reading comprehension and mathematics tests. Although, findings did show enhanced performance on the vocabulary test amongst a sub-set of children; namely those within the treatment group with greater body weights. However, the likelihood that vocabulary test performance was facilitated by the provision of breakfast at school could not be ascertained. It was concluded that the school breakfast programme may have had tangible short-term beneficial effects, but a long-term evaluation was required to determine lasting effects on cognition and learning. Comparably, a cluster randomised control trial evaluating the impact of the Welsh Assembly Government's Primary School Free Breakfast Initiative (PSFBI), also reported no significant effect of school breakfast on cognitive performance (Murphy et al., 2011).

1.5.1.7. Breakfast and Educational Outcomes

Research has also focused on the impact of breakfast consumption and school breakfast on educational outcomes. It is supposed that consumption of a healthy breakfast may be beneficial to children's performance at school, and likewise omission of breakfast may cumulate in adverse impacts on educational outcomes, as children are more likely to be hungry, fatigued and thus distracted during the school morning (Basch, 2011; Ani & Grantham-McGregor, 1999). However, a review of the literature highlighted there is a lack of definitive conclusions regarding the effects of breakfast on educational outcomes (Basch, 2011). Whilst positive effects of breakfast and school breakfast have been observed in test scores, specifically numeracy, arithmetic and literacy (Kleinman et al., 2002; Murphy et al., 1998; O'Dea & Mugridge, 2012), there is insufficient evidence of a direct link between breakfast consumption and longer term attainment (Phe, 2013). This is partly due to a lack of longitudinal studies measuring the long-term effects of breakfast and school breakfast on academic outcomes (Adolphus, Lawton, & Dye, 2013; Rampersaud et al., 2005). It is also suggested that this lack of evidence may be attributed to the complexities in defining, identifying and measuring the effects of breakfast and school breakfast on educational outcomes (Littlecott, Moore, Moore, Lyons, & Murphy, 2016). Previous studies have been criticised for inadequate adjustment for numerous confounding variables. For example, confounding factors in assessing educational attainment may include the school environment (facilities, quality of teaching, class sizes); participant backgrounds (socioeconomic status, parental educational level and attitudes towards school); and individual characteristics (gender, age, health, nutritional status, aptitude, motivation and behaviour) (Edefonti et al., 2014).

1.5.1.7.1. Breakfast Consumption and Composition, and Educational Outcomes

Prior studies examining breakfast consumption, relative to non-consumption, have indicated that breakfast consumption may be positively associated with higher literacy, numeracy and arithmetic test scores, and better performance in standardised educational tests (O'Dea & Mugridge, 2012; Ptomey et al., 2016). In terms of the composition of breakfast and breakfast types, studies have reported positive associations between percentage of energy, greater servings of wholegrains, and

more nutritious breakfasts, and better performance on academic test scores (O’Dea & Mugridge, 2012; Ptomey et al., 2016). Moreover, positive effects have been observed in the consumption of healthy breakfast items and educational performance (Littlecott et al., 2016). However, research findings are mixed, with studies also reporting no effects of breakfast consumption of a range of measures of educational attainment (Littlecott et al., 2016; O’Dea & Mugridge, 2012; Ptomey et al., 2016). Furthermore, studies have largely employed correlational designs, and therefore causative effects of breakfast consumption and composition on academic attainment cannot be assumed from the findings from such studies.

For example, a USA based study investigated whether breakfast consumption or breakfast content affected academic achievement in standardised tests amongst children (Ptomey et al., 2016). The study utilised baseline data collected as part of a 3-year cluster randomised controlled trial, assessing differences in academic achievement between intervention schools receiving a physical activity programme (Academic Achievement and Physical Activity Across the Curriculum) and control schools (Tomporowski et al., 2008). Participants (N = 698) were recruited from 17 elementary schools, of which nine schools received the aforementioned intervention condition and eight schools served as controls. Self-report data on breakfast consumption were obtained utilising a validated USDA multiple pass method, (Conway, Ingwersen, & Moshfegh, 2004). On the day of reporting, participants completed a breakfast recall of all the foods and drinks consumed that morning. Immediately afterwards academic achievement was assessed using components from the Wechsler Individual Achievement Test (WIAT-III), including tests of reading comprehension, oral reading fluency, spelling, mathematics, problem solving, and numerical operations. The mathematics and reading tests were combined to form three component scores including: spelling standard score, reading comprehension and fluency standard score, and mathematics standard score. Participants were classified as breakfast consumers (N = 617) (consumed food and caloric beverage that morning), or non-breakfast consumers (N= 81) (not consumed any food or caloric beverages). Moreover, in order to eliminate bias due to differences in baseline characteristics a matched sample (N = 81) of breakfast consumers and non-consumers, based on age, sex, race, education level of both parents, household income, BMI, and cardiovascular fitness was determined. When comparing non-

breakfast consumers to breakfast consumers in the matched sample, results showed that breakfast consumers had significantly higher scores in all three aforementioned components of the WIAT-III. The analysis of the dietary intake of all breakfast consumers (N = 617), to determine whether the quality of breakfast had any association with the three WIAT-III component scores, showed that percentage of Kcals from carbohydrates was positively correlated with spelling standard score, but no association was found with other test score or macronutrient. Additionally, fruit juice was negatively correlated with reading comprehension and fluency scores, and mathematics scores, but there was no significant association between fruit juice and spelling standard scores. Moreover, servings of wholegrains were significantly associated with higher scores in reading comprehension and fluency scores, and mathematics scores, but no correlation was found with spelling scores. The relationship between wholegrains consumed at breakfast and better performance on academic tests lends support to previous findings that low GI/ GL meals may lead to improved cognitive performance across the school morning (Cooper, Bandelow, Nute, Morris, & Nevill, 2012; Ingwersen et al., 2007).

A further study, examined whether the nutritional quality of breakfast and physical activity predicted literacy and numeracy scores of children, independent of socioeconomic status (O’Dea & Mugridge, 2012). A representative sample of participants (N = 824) were recruited from 10 primary schools and six secondary schools, within rural, urban, and suburban areas of Australia. School socioeconomic status’ were determined using government categories of low (N = 279), middle (N = 273) and high (N = 272). Moreover, as maternal education was correlated with school socioeconomic status, this was also included in the analysis. Literacy and numeracy test data were obtained from mandatory government test grades, retrieved from school records. Telephone interviews were undertaken with parents in order to obtain maternal level of education, and estimates of the times spent by children during week-days undertaking physical activity and sedentary behaviours. Furthermore, students reported their general level of physical activity, and estimated the amount of time they participated in sports and physical activities. Data on breakfast intake were gathered using a recall method, with a focus on what foods and beverages children had consumed before 10am on the day of reporting. Subsequently, children were debriefed during a face-to-face interview with a

dietician. A nutritional quality of breakfast score was utilised to measure the quality of breakfast consumed, which calculated on a range from 0 to 10, with the aim of reflecting the combination of all five major food groups, in addition to adequate sources of major nutrients. A score of zero was given if the participant consumed no foods or beverages, and a score of 10 was given for breakfasts that contained all major food groups, in addition to sources of vitamin C, protein and calcium. Results showed that higher school socioeconomic status was the most significant predictor of literacy, followed by higher maternal education, female gender, higher nutritional quality of breakfast score and more time spent in sedentary behaviour before school. Concerning the nutritional quality of breakfast, a graded effect was reported, with the consumption of more nutritious and varied breakfasts being associated with better literacy scores, independent of socioeconomic status and parental education. Socioeconomic status was the most significant predictor of numeracy, followed by mother's education and male gender, but no associations were found between breakfast and numeracy test scores. Males had higher numeracy scores than females, and total minutes of physical activity were a predictor of numeracy, particularly amongst males.

1.5.1.7.2. School Breakfast and Educational Outcomes

It is considered that interventions which aim to improve educational outcomes based on education alone are largely ineffective, and in order to be effective they should also focus on children's health and wellbeing (Littlecott et al., 2016). Therefore, by alleviating hunger, school breakfast programmes may improve health and nutrition, and subsequently have the potential educational attainment. Evidence exists that school breakfast programmes may have a positive effect on attendance and punctuality, particularly for disadvantaged children and children from developing countries (Jacoby, Cueto, & Pollitt, 1997), but there is less conclusive evidence regarding impact on academic achievement (Mhurchu et al., 2013). It is thought that children's earlier arrival to school for breakfast results in improved attendance and punctuality, and a more positive and calm start to the school day (Welsh Assembly Government, 2004). Whilst studies have reported higher numeracy scores and improved attendance amongst students who attend/ consume school breakfast, findings are mixed, with no association also observed across a range of educational outcomes and associations only being consistently evident in certain

conditions such as undernourished groups (Kleinman et al., 2002; Mhurchu et al., 2013; Murphy et al., 1998).

A USA based study investigated potential relationships between participation in a Universal Free School Breakfast Programme and measures of psychosocial and academic functioning in school children (Murphy et al., 1998). Data on educational outcomes, including academic achievement (test grades in mathematics, science, social studies and reading), and school attendance and punctuality, were obtained via school records, for children (N = 133; mean age 10.3 years), from three inner city public schools. Data collection took place prior to the implementation of a universal free school breakfast programme (baseline) and four months afterwards (follow-up). The exact nutritional composition of breakfast was not determined, and the authors noted that consumption of school breakfast was observed by researchers, who deemed that most of the children ate most of their breakfast meals. However, schools were required to provide nutritionally balanced meals as part of the breakfast programme. Results showed that prior to the introduction of the school breakfast programme, students who ate school breakfast ‘often’ (ate breakfast on > 80% days present) or ‘sometimes’ (ate breakfast between 20% and 79% days present), had significantly higher mathematics test scores. However, grades in science, social studies and reading were not related with school breakfast participation at baseline. Furthermore, results from follow-up data, after the implementation of the school breakfast programme, showed that participation in school breakfast had almost doubled. Amongst those who increased their participation in school breakfast, significant increases in mathematics grades were also observed. Additionally, follow-up data showed that children who ‘rarely’ (< 20% days present) participated in school breakfast were absent from school and late significantly more than those who attended school breakfast ‘sometimes’ and ‘often’. There are limitations in interpreting the findings from this study, as the results were based on participation in school breakfast, and the actual consumption of school breakfast was not established. Therefore, the mechanisms driving the observed effects in this study, i.e. nutritional, social and/ or environmental impacts of school breakfast cannot be ascertained.

A further USA based study examined associations between nutrient intake, and academic and psychosocial functioning, amongst USA school children (N = 97), following the introduction of universal free school breakfast (Kleinman et al., 2002).

Academic achievement data, including grades for mathematics, reading science and social studies; data on school attendance and punctuality; and school breakfast participation data, were obtained from school records. School breakfast participation was characterised as often (> 80% days present), sometimes (between 20 and 79% days present) and rarely (< 20% of the days present). However, unlike the aforementioned study, dietary data for the previous 24 hours were gathered utilising a validated dietary recall method. In addition, the 'nutritional risk' of children was determined using data on hunger and food insufficiency gathered from parents and children using a validated questionnaire. Data collection took place at the start of the implementation of a school breakfast programme (baseline) and again six months later (follow-up). Prior to the implementation of the school breakfast programme, 33% of children were classified as at nutritional risk (energy intakes < 50% of RDA and/ or 2 or more micronutrients < 50 % of RDA). As a group, those at 'nutritional risk' demonstrated poorer attendance, punctuality and grades, had more behaviour difficulties, and were less likely to eat breakfast at school. Results showed that children who consumed school breakfast 'rarely' were significantly more likely to be at 'nutritional risk' than children who ate school breakfast 'sometimes' and 'often'. Follow-up data reported that 19% of the sample improved their 'nutritional risk', 64% remained unchanged, and 18% were at increased 'nutritional risk'. Moreover, those students who decreased their 'nutritional risk', also significantly increased school attendance and school breakfast participation, showed improvements in mathematics grades, and reported significant decreases in hunger. Similar to the study by Murphy et al. (1998), mathematics was the only subject found to be significantly associated with nutritional intake, with no effects reported in any of the other academic subjects.

Comparatively, a recent mixed methods evaluation of the Magic Breakfast project, which employed a cluster randomised controlled trial, examined the effects of school breakfast on academic achievement (Crawford et al., 2016). Jointly funded by the Department for Education and the Endowment Foundation, the Magic Breakfast Project provided 106 primary schools in England, with relatively high proportions of disadvantaged pupils, free food, support from a Magic Breakfast school change leader, and a £300 grant to deliver a universally free before school breakfast club. The primary objective of the trial was to measure the impact of the

school breakfast club project on academic attainment, through the comparison of student outcomes in an intervention group and a control group. Measures of attainment included Key Stage 1 and 2 test scores in English and Mathematics. Randomisation occurred at a school level rather than a student level, to avoid within school disruptions associated with some students receiving breakfast and some not. Schools were randomly allocated to either the intervention group (received support and resources to establish a universal free school breakfast club before school in academic year 2014/2015), or the control group, (received support and resources for the two following academic years 2015/2016 and 2016/2017). Results showed that breakfast club provision had positive significant effects on Key Stage (KS) 1 test scores in maths, reading, and writing, to the equivalent of two months progress. However, at KS2, the effects of the school breakfast intervention on attainment were smaller and not statistically significant. However, it was noted that 91% of control schools offered largescale breakfast provision to Year 6 pupils during the week of KS2 tests, and therefore this may have affected the results. Self-reports of breakfast consumption from students in intervention and control schools at the start and end of the academic year, showed that the level of breakfast consumption was high at baseline (91%), and breakfast consumption only increased marginally with the intervention. It was therefore suggested that any direct effect of breakfast of school breakfast on attainment might be more likely to be due to changing the content and context of breakfast, as opposed to whether or not breakfast was consumed. For example, at follow-up, more students in the intervention reported consuming a breakfast containing at least one healthy food, and thus changes appeared to be driven by improvements in the quality of breakfast. Furthermore, data collected on absence and punctuality showed that there were small reductions in late arrivals and school absence following the introduction of school breakfast clubs in the intervention schools. Findings from this study are limited to academic outcomes within one year of the implementation of a school breakfast programme, and the longer-term effects of the school breakfast project on attainment are likely to remain unidentified due to the reported cessation of support from Magic Breakfast to schools in the intervention group.

Finally, a study that used data collected as part of a large-scale cluster-randomised controlled trial of the Welsh Government's Primary School Free

Breakfast Initiative, was unable to link the breakfast initiative to educational outcomes, as control schools took up the scheme between completion of the trial and collection of educational performance data (Littlecott et al., 2016). Therefore, the study examined longitudinal associations between breakfast consumption the quality of foods children eat for breakfast, and exam results. A secondary analysis investigated whether better educational outcomes were achieved in schools receiving the free school breakfast intervention during the trial period. Children from 111 primary schools, in Years 5 and 6, aged 9-11 years (N = 4,350 at baseline and n = 4,472 at follow-up) completed classroom-based attitude and dietary recall questionnaires. A repeated cross-sectional design was used, sampling children from Year 5 and 6 at baseline and follow-up. A nested cohort of children (n = 1216), who were in Year 5 at baseline (16–18 months prior to collection of educational outcomes data) but Year 6 at follow-up (4–6 months prior to collection of educational outcomes data), provided data at both baseline and follow-up. Dietary data were collected using a modified version of the Day in the Life Questionnaire (Edmunds & Ziebland, 2002). The questionnaire covered a period slightly in excess of 24 hours, with children reporting all foods consumed at chronologically ordered time points throughout the previous day and for breakfast on the day of reporting. Outcome variables included the proportion of children consuming less than two breakfasts; number of healthy items (cereals, bread, fruits and milk products) consumed for breakfast; number of unhealthy items (crisps and sweet snacks) consumed for breakfast; number of fruits and vegetables consumed during the rest of the day; and the number of unhealthy items consumed during the rest of the day. To measure educational outcomes, data on Statutory Assessment Tests (SATs), which are mandatory tests undertaken children in England and Wales, were obtained from educational databases. Following the trial, SATs results were linked with children's reports of breakfast consumption. Results showed that breakfast consumption, number of healthy breakfast items consumed, number of sweets and crisps consumed across the rest of the day, and number of fruit and vegetables consumed across the rest of the day, were all significantly and positively associated with educational performance, at both baseline and follow-up, and after adjusting for gender and free school meals entitlement. No associations were observed between the number of unhealthy breakfast items consumed and educational performance. Evidence that

educational outcomes were mediated by socioeconomic differences was ruled out, as associations of school and individual measures of socioeconomic status did not change following the inclusion of dietary variables. In addition, amongst the cohort of children who provided data at baseline and follow-up, all dietary measures were associated with educational performance, with the exception of consumption of unhealthy breakfast items, as with the whole group. However, results from the analysis investigating between group differences amongst children in the school breakfast intervention group and the non- school breakfast control groups, showed no significant differences in educational performance, and hence no evidence was provided of an intervention effect on educational outcomes. Whilst this study provided evidence of an association between dietary behaviours and actual measures of educational attainment, and some support for the notion that improving breakfast consumption may improve academic performance, it does not provide evidence that improving breakfast consumption would reduce inequality in educational outcomes. In addition, the study did not ascertain the causal mechanisms by which breakfast consumption and educational outcomes were linked, and thus how breakfast consumption improves academic outcomes.

1.5.1.8. Breakfast and Behaviour in School

It has also been suggested that breakfast may positively affect learning in terms of its impact on children's behaviour in school. It is supposed that cognitive, behavioural and educational outcomes are intrinsically linked, and therefore changes in cognitive performance, such as attention, may be observed alongside increases in on-task behaviour in the classroom, which concurrently may also impact positively on both short and longer term educational outcomes (Adolphus et al., 2016; Adolphus et al., 2013). However, limited research exists on the associations between breakfast consumption and non-consumption on children's behaviour in school, and results are mixed. Studies have examined the impacts of school breakfast consumption/ attendance on classroom behaviour. It is considered that the provision of school breakfast, in particular universal free school breakfast, may impact on behaviour in school, as it is supposed that children who are adequately nourished will be more cooperative, attentive, able to complete tasks, and be able to exhibit more control over their behavioural impulses (Bernstein, McLaughlin, Crepinsek, & Daft, 2004). Studies have reported an increase in positive behaviours during school

breakfast (Graham, Russo, & Defeyter, 2015), and increases in on-task behaviour (Bro, Shank, McLaughlin, & Williams, 1996; Richter, Rose, & Griesel, 1997) and reduced hyperactivity (Richter et al., 1997) following school breakfast. However studies have also reported increases in abnormal and borderline behaviours (Shemilt et al., 2004), and higher occurrences of student disciplinary incidents (Bernstein et al., 2004) following school breakfast. Nevertheless, evident negative impacts of school breakfast on behaviour have been attributed to confounding factors, including poor infrastructure and inadequate supervision within schools (Chang et al., 1996; Shemilt et al., 2004). Furthermore, only a limited number of studies have investigated the associations between breakfast composition and behaviour in school, and have reported increases in on-task behaviours following consumption of low GI breakfasts e.g. (Benton et al., 2007). The lack of studies and inconsistent findings have been attributed to the complexity of the methods available for measuring classroom behaviour and confounders, such as factors in the school environment, i.e. school buildings, facilities and quality of teaching, and factors such as socioeconomic status and undernourishment (Adolphus et al., 2013). Moreover, the measures used in studies examining classroom behaviour are often subjective, and there is a lack of standardised and validated measures and coding systems. It is also considered that teachers' assessments of children's behaviours may be biased based children's appearance, socioeconomic status, and school grades (Chang et al., 1996).

1.5.1.8.1. School Breakfast and Behaviour in School

Studies examining the associations between school breakfast and students' behaviour have reported mixed results. For example, a study examining the short-term effects of providing breakfast at school on classroom behaviour amongst undernourished and adequately nourished children (8-11 years), attending four schools in rural Jamaica, reported varied results across schools (Chang et al., 1996). The study employed an experimental, cross over design with each child acting as their own control, and children were randomly assigned to treatment by class. Treatment conditions included the provision of breakfast (cheese sandwich and chocolate milk drink), and in control conditions children received a quarter of an orange. Undernourished (N = 57) and adequately nourished (N = 56) children participated in the study. The undernourished children were significantly smaller in all anthropometric measures than the adequately nourished children. Each child was

observed on two days having consumed breakfast, and two days when they did not. During observations of children's behaviour, the schedule involved 30 minutes of teaching at 9:00am, followed by 30 minutes of set task, then the schedule was repeated. Each morning, two participants were observed at the same time, using a time-sampling method, Children's behaviours were coded as on-task (attention to task), talks (talking to another child), gross motor (gross motor movements), and participate/ response (participation in the class). The study reported no significant main effects of nutritional group (undernourished and adequately nourished) or treatment on any of the classroom behaviours, and no significant interactions between nutritional group and treatment. However, there were significant school effects and school-treatment interactions, indicating that the treatment affected children differently in different schools. During the teaching situation, children's on-task behaviour in one of the schools increased significantly following the consumption of breakfast, but there were no such observations in on-task behaviour in the other schools. Comparatively, in the same school, during breakfast conditions children displayed less gross motor movements, but again this was not observed in other schools. Furthermore, in two other schools behaviours actually deteriorated following breakfast, with children observed paying less attention during the set-task, and in one school talking more to their class peers in the teaching situation. Nevertheless, close inspection of the schools revealed that the structure of the school where children demonstrated improvements following breakfast was more superior to that of the other three schools. This school was recently built and children had their own desks and chairs, in well-spaced rows, in well-lit and airy classrooms. In two of the other schools, there were multiple classes being taught in one room. Rooms were separated mostly by blackboards and seating designed for two children were often used by three or four children. In addition, noise levels were higher in these schools. In the final school, there was a shortage of furniture and limited seating, and rooms were crowded, poorly lit and ventilated. It was thus suggested that the infrastructure of the school modified the effects of breakfast on children's classroom behaviour, and in schools where conditions were poor, the effects of breakfast on classroom behaviour may have been attenuated.

Comparably, a USA based study investigated whether an in-class breakfast programme increased on-task behaviour amongst high school students (N = 18),

(Bro et al., 1996). The study utilised a multiple baseline design across vocational and academic settings. The students in the vocational classroom consisted of 11 males and one female (15-19 years), and the students in the academic classroom consisted of six males (16-19 years). The majority of students were defined as 'at risk', i.e. living alone, living with one parent, living with someone other than parents, teen aged single parent, or at risk of dropping out of school. Breakfast was prepared by the teacher in the vocational classroom; typically consisting of fruit juice, milk, English muffins, blueberry muffins, bagels, cream cheese, eggs and toast. On-task behaviour in the vocational classroom included: going to the supply room and checking equipment, setting up equipment in the welding booth, welding in the booth during class time, tidying up, and returning the equipment to the supply room and checking it in. Whereas in the academic classroom on-task behaviour included: retrieving the study guide, retrieving the book, silently reading the book, answering the study guide questions in writing and completing written tests. Data were collected at baseline, before the introduction of the school breakfast intervention, and at follow-up, after the intervention was implemented. Data for on-task behaviour were collected using a time-sampling pro-forma, with the teacher scanning the class every five minutes and recording the number of students 'on-task'. Results showed an increase in 'on-task' behaviour in both settings once the school breakfast programme was implemented. In the vocational classroom, the overall mean percentage of on-task behaviours averaged 49% at baseline, and increased to an average of 90% at follow-up. Whereas, in the academic classroom the average mean percentage of on-task behaviour at baseline was 62%, increasing to 70% at follow-up. It was suggested that the greater increase in on-task behaviour in the vocational setting might have reflected the freedom of movement and lesser restraint within that setting. Moreover, self-reports from teachers claimed that in the vocational setting school breakfast increased students' alertness, and in the academic setting students spent more time reading. It was also supposed that school breakfast increased social interactions between the students and teachers from both classrooms, as students previously only interacted with students and teachers from their own class. Therefore, it was considered that the breakfast programme may have improved students' behaviour due to other mechanisms than nutrition, and time before formal learning commenced provided a period where students could settle into the school

environment. In addition, it was noted that students' behaviour may have changed as a consequence of the 'novelty' factor of the in-class breakfast. The longer-term effects of the programme could not be assessed, as due to funding issues the school was unable to continue with the breakfast programme after the study period. The findings of this study are limited by the small sample size, consisting of predominantly male adolescents and young adults defined as 'at-risk'. However, quantitative observational methods are difficult and time consuming to administer.

A further study examined the cognitive and behavioural effects of a school breakfast programme amongst socially deprived and poorly nourished children attending a farm school in a rural area outside of Johannesburg (Richter et al., 1997). The experimental group, which included undernourished and malnourished children (N = 55; 7-14 years), were examined in respect of a number of psychological measures prior to the introduction of a school breakfast. The school breakfast was supplied to all children at the school, and consisted of Kellogg's cornflakes, skimmed milk and bananas. The children were re-assessed, in respect of the same measures, approximately 6 months into the school breakfast intervention. A pre and post-test design was employed with each child acting as their own control. A second group of children (N = 55; 7-10 years), from an inner city school, were examined using the same measures as the experimental group but did not receive a school breakfast. This comparison group was examined during the same period, in order to provide data on performance increments due normal development and learning, and familiarity with the measures, from pre to post test. The nutritional status of children in both schools was assessed utilising 24-hour dietary recall and diet history questionnaires. Information from dietary histories indicated that few children in the experimental school received a nutritious meal at home. Data on children's behaviour were gathered using the Attention Deficit Disorder - Hyperactivity (ADD-H) Comprehensive Teacher's Rating Scale (ACTeRS); a teacher rating scale that allows for systematic observation of children's behaviour in four areas including: attention, hyperactivity, social skills and oppositional behaviour. Teachers were required to rate children by comparing a child's behaviour with that of their class peers. Moreover, children's behaviour was also recorded using a video camera installed discretely in each classroom. The video camera was programmed to scan the room every ten seconds, with each child was visible for a period lasting 2 – 4

seconds. Behaviour was described with six overlapping categories including: on- and off-task, passive-active, positive or negative peer interaction, class participation, out-of-seat behaviour, and request attention. In the comparison of pre and post test results from the experimental group, teacher rating scales showed that hyperactivity was perceived to have declined in the from pre to post school breakfast intervention, but no differences were found in terms of attention, social skills and oppositional behaviour. Moreover, observations showed a decline in off-task and out-of-seat behaviour, and an increase in positive peer interaction and class participation, in the experimental group from pre to post school breakfast intervention. However, with regards to the experimental and control groups, it was noted that the two groups were not in fact comparable, socially or cognitively, as the experimental group was significantly disadvantaged in respect of social and nutritional measures. Further limitations included the use of teacher rating scales, which are designed for use as diagnostic assessment tools for childhood behaviour problems, namely attention deficit disorder. There is evidence that these measures may be subject to teacher bias, relating to perceptions concerning ethnicity, culture and stereotypes (Mason, Gunersel, & Ney, 2014).

In contrast, other studies have reported an increase in negative behaviours corresponding with school breakfast provision. For example, an observational analysis undertaken alongside a cluster randomised control trial examining health, educational and social impacts of breakfast club provision in primary and secondary schools within deprived areas in England, UK, reported that a higher percentage of breakfast club attendees displayed borderline or abnormal conduct (Shemilt et al., 2004). Whilst the study aimed to employ a randomised control trial design and intention to treat analysis, contamination between treatment arms meant that a longitudinal analysis of behavioural outcomes and school breakfast attendance was employed instead. Data on behavioural outcomes were gathered via a validated measure the Strengths and Difficulties Questionnaire (Goodman, 1997), which measures behaviours, emotions and relationships in young people. Secondary-school-aged students completed a self-report version and teachers completed the measure in the case of primary school aged children. Concentration was measured using the Trail Making Test (Reitan, 1958), and two versions of the test were used for primary and secondary aged children. Data were collected at baseline, with a

three and 12-month follow-ups. However, results at 1-year follow-up indicated a higher proportion of primary aged children who attended school breakfast had borderline and/ or abnormal conduct, and higher total difficulties scores on the Strengths and Difficulties Questionnaire, compared to pupils who had never attended. Moreover, a higher proportion of primary-aged pupils who had attended a breakfast club had borderline or abnormal hyperactivity scores on the Strengths and Difficulties Questionnaire. Concerning secondary-aged students, results showed that a higher proportion who had attended a breakfast club had borderline or abnormal prosocial scores on the Strengths and Difficulties Questionnaire, compared to pupils who had never attended. In addition, teachers at several schools indicated that children who attended school breakfast club had become less well behaved or more energetic, and thus more difficult to control in the classroom. Although, qualitative data gathered from teachers and school breakfast staff, and researchers' observations, suggested that inadequate supervision and a lack of teaching staff, who were perceived with more authority, had deleterious effects of children's behaviours. Staff within school breakfast clubs had variable degrees of supervisory training and experience. Moreover, school breakfast club observations revealed that the atmosphere in some breakfast clubs was not always calm, and children's behaviour was often boisterous and/ or disruptive, such as running, shouting and rough play. It has been suggested that factors associated with the delivery of school breakfast may have a greater impact on children's behaviour, than nutritional effects, epitomising the complexities in isolating the independent effects of breakfast (Adolphus et al., 2013).

Comparatively, a large scale USA based study, evaluating the effects of universal free school breakfast on classroom behaviour, amongst other outcomes, reported a higher prevalence of disciplinary incidents following the introduction of a universal free school breakfast intervention (Bernstein et al., 2004). Seventy-nine elementary schools were randomly assigned to receive universal free school breakfast (treatment) and 74 were assigned to continue with a regular school breakfast programme (control). Record logs for the number of disciplinary incidents requiring a visit to the principle were collected over a 20-week period during the first year of the intervention. Findings from the first year showed that the average number of daily visits to the principle was significantly higher in treatment schools than in

control schools. Further analysis of the data showed that there were a higher number of disciplinary incidents occurring in the morning in treatment schools. It was suggested that these results indicated that, as opposed to contributing to improved behaviour, universal free school breakfast might have had the reverse effect. Moreover, analysis of disciplinary records gathered in second and third years following the pilot, again showed higher than average rates of disciplinary incidents, although these were more frequently in the afternoon period in the second year, with no effect by time of day in the first year. In order to investigate these issues further, interviews were undertaken with school principals regarding the incidents and the circumstances surrounding them. Findings from these interviews showed that the most common reasons for disciplinary actions were disrespect towards staff, fighting and aggressive behaviour. It was also reported that these incidents most commonly occurred when children were less closely supervised, predominantly during recess, in school playgrounds, and on school transport. Based on the findings from interviews with principals, and the inconsistency in times of disciplinary incidents, the authors maintained that there was a lack of evidence linking these incidents with the universal free school breakfast intervention.

1.5.1.8.2. Breakfast Composition and Behaviour in School

Other studies have focused on the associations between breakfast composition and quality, and students' behaviour in school, with reported increases in on-task behaviour following low GL breakfasts, and higher prevalence of off-task behaviour following consumption of small breakfasts. For example, an observational study examined the impact of breakfasts with different GLs on the behaviour of primary school children (N = 19; age 5-7 years), within a deprived area in Wales, UK (Benton et al., 2007). The study was conducted over a four-week period, within a school breakfast club, and children were recruited from a single class. Children attended school breakfast between 8:15am and 8:45am every morning and ate one of three consigned meals. Each meal provided a similar level of energy, but differed in GL. High GL breakfasts (39), consisted of cornflakes, semi-skimmed milk, sugar, waffles, and maple syrup; medium GL breakfasts (14.8), consisted of scrambled eggs, bread, jam, low fat spread, and low calorie syrup; and low GL breakfasts (5.9), consisted of ham, cheese, high fibre bread, and low fat spread. On any one day, all children consumed the same breakfast meal, with the type of breakfast on offer

randomly changed from day to day. The primary measure of classroom behaviour was derived from a video recording of the class, using two hidden cameras. Observations took place between 10:30 and 11:00, whilst children were undertaking individual writing or arithmetic (school-work) tasks. The behaviour of children was rated individually, at ten second intervals, and categorised as: on-task, head down working; looking around the room; talking to another child; fidgeting; negatively interacting with another child either verbally or physically; or out of seat. Furthermore, reaction to frustration was assessed via children's behaviour when task difficulty was adjusted whilst playing a video game. Response to this were categorised as, 'quietly concentrating, paying attention, performs task, positive verbal comments consistent with trying to succeed'; 'fidgeting, restless and shuffling'; 'physical signs of frustration; 'negative verbal comments or auditory responses, such as sighing'. Results showed meal and time interactions when on-task behaviour was analysed, with significantly more time spent on-task following consumption of low GL breakfasts, when compared to medium and high GL breakfast meals. However, when time spent looking around the room was examined, breakfast meal had no significant effect, and similarly, time spent talking, fidgeting and out of seat behaviours were also not influenced by breakfast meal. The incidence of negative interactions between children was so low after all breakfast meals that statistical analysis was inappropriate. Concerning reaction to frustration, results showed that the type of breakfast meal did not influence negative reactions, but a further analysis showed that GL negatively predicted performance, and behaviour was better after a low GL breakfast. The authors suggest that these findings may provide support of an association between slower rates of glucose release and better cognitive/ educational performance. However, as research shows that there are marked differences in the ways that children of different ages metabolise glucose (Chugani, 1998), caution should be taken in generalising the findings to different aged children

A further study, examined the effect of breakfast size and the provision of a mid-morning snack, on the ability of children to attend to their school work (Benton & Jarvis, 2007). Children (N = 20; mean age 9 years and 4 months) were recruited from a single school class. On arrival to school, children reported what they had consumed for breakfast at home. Estimates were made on the nutritional composition

of breakfasts, and energy intake at breakfast was distinguished as smallest (< 150 Kcal), middle (between 151 and 230 Kcal) and greatest (>230 Kcal). Children were randomly divided into two groups of ten. At 10:45am, half the children consumed a muesli snack bar and half did not. Testing took place over four days with the first group consuming the snack on days one and four, and the other half consuming the snack on days two and three. From 11:15am to 12:15pm, children were observed carrying out numeracy school-work whilst seated at a table. Classroom behaviour was observed at five-second intervals, with each child observed and rated every two minutes. Behaviour was classified as: on-task, distracted, disruptive behaviour, interacting with teacher, and out of chair. The data were collapsed in order to obtain time spent on task by integrating 'on-task' and 'interacting with teacher'. Results showed that there was no difference between the time spent on tasks whether mid-morning snacks were consumed or not. However when the size of breakfast was considered, the time spent on task by those who had eaten the smallest breakfast was significantly greater when a snack was consumed. On days when no snack was consumed, children who had consumed small breakfasts spent significantly less time on-task and were more likely to be distracted, than those who had consumed larger breakfast meals. By contrast, children who ate medium sized (151 - 230 Kcal) or larger sized (> 230 Kcal) breakfasts were not influenced by the provision of a snack. Whilst, the authors note that caution should be taken in drawing conclusions from a single study with a small sample size, it is suggested that the provision of glucose in the form of a mid-morning snack may modulate neural function and thus influence classroom behaviour in children who have consumed an inadequate breakfast.

1.5.1.9. Psychosocial and Behavioural Cognitions, and Breakfast

Research indicates that food preferences are formulated as a consequence of an individual's interactions with various environmental factors, including: childhood experiences with food and eating, exposure to food and eating experiences, positive and/ or negative conditioning concerning food and eating behaviours, and genetics, i.e. sensitivity to bitter tastes (Story, Neumark-Szainer, & French, 2002). Moreover, food is interconnected with identity and self-concept; relationships with family and friends; and security, independence and authority. Therefore, changing eating behaviours is much more than changing the food itself, it is also about changing norms. According to social cognitive theories of behaviour, it is considered that

health behaviours may be predicted by behavioural intentions, which are in turn predicted in various extents by attitudes, subjective norms and perceived behavioural control (Tapper et al., 2008). Regarding breakfast, it is thus considered that attitudes towards breakfast are likely to contribute to breakfast intentions, and subsequently both attitudes and intentions may predict long-term breakfast behaviour. Research has reported more positive attitudes towards breakfast amongst children who frequently consume breakfast, in addition to more healthy breakfast food choices (Berg, Jonsson, & Conner, 2000; Martens, Van Assema, & Brug, 2016; Moore et al., 2007; Tapper et al., 2008). Likewise more negative attitudes towards breakfast have been associated with skipping breakfast (Tapper et al., 2008).

For example, a study validating a measure of attitudes towards breakfast reported that children who did not skip breakfast demonstrated more positive attitudes towards breakfast, than those who skipped breakfast, and consumed greater numbers of healthy breakfast items and fewer unhealthy items (Tapper et al., 2008). Data were collected from children (N = 2495; 9-11 years) attending primary schools in Wales, UK, using a 14-item breakfast attitudes questionnaire, a dietary recall questionnaire 'Day in the Life' (Edmunds & Ziebland, 2002; Moore et al., 2007), dietary interviews with a sub-sample of children, and parental questionnaires assessing children's breakfast consumption habits. Dietary data included details of breakfast on the day of reporting, followed by the previous day's dietary intake. Breakfast dietary data were dichotomised into two categories, including 'healthy' (fruit, vegetables, pulses, bread, sugar-free cereal, milk, milk drinks, yogurts, fruit juice), and 'unhealthy' (sweet items, crisps) breakfast items. Results showed that skipping breakfast was associated with negative attitudes towards breakfast. Moreover, the study also reported associations between breakfast attitudes and consumption of healthy and unhealthy food items, with significant positive correlations with the number of healthy breakfast items consumed, and a significant negative correlation with the number of unhealthy breakfast items consumed. Results from the parental questionnaires showed that those children whose parents stated their child consumed seven breakfasts per week had more positive attitudes than children whose parents stated they consumed less than seven breakfasts a week. Comparably, children whose parents stated their child did not usually skip breakfast during the week showed more positive attitudes than children whose parents stated

they skipped breakfast at least once per week. Concerning breakfast food items consumed, results showed positive correlations between children's attitudes towards breakfast and the frequency of parents' reports that children usually consumed a healthy breakfast.

Similarly, a study investigating predictors of the consumption of fruit, high-fat snacks and breakfast, amongst adolescents (N = 601; 12-14 years) living in the Netherlands, also found that more positive attitudes towards breakfast were associated with more frequent breakfast consumption (Martens et al., 2005). The study employed a cross-sectional survey design, and was conceptually underpinned by an ASE (attitude – social influence – efficacy) model of the determinants of dietary behaviour. Within this model, behaviour is considered to be a direct consequence of behavioural intention, of which attitude, social influence and self-efficacy are prerequisites. Data on socio-psychological determinants, including intention to change dietary behaviour (i.e. breakfast) in the next six months; attitudes on the consequences of the dietary behaviour (i.e. eating breakfast); subjective norms towards the dietary behaviour (i.e. perceived breakfast norms amongst family members); and self-efficacy showing how easy it was to undertake the dietary behaviour (i.e. consume breakfast), were gathered. Results showed that attitude and subjective norm were significantly correlated with intention to consume breakfast more frequently. Likewise, those who held stronger intentions to consume breakfast more frequently held more positive attitudes towards eating breakfast and possessed stronger subjective norms, than those who held less intention. It was therefore suggested that targeting these psycho/ social cognitions as part of interventions to promote healthy diets may increase positive attitudes and associations towards healthy dietary habits and this improve interventions to change dietary behaviours.

Furthermore, a study examining the influences of attitudes, social norms, perceived control and underlying beliefs on breakfast choices, amongst Swedish children and adolescents (N = 1730; 11-15 years), also reported a number of correlations between the aforementioned psychosocial cognitions and breakfast choices (Berg et al., 2000). The study was underpinned by the Theory of Planned Behaviour (TPB) (Ajzen, 1991); a theoretical model that is considered to be useful in examining the extent to which behavioural intentions, attitudes, subjective norms and self-efficacy influence food behaviour. According to the TPB, behavioural

intention is a consequence of attitudes towards the behaviour, and the perceived pressure (subjective norms) to perform the behaviour. The TPB proposes that behaviour is primarily predicted from behavioural intention, and then perceived behavioural control (self-efficacy). Data in this study were collected via a questionnaire based on the TPB and a 7-day record of foods consumed for breakfast. Results showed that the consumption of milk and high-fibre bread for breakfast were predicted from behavioural intentions, and in the case of milk, consumption was also predicted by perceived behavioural control. In addition, attitudes towards the consumption of milk and high fibre bread for breakfast were influenced by health beliefs about milk and bread, with females and older children having a better knowledge on healthier alternatives. Moreover, it was also reported that behavioural intentions, towards breakfast food choice, were influenced by attitudes towards the breakfast foods, subjective norms (perceptions of significant others' breakfast food preferences) and perceived behavioural control of breakfast food choice. Perceived behaviours of parents (subjective norms) were strongly associated with intentions to choose milk and high-fibre bread, more so than parental approval of consumption, suggesting that modelling may perhaps supersede control over accessibility (self-efficacy).

In addition, findings from a study investigating whether children's attitudes towards breakfast mediated the relationships between deprivation and breakfast consumption behaviours, amongst school children (N = 4211; 9-11years) in Wales, UK (Moore et al., 2007), indicated that improving children's attitudes may contribute to the improvement of nutritional intake. The study utilised a cross-sectional survey design, gathering data from 111 primary schools. Children's attitudes towards breakfast and dietary data were collected using the aforementioned validated questionnaires: Breakfast Attitudes (Tapper et al., 2008) and Day in the Life Questionnaires (Tapper et al., 2008). Breakfast items were dichotomised into six food categories, which were collapsed into two variables; 'healthy' and 'unhealthy'. Deprivation was assessed using the percentage of children within each school eligible for free schools meals. Results showed that deprivation was positively associated with breakfast skipping and consumption of unhealthy breakfast food items, including sweet items and crisps. Likewise, a significant negative association between deprivation and consumption of healthy breakfast items was also observed,

indicating that as deprivation increased, consumption of healthy breakfast items decreased. Concerning attitudes towards breakfast, positive associations were reported with consumption of healthy items including cereals and fruits, and negative associations were reported with breakfast skipping, and consumption of unhealthy items including sweet items and crisps. Further analysis showed that deprivation was significantly positively associated with attitudes towards breakfast; as when deprivation increased, attitudes towards breakfast consumption became increasingly negative. Correspondingly, a significant positive association was reported between attitudes towards breakfast consumption and consumption of healthy breakfast items. It was supposed that these findings indicated that relationships between deprivation, breakfast skipping and consumption of unhealthy items may be mediated by children's attitudes towards breakfast. Therefore, it was suggested that interventions to improve children's attitudes towards breakfast consumption may impact on nutritional inequalities. However, the authors noted that these findings should not undermine the influence of wider social and environmental factors of nutritional inequality and eating behaviours, such as socioeconomic determinants and food availability.

1.5.2. Interpersonal Factors Associated with Breakfast

Socioecological theory defines interpersonal factors as the social-environmental factors that influence behaviour, including family, peers and social networks (Story et al., 2002). Breakfast eating behaviours and food choices amongst children are considered to be strongly influenced by their social environments, interpersonal processes and relationships with their families and peers (Story et al., 2002). It is suggested that interpersonal influences may affect eating behaviours via mechanisms including modelling, reinforcement, social support and perceived norms (Story et al., 2002). Social Learning Theory (SLT) provides a conceptual framework for understanding the role of social interactions in determining behaviour (Bandura, 1977). Central aspects of SLT are behavioural modelling and learning through the examples of significant others. Consistent with this theory, research has demonstrated that children's perceptions of parental dietary behaviours, such as breakfast eating, are considered to have significant influences on the cognitions and dietary behaviours of children (Moore et al., 2007). Research concerned with the social correlates of breakfast behaviour amongst children and adolescents, has

focused on relationships with family members, i.e. parents/ carers, and peer relationships. Research has shown that children's and adolescents' dietary behaviours, especially younger children, are influenced by parental beliefs and behaviours (Pearson, Biddle, & Gorely, 2009). However, additional research has shown that as children get older parental influence declines and children become more influenced by peer relationships (Pearson et al., 2009). It is therefore proposed that detrimental breakfast behaviours, such as breakfast skipping and consumption of unhealthy foods, may not be entirely alleviated through interventions that are aimed solely at an individual level, and interventions should consider the family, parent/ carer, and peer relationships, as well as the individual child (Keski-Rahkonen, Kaprio, Rissanen, Virkkunen, & Rose, 2003).

1.5.2.1. Familial Influences on Breakfast Behaviours

It is considered that the family is a major influence on children's and adolescents' eating behaviours, predominantly due to being the main provider of food, in addition to familial influences on attitudes towards food, food preferences, beliefs and values that affect eating habits throughout the lifespan (Story et al., 2002). It is supposed that health behaviours are socially established in the family, with the beliefs, attitudes and behaviours of parents/ carers being an important influence on the health behaviours of children (Pearson, Biddle, & Gorely, 2009). Research indicates that modelling, reinforcing and instructing of eating habits by parents/ carers are central in influencing the dietary behaviours of children and adolescents, and parental eating behaviours have been shown to be positively associated with unhealthy and healthy dietary behaviours amongst young people (Franko, Thompson, Bauserman, Affenito, & Striegel-Moore, 2008; O'Neil et al., 2014; Pearson et al., 2009). It has therefore been suggested that supporting parents and carers to be positive role models in their own dietary behaviours may be beneficial in promoting healthy eating behaviours amongst children (Pearson et al., 2009). A systematic review, investigating family correlates of breakfast consumption among children and adolescents, suggested that parental breakfast eating is an important correlate of breakfast consumption amongst children and adolescents (Pearson et al., 2009).

Research has suggested significant associations between parent/ carer breakfast consumption behaviours, and the behaviours of their children. For

example, a large-scale study, investigating the socioeconomic and behavioural factors associated with breakfast skipping, amongst Finnish adolescent twins (N = 5448) and their parents (N = 4660), indicated that parent breakfast eating was a significant correlate of adolescent breakfast eating (Keski-Rahkonen, Kaprio, Rissanen, Virkkunen, & Rose, 2003). Survey data were collected from adolescents and parents on breakfast eating habits, including breakfast frequency, health-compromising behaviours and socioeconomic status. Breakfast consumption frequency was dichotomised as ‘once a week or less’, ‘a few times a week’, and ‘every morning’. Results showed that parental breakfast eating was the most significant factor associated with breakfast eating. Children of breakfast skipping parents were far more likely to skip breakfast, compared to children of parents who consumed breakfast habitually. The authors suggest that these findings indicate that breakfast skipping may not be solved by interventions which focus solely on the individual child/ adolescent, and thus breakfast endorsing initiatives that address the family and/ or parents may be more effective.

In addition to the inferred relationships between children’s/ adolescents’ breakfast behaviours and parental breakfast behaviours, it has also been suggested that associations exist between parental attitudes and beliefs towards breakfast, and children’s/ adolescents’ breakfast behaviours. For instance, a cross sectional study examining impact of children’s and adolescents perceptions of parental attitudes on breakfast skipping, amongst primary aged children (N = 426; 10-14 years) from Hong Kong, reported that breakfast skipping was associated with a lack of perceived parental emphasis on breakfast (Cheng, Tse, Yu, & Griffiths, 2008). Self-report data, obtained via questionnaires completed by children, included reasons for omitting breakfast, factors that would enable the child to consume breakfast regularly, breakfast beliefs, and perceived parental attitudes towards breakfast. Results showed a significant association between lack of perceived parental emphasis on breakfast and breakfast skipping amongst children and adolescents, with those who did not perceive there to be a parental emphasis on breakfast being more likely to omit breakfast.

1.5.2.2. Peer Influences on Breakfast Behaviours

Conversely, other studies have contested that as children get older they are likely to spend less time in the home and thus be less influenced by parents’/ carers’

beliefs, attitudes and behaviours, and more so by their peers and factors within the school environment (Pearson et al., 2009). It is suggested that as children become older their autonomy and independence increases and they become increasingly less influenced by parents/ carers in their food choices, perhaps eating outside of the home more frequently (Hallström et al., 2011; Story et al., 2002). The influence of peers and conformism to peer group norms is considered to increase as children get older, and it is understood that peers become a significant influence on adolescent behaviour (Story et al., 2002). Typically, older children and adolescents spend a considerable amount of time with their peers, whilst at school and often outside of school, compared to younger children. Moreover, as eating is deemed as a form of socialisation and recreation, it is evident that peer approval and group conformity may be influential in food choice and eating behaviour amongst children and adolescents. With regards to breakfast consumption behaviours, research has shown that peer influence is an important factor in adolescent breakfast consumption (Hallström et al., 2011).

For example, a large scale study examining breakfast habits and factors influencing food choices at breakfast, in relation to socio-demographic and family factors, amongst European adolescents (N = 3528), reported that girls whose peers ate healthily were more likely to be regular breakfast consumers (Hallström et al., 2011). Data were collected using self-report measures, and potential factors influencing breakfast were presented on a scale ranging from no influence to very strong influence. These factors included: personal, i.e. hunger, taste, health, daily routine, ease of preparation, medical reason and price; and socio-environmental, i.e. parents or guardian, availability, friends and school environment. Breakfast consumption was assessed based on agreement with the statement: "I often skip breakfast" with seven answer categories ranging from strongly disagree to strongly agree. Results showed that breakfast consumption amongst girls was associated with the socio-economic factor 'peers' behaviour'. However, it was also reported that parental dietary behaviours and parental encouragement to eat a healthy breakfast were positively associated with breakfast consumption amongst adolescents, especially boys. Nevertheless, it was claimed that younger adolescents were more influenced by their parents in their breakfast food choices, compared to older adolescents, reflecting the suggestion that adolescents autonomy increases with age

(Story et al., 2002). It was suggested that the findings from this study advocate that interventions aiming to influence older children and adolescent behaviour may be more effective when they work towards creating family and peer environments and norms that endorse health conscious behaviour. However, whilst this study provides findings from a large sample of adolescents across Europe, sampling was undertaken in urban areas only and therefore the findings are not fully representative of all adolescents living in Europe. In addition, results were based on self-report data and are thus subject to bias. Likewise, breakfast skipping in this study was based on adolescents' perceptions of how often they skipped breakfast, and not on actual frequencies.

Correspondingly, findings from a large-scale USA based study, examining associations between adolescents' and their friends' healthy eating behaviours, also indicated associations between the breakfast behaviours of adolescents, and the behaviours of their friendship groups and best friends (Bruening et al., 2012). Data for the study were gathered from EAT-2010 (Eating and Activity among Teens), a population-based study examining multi-level factors of eating, physical activity, and weight-related outcomes. A large sample of adolescents (N = 2043) from low socioeconomic backgrounds and ethnically diverse groups who were at risk from low consumption of healthy food, from within 20 schools, completed in-class surveys, and data were matched between reported friends. Results reported significant positive associations for breakfast eating between adolescents and their friendship groups and best friends. On average, for every additional day that an adolescent's friends ate breakfast, that adolescent's breakfast consumption intake was higher by 0.26 days per week. Considering the prevalence of breakfast skipping amongst children and adolescents, the authors suggest that these findings provide support for school breakfast provision to promote social norms and provide social opportunities that have positive effects on nutritional intake. It is proposed that school breakfast interventions provide opportunities for social support, which have been found to be effective in promoting behaviour change, and also opportunities for school children to interact and support each other in healthy eating (Bruening et al., 2012). However, similar to other comparable studies, the findings from this study were based on self-report. Moreover, it was not assessed whether friends were consuming breakfast together at school or elsewhere, and the quality of breakfasts

consumed by the adolescents were unknown. It was also noted that the findings did not provide any indication as to whether adolescents had friends with similar eating habits, or if their breakfast habits were influenced by their friends.

Furthermore, research into the social benefits of school breakfast has also indicated positive social impacts for school children. Findings from a UK based study, investigating whether attendance at breakfast clubs had an impact on children's friendship quality and experiences of peer victimisation, suggested that attendance at school breakfast club fostered the quality of children's friendships over time (Defeyter, Graham, & Russo, 2015). Data were collected from children (N = 268; 5-10 years) from eight schools, utilising validated Friendship Qualities Scale and the Multidimensional Peer Victimization Scale, at two time points; time 1 being two months after the introduction of school breakfast clubs, and time 2 being 6 months later. Participating children were divided into groups including breakfast-club-attendees (n = 94), non-club-attendees (n = 88) and after-school-club-attendees (n = 86). Results reported that at time 2 school breakfast club attendees showed improved levels of friendship quality, and experienced a decline in peer victimisation over time. Children attending school breakfast clubs reported increased levels of companionship, closeness, help, and security, and reduced levels of conflict, compared to the after-school group and the no-club group. It was suggested that the findings indicated school breakfast clubs may prevent deteriorations in friendship quality and may lead to improvements in children's dyadic relationships. School breakfast clubs were advocated for providing children with opportunities for unstructured social interactions with small groups of peers, whilst consuming breakfast. However, the authors noted that whilst care was taken to facilitate young children's understanding, due to developmental limitations in verbal and cognitive comprehension, there remained a possibility that not all children fully understood the questions.

In addition, qualitative studies, into school breakfast clubs and schemes, have also reported positive social impacts on school children. For example, a UK based study, examining the perceptions of a universal free school breakfast programme, amongst parents (n = 17), children (n = 38) and school staff (n = 14), revealed that the scheme had positive influences on children's social relationships (Graham, Russo, Blackledge, & Defeyter, 2014). Findings from semi-structured interviews

showed that school breakfast clubs were perceived amongst participants as valuable in encouraging social interactions between children, in providing the opportunity to eat breakfast with peers, and fostering a more positive start to the school day. Additionally, findings from a further qualitative evaluation of school holiday breakfast clubs indicated that breakfast clubs had positive social impacts on children. Interviews with children (n = 17) and adult (n = 18) attendees, and staff (n = 15), suggested that school holiday breakfast clubs fostered a regular routine for children during school holidays, counteracted risk of isolation and sedentary behaviour, maintained current friendships and facilitated new friendships (Defeyter, Graham, & Prince, 2015). However, both of these studies utilised relatively small sample sizes, and data were not gathered pre and post intervention due to the nature of the research.

1.5.3. Macro-level Influencers on Breakfast: Breakfast Environments, School Food Policy and Socioeconomic Factors

Social ecological theory suggests that the physical environment and community settings influence accessibility and availability of foods. It is considered that the environments and community settings proximal to children and adolescents, including home and school, are influential in affecting their dietary behaviours (Story et al., 2002). Within the home environment, food consumption and food choices are influenced by availability of food, which in turn are affected by the socioeconomic status of the family, with those on low incomes being more likely to experience food insecurity (Diss & Jarvie, 2016.; Harrop & Palmer, 2002; Child Poverty Action Group, 2012). Moreover, children from families experiencing socioeconomic deprivation are more likely to skip breakfast (Vereecken et al., 2009). Additionally, school aged children spend a considerable amount of time in school and typically consume a large proportion of their daily energy at school predominantly at lunch times, but in some cases schools provide snacks, i.e. milk and fruit, and school breakfast and after school clubs. Therefore, it is evident that the school environment may also have a significant impact on children's food choices and eating behaviours. Furthermore, according to socioecological models, behaviours within these environments are also affected by macro-level influencers, such as local and national policies and legislation that regulate and impact on food availability and food related issues (Story et al., 2002).

1.5.3.1. Home Environment and Socioeconomic Factors

In addition to the proposed correlates between parental breakfast behaviours and beliefs, and the breakfast behaviours of children and adolescents, research has also shown that breakfast consumption may also be influenced by family structure and socioeconomic status (Hallström et al., 2011; Sjöberg et al., 2003; Vereecken et al., 2009). For example, a largescale cross national study, with European adolescents, found that male adolescents who lived with single parent and shared custody families were more likely to skip breakfast, compared to their peers who lived with both parents (Hallström et al., 2011). Moreover, the study reported that adolescent girls whose mothers held lower levels of educational qualifications were more likely to skip breakfast than girls whose mothers held higher educational qualifications. Comparable findings have also been reported in other studies. Such as in a large-scale study by the World Health Organisation (WHO), with children and adolescents (N = 204,534; 11-15 years) from 41 European and USA countries and regions, which reported that children and adolescents living in single parent families and those from lower socioeconomic families were less likely to habitually consume breakfast (Vereecken et al., 2009). Similarly, a further large-scale study, with Danish adolescents (N = 3,458; 14-16 years), reported that adolescents whose mothers were unemployed were less likely to consume breakfast every day, whilst adolescents living with both biological parents were found to be more likely to eat breakfast every day (Johansen, Rasmussen, & Madsen, 2006).

It is understandable that the socioeconomic status of a family will affect dietary behaviours amongst children and adolescents, primarily because income largely dictates the amount of money a family can spent on food, thus influencing food consumption and choice. An established social gradient in health currently exists in the UK, with declines in health outcomes and life expectancy the lower an individual's socioeconomic status (Marmot, 2010). Figures show that in 2014, 13 million people in the UK were living in poverty, with 3.9 million people living in persistent poverty, i.e. experiencing relative low incomes in the current year and at least two out of three preceding years (MacInnes, Aldridge, Bushe, Tinson, & Born, 2014). Reports from the Jonathan Rowntree Foundation have shown that over half of people living in poverty are living in working homes, where at least one adult works (MacInnes, Tinson, Hughes, Born & Aldridge, 2014). Moreover, recent Government

figures show that 3.9 million of those living in poverty in the UK were children (28% of all children), with the number of children living in absolute poverty increasing by 0.5 million since 2010 (Department for Work and Pensions, 2016). Likewise, two thirds (66%) of children growing up in poverty live in a family where at least one member works (Department for Work and Pensions, 2016). Between 2008-2013, average wages fell relative to prices, with pay falling for 70p an hour for men and 40p an hour for women, for the lowest paid 25% (MacInnes et al., 2014). Increases in the costs of food, fuel and rents have affected low income families more, with a greater expenditure of their overall income being spent on these essential items (MacInnes et al., 2014). Furthermore, subsequent austerity measures, and harsher systems of sanctions on benefit claimants, are affecting a far larger number of people in low incomes (MacInnes et al., 2014).

Such circumstances can have a significant impact on the amount of money a family has available to spend on food (Harrop & Palmer, 2002). Reports suggest that, with the population experiencing significant poverty related difficulties and a large proportion living below the accepted standards of living in the UK, food insecurity is an issue faced by a rising number of families (Gordon et al., 2013). In addition, to a lack of food, it has been shown that many low income families struggle to eat healthy, on frugal budgets, with difficulties in accessing low cost fresh foods at supermarkets due to the cost of travel (Diss & Jarvie, 2016). In 2013, it was reported that approximately 4 million children and adults in the UK consumed inadequate diets, and 1 in 4 adults were purposely foregoing meals so other family members could eat (Gordon et al., 2013). In 2012, the Child Poverty Action Group estimated that almost a third of all children were not provided with a cooked meal at home, and for some children school lunch was the only substantial meal they receive each day (Child Poverty Action Group, 2012). Although it is considered that free school meals may alleviate the financial burden for low income families, not all families living in poverty are entitled (Child Poverty Action Group, 2012). More recent reports from the Child Action Poverty Group revealed that it was common amongst children who were not eligible for free school meals to arrive at school with no money because their parents/ carers could not afford to provide it (Diss & Jarvie, 2016). A mixed methods study examining the experiences of food insecure families living in the UK, reported that parents experiencing food insecurity were not able to shield their

children from the effects, with most being unable to afford a nutritionally balanced diet for their children, and almost half reporting that their child had gone to bed hungry (Harvey, 2016). In food insecure and impoverished circumstances it has been suggested that the most commonly omitted meal is breakfast (Potamites, & Gordon, 2010; Rampersaud, 2008).

1.5.3.2. School Breakfast Provision and School Food Policy

Interventions to improve child health behaviours and outcomes are increasingly delivered through schools, and it is within the aforementioned contexts that school breakfast schemes and initiatives operate. School breakfast refers to the provision of a breakfast meal for children, usually delivered in schools or alternatively in community and commercial locations. The aims of school breakfast clubs, programs and initiatives are multiple, and may include: alleviating hunger, and improving health and nutrition; alongside the provision of a healthy meal, opportunities for social interaction, educational and physical activities, and out of school childcare. The concept of school breakfast is considered to have originated from a universal free school breakfast program in Oslo, Norway, during the 1930s (Andresen & Elvbakken, 2007). As opposed to providing large quantities of food at low costs, the scheme was underpinned by nutritional science and aimed to provide children with sufficient quantities of necessary nutrients (Andresen & Elvbakken, 2007). In the USA, a seminal and large scale shift towards school breakfast provision occurred later, during the 1960s, through the introduction of the School Breakfast Programme (SBP) in 1966, which aimed to assist schools in deprived communities by providing federal funding to offer children a breakfast meal to nutritionally needy children (Shaw, 1998; Shemilt et al., 2004). By 1997, approximately 68,000 USA schools were serving breakfast to six million children (Shemilt, Harvey, et al., 2004). Conversely, in the UK, school breakfast provision was a more recent occurrence, in the 1990s, aided by the Government's Department of Health's initiative to support the development of school breakfast provision, and in part an expansion of school based out of hours childcare (Shemilt, Harvey, Robinson, & Camina, 2003). Subsequently, the UK has observed a significant increase in school breakfast programs and clubs (Harper, Wood, & Mitchell, 2008), with recent audits indicating that over 85% of schools now have some type of breakfast provision (Kellogg's, 2015). To date, there is no sole definition of what constitutes school breakfast

provision, as various models exist, and ways in which programmes and clubs may operate depends on the facilities available within the school environment. Where facilities are restricted, basic serving models and limited menus may be available, but schools with the space, facilities and resources may operate larger scale provision serving a wider range of foods that require additional preparation. Moreover, school breakfast may also be served in school halls, canteens, classrooms, and community venues external to the school such as church and community halls. However, regardless of the different types of school breakfast models, schools generally have a duty to adhere to school food standards that have been put in place to ensure that the breakfast served to children is nutritious.

In the UK, in 2013, restaurateurs Henry Dimpleby and John Vincent, were commissioned by the UK Government to design a School Food Plan (Dimpleby & Vincent, 2013). The overarching aim of the school food plan was to implement a series of actions, which would transform what children eat within school, and how children learn about food. The plan highlights that a number of UK children arrive to school without having consumed a breakfast meals, which it is thought to have adverse consequences on academic performance. In an effort to reduce breakfast skipping amongst children most in need, the school food plan recommends that the UK Government should support the establishment of financially self-sufficient breakfast clubs, in order to increase the provision of healthy breakfast to children who arrive to school hungry. In response, the Department of Education pledged an investment of £3.15 million into the set-up and evaluation of breakfast clubs in schools where at least 35% of children are entitled to free school meals. Whilst government legislation varies across the UK, statutory school food standards apply to local authority maintained schools, academies that opened prior to 2010 and academies and free schools opening from June 2014. Those schools founded between these dates, are not required to adhere to school food standards, but are advised to follow standards, and can sign up voluntarily to demonstrate that they are following standards. The aim of these school food standards is to ensure that food provided to children is of high quality and nutritious, thus promoting nutritional health, protecting nutritionally vulnerable and promoting good eating behaviours. As part of the School Food Plan, revised standards of school food were introduced by the Department of Education, on 1st January 2015, and are provided in '*Education*

England, The Requirements for School Food Regulations 2014, No. 1603. The regulations outline the requirements for school lunches, and for food and drink other than lunch provided to children on and off school premises up until 6:00pm, including school breakfast, mid-morning break, and after-school provision. School food legislation relates to Sections 512, 512ZA, 512ZB, 512A and 533 of the Education Act 1996, as amended; and Section 114A of the School Standards and Framework Act 1998.

Funding and sustainability are reported to be significant challenges to school breakfast provision in the UK, with reports of stretched school budgets and pupil premium supporting existing provision (Kellogg's, 2015). Participation in school breakfast programmes and clubs remains relatively low, with accounts of many schools running provision below capacity (Kellogg's, 2015). Moreover, according to recent USA based studies, participation in school breakfast is considerably lower than school lunch (Bailey-Davis et al., 2013; Leos-Urbel, Schwartz, Weinstein, & Corcoran, 2013b). Incidentally, reports of children arriving to school hungry have increased, and breakfast skipping continues to have an increased prevalence amongst children and adolescents (Wang et al., 2016). In respect, it has been suggested, that whilst school breakfast provision may have the potential to reduce barriers to breakfast consumption for children, more knowledge is required in order to acquire a better understanding of what drives participation and attendance, and thereby develop more effective interventions (Hoyland et al., 2012). Correspondingly, universal provision of school breakfast has been suggested as a means of addressing barriers to participation and raising attendance. It is considered increased participation via universal provision may reduce inequalities and cumulate in wider impacts on educational outcomes, such as increased alertness and energy from a potentially healthier breakfast, and improved punctuality and attendance (Leos-Urbel et al., 2013; Moore et al., 2014).

It is evident school breakfast provision originated as a means of reducing health and social inequalities, through the improvement of the nutritional status for children living within areas of high deprivation. Delivery of school breakfast schemes are often concentrated in areas with high levels of deprivation (Moore et al., 2014), and from a policy perspective, a fundamental factor is the prevention of hunger in children at the start of the school day (Dimbleby & Vincent, 2013).

However, targeting the neediest children is suggested to establish a stigmatisation towards children, families and communities, which acts as a barrier to participation (Leos-Urbel et al., 2013; Moore et al., 2014). Moreover, it has been claimed there may be a greater reluctance amongst children from low income families, in utilising provision, when there is an increased risk of being labelled as ‘poor’ (Brown, Beardslee, & Prothrow-Stith, 2008). Relatively, USA based research, into school breakfast participation, has identified social stigma as a barrier to attendance, and subsequently reported a 240% increase in attendance, following the replacement of a means tested model for a universally free model (Lent & Emerson, 2007). Targeting particular groups may be perceived as favourable because resources are directed those who most need them, and it has been implied that universal provision may widen inequality by assisting more affluent groups (Leos-Urbel et al., 2013; Moore et al., 2014). However, it is contested the reduced costs of targeted provision are negated by increased administrative costs and additional burdens on schools associated with means testing (Leos-Urbel et al., 2013). Universal provision is believed to reduce the administrative burden on schools, in addition to reducing the stigma associated with provision for the ‘neediest’ (Leos-Urbel et al., 2013). Moreover, motives for the omission of breakfast may numerous, including poverty and food insecurity, rushed morning routines, fatigue, lack of appetite, and weight control. Therefore, considering the complexity of breakfast skipping behaviours, and the evidence suggesting correlations with detrimental behaviours and outcomes (Currie et al., 2012; Elgar et al., 2005; Huang, Hu, Fan, Liao, & Tsai, 2010; Revicki et al., 1991), targeted breakfast provision for the most ‘needy’ children using measures of socioeconomic status, such as free school meals, may neglect to reach a demographic of children who are skipping breakfast, and perhaps not in receipt of free school meals.

1.6. Conclusion to the Literature Review and Relevance to the Current Thesis

Socioecological models of behaviour underpinned the framework of this literature review, in order to provide the context of complex and multidisciplinary fields of research into breakfast and school breakfast. The purpose of this review was to provide a background this thesis, through the presentation of the individual, social, environmental and macro-level outcomes and factors associated with breakfast and

school breakfast provision, participation and consumption. At an individual level, it is evident that breakfast consumption is associated with beneficial health from nutritional, adiposity and health related behaviour perspectives. Moreover, it is also apparent that breakfast consumption and school breakfast may have positive acute effects on cognitive performance, and positive effects on educational and behavioural outcomes. Interpersonal influencers on breakfast consumption include familial and peer influences. Research shows that there are associations between the breakfast behaviours and social cognitions of children and their parents/ carers. However, as children get older and spend more time outside the home, their breakfast behaviours are also influenced by the behaviours and social cognitions of their peers. Breakfast behaviours are also influenced by environmental and macro-level factors. The home and school environments affect breakfast behaviours through access to food and food choice, which are in turn influenced by socioeconomic factors and local and national policy.

CHAPTER 2: Methodology

2.1. Epistemological and Ontological Assumptions of the Thesis

This thesis employed a mixed methods design, and thus is underpinned by positivist and interpretivist epistemological and ontological assumptions. The purpose of positivist research is to test and prove, or disprove a hypothesis, in order to uncover the truth about the social world. Positivist research traditionally focuses on scientific methods, statistical analysis and findings that can be generalised. The chief principle of positivist theory is that the researcher is the observer of an objective reality, who discovers cause and effect relationships, external from and not influenced by the researcher's values and beliefs (Cohen, Manion, & Morrison, 2007). The ontological assumptions of positivism are associated with theories of realism, with reality considered externally from and independent of human perception, consciousness and cognition, meaning that reality can be therefore captured and predicted (Fay, 1996). Epistemological assumptions associated with positivist theory include the belief that knowledge is objective and generated deductively from a theory or hypothesis, meaning a preference towards scientific approaches and methods (Mack, 2010). In contrast, the interpretivist paradigm has traditionally been proposed as the opposing philosophy to positivism, and was considered to have derived as a reaction and response to positivist theory. Interpretivist philosophy is strongly influenced by hermeneutics and phenomenology (Mack, 2010). Hermeneutics is the study of meaning and the interpretation of historical texts, and phenomenology is the study of individual perceptions of the world and subjective interpretations of social phenomena. The key principles of interpretivist theory are that phenomena are subjective and should be observed internally through the experiences of those at the centre of the phenomenon. The interpretivist paradigm shares its theories with social constructivism, with the chief principles of both theories being that knowledge is constructed through social processes (Burr, 2006). Therefore, the role of the interpretivist researcher is to understand, explain, and elucidate social reality through the perceptions and experiences of participants (Cohen et al., 2007). The ontological assumptions of interpretivist philosophy are that social realities are constructed through individual interpretations and are subjective, giving rise to multiple interpretations and perspectives of a given situation (Mack, 2010). Epistemological assumptions of the

interpretivist paradigm claim that knowledge is gained from inductive methods, which in turn generate theories about phenomena. Furthermore, interpretivist philosophy claims that knowledge derives from personal experience and perspectives of particular situations and is not reducible to simplistic explanations (Mack, 2010). However, the limitations of interpretive research are primarily associated with its abandonment of objective scientific procedures, and general inability to produce findings that can be generalised to other situations.

In utilising a mixed methods design, this thesis embodies both positivist and interpretative ontological and epistemological assumptions. Whilst these paradigms are often considered to be conflicting, in this project the limitations of each paradigm are minimised through the strengths of each paradigm. The thesis aimed to gain insights on issues and outcomes associated with the UFSB, and following this gain resolutions on emergent perceived issues and outcomes. Thus an interpretivist approach, allowing for exploration and investigation into stakeholders' experiences and perspectives, was appropriate in the first stages of the research, in order to establish key issues and outcomes. This was ensued by a positivist approach in the latter stages in order to gain clarification on these outcomes and issues. The interpretivist epistemological and ontological assumptions of this thesis were that knowledge is derivative from the personal experiences and perspectives of stakeholders, and the experiences of stakeholders are subjective and constructed through multiple and individual interpretations and perspectives. Initially this project aimed to gain stakeholders' interpretations and perceptions of the UFSB programme, and subsequently use their experiences and perceptions to inform further research. In contrast, the positivist ontological and epistemological assumptions of this project were that, knowledge could be generated deductively, by independently considering and objectively measuring key emergent theories, which were generated inductively using interpretivist methods in the initial stages of the research. Subsequently, a predominantly positivist approach was utilised, aiming to identify breakfast consumption behaviours, food and nutritional intakes, and attitudes towards breakfast, amongst stakeholders affected by the UFSB scheme, and examine potential interactions and relationships between these variables.

This thesis makes a unique contribution to knowledge, in that it encompassed a wide range of social and behavioural outcomes relative to school breakfast

provision, participation and consumption, within the natural environment in which the UFSB intervention occurred. It positioned itself within a small body of qualitative research, and did not disregard the subjective experiences and perceptions of stakeholders, thus aiming to reveal a more profound truth, through qualitative and quantitative approaches to data collection and analysis. Finally, the intention of this thesis was not to make claims of absolute objectivity. In contrast, it endeavoured to attain a certain level of objectivity, in order to get closer to the truth of a social reality, and thereby provide a more complete interpretation of the social and behavioural impacts associated with the UFSB intervention.

2.2. Research Design and Methodology

2.2.1. Mixed Methods Approach

Mixed methods research is a methodology that integrates qualitative and quantitative approaches within a single investigation. The supposition is that mixed methods methodologies allow for more complete and synergistic investigations, where words are of equal importance to numbers (Wisdom & Creswell, 2013; Brannen, 2005). It is considered that quantitative data can facilitate the generalisability of qualitative data and elucidate findings, and likewise qualitative data can play an important role in clarifying, describing and interpreting quantitative results, as well as grounding the findings in the experiences of participants (Johnson, Onwuegbuzie, & Turner, 2007). The integration of mixed methods is advocated for providing greater potential to strengthen rigor, enrich research findings, and facilitate deeper and more meaningful interpretations of interventions (Wisdom & Creswell, 2013). Mixed methods methodologies are considered useful in gaining understanding on the contradictions between qualitative and quantitative findings, and are advocated for assessing complex interventions (Wisdom & Creswell, 2013). Moreover, mixed methods designs are endorsed for research which aims to inform policy and praxis, as the needs of stakeholders can be framed within research questions and methods (Brannen, 2005). It is considered that mixed method designs, which employ a qualitative approach, followed by a quantitative approach, are advantageous in research projects investigating under-researched areas, because the qualitative phase allows for the identification of quantitative variables. Nevertheless, mixed methods research also has limitations. Mixed methods projects are complex to develop and conduct, requiring careful planning to encompass principles of both

research paradigms, including using the correct sampling procedures, methods and measures of data collection, and analysis (Brannen, 2005). Conducting mixed methods research therefore requires multidisciplinary expertise and knowledge of qualitative and quantitative approaches. Balancing the adherence to standards of rigor and quality, of both qualitative and quantitative research is complex. Quantitative research tends to require much larger sample sizes in order to provide adequate data for analysis, but qualitative data is often more voluminous and analysis may be more time consuming (Wisdom & Creswell, 2013). Thus, mixed methods research is typically more labour intensive, and requires more resources and time, than single method research projects.

This thesis involved an exploratory phase whereby data were collected using qualitative methods and a Grounded Theory approach, which resulted in emergent concepts associated with the UFSB scheme. These concepts were examined further and measured using quantitative methods of data collection and analysis. By integrating qualitative and quantitative methods, this methodology allowed for the collection of rich and comprehensive data, which provided a more complete interpretation of the social and behavioural impacts of the UFSB programme, than either approach would have achieved on its own. Whilst this thesis did employ a mixed methods methodology, the overarching theoretical approach was naturalistic, with the aim of providing a rich, thick and multilevel interpretation of a social intervention. The thesis aimed to provide insight, and enhance knowledge and understanding, into an essentially social situation. Therefore, a primarily qualitative design would typically be considered the most effective theoretical and practical approach. However, this thesis also had scientific interests relating to health, nutrition, and behaviour. Hence, despite the fact that interpretivist and positivist research paradigms are often perceived as having conflicting theoretical positions, it is considered that the validity and integrity of this project was enhanced through the incorporation of qualitative and quantitative methods.

2.2.2. Qualitative Influences and Approaches

Qualitative research is advocated for understanding and valuing the perspectives and experiences of stakeholders in naturalistic settings. It is considered to be especially valuable when gathering data from marginalised, vulnerable and/ or hard to reach populations, who have traditionally lacked the power to make their

voices heard through traditional academic research (Nind, 2008), and it provides opportunities to empower stakeholders through collaboration with the research (Kiernan, 1999). A key strength of qualitative research is that it facilitates the study of complex phenomenon within a given population, through the use of interpretive methods, which reveal representations of the phenomenon and meanings attributed to it, based on the participants' own versions of those meanings (Johnson & Onwuegbuzie, 2004; Mertens, 2014). It provides knowledge into stakeholders' experiences of a phenomena with in the local contexts in which they are embedded; thus providing a more in-depth understanding of experiences, perspective and histories, answering questions associated with 'what', 'how' and 'why' (Johnson & Onwuegbuzie, 2004; Spencer, Ritchie, Lewis, & Dillon, 2003). Furthermore, qualitative approaches are perceived to be beneficial in gaining knowledge on governmental interventions, by facilitating the exploration of the contexts in which they operate, such as highlighting impacts on different groups in the population, and identifying successful and unsuccessful outcomes and factors relating to delivery and organisation (Spencer et al., 2003).

It is considered that qualitative methods are advantageous in providing frameworks for developing in-depth descriptions of programmes, praxis and settings (Mertens, 2014). Qualitative methods collect data in verbal and narrative forms, and analysis is textual, and concerned with the interpretation of what the text means, as opposed to examining numerical properties (Smith, 2007). Methods are typically inductive, aiming to see the world as participants do, and thus generate rich detailed data that describes multiple realities and provides a deeper understanding of human experience (Charmaz, 2006; Taylor, 2005). In contrast to quantitative research methods, qualitative methods are subjective and tend to encourage interaction between the researcher and participants (Taylor, 2005). Instruments are modified and adapted, based on the needs and reactions of participants and researcher judgements, as data collection progresses. The advantages of qualitative methods over quantitative methods are that they do not need to follow a linear process of data collection and final analysis, and instead emergent and interesting concepts and themes can be pursued using an iterative approach (Charmaz, 2006).

Grounded Theory (GT) provided a framework for data collection and analysis in the qualitative part of this thesis. The aim of GT is to generate a theory

about a social situation that is emergent from the analysis of data collected from individuals directly associated with the situation and thereby intrinsically connected to the reality which it explains (Creswell, 2009). GT approaches do not rely on the literature to generate a hypothesis, in contrast they advocate the investigation of the social world with no preconceived hypothesis, deriving theories inductively from the data (Glaser & Strauss, 1967). GT provides a frame for qualitative inquiry, and provides guidelines for conducting the research, in the form of a constellation of methods consisting of systematic, comparative and reflexive processes for collecting and analysing qualitative data, and for constructing theories that are grounded in the data themselves (Charmaz, 2006; Coyne, 1997). Likewise, GT is advocated for providing guidance for undertaking a particular form of qualitative research through the provision of a set of principles and strategies for directing, managing and streamlining qualitative data collection and analysis (Charmaz, 2006). Using GT methods and processes is considered to result in a quicker and more efficient focus on what is happening within the data, through a constant comparative analysis of data that ultimately results in the development of a theme or conceptual model that furthers understanding of social and psychological phenomena (Coyne, 1997). Furthermore, GT is renowned for its rigour and positivist assumptions combined with principles of constructivism, and thus is considered compatible with mixed methods methodologies, and in studies examining or informing policy and praxis (Charmaz, 2006).

Nevertheless, there are also limitations associated with qualitative research including researcher bias and subsequent influences on participants (Anderson, 2010). The researcher's presence during data collection is criticised due to the potential for influence on participants' responses (Anderson, 2010). Moreover, qualitative methods tend to generate large volumes of data, and thus require high levels of involvement from the researcher, which can lead to criticisms about the impact of the researcher's personal biases and characteristics on the interpretation of research findings (Patton, 1991). The voluminous nature of qualitative data can present challenges, such as making sense of a huge amount of data, and the ability to effectively reduce its volume, identify patterns, and correctly present the phenomenon. Moreover, in addition to the large quantities of data generated from qualitative research, data collection is often time consuming, and therefore sample

sizes are usually smaller than those used in quantitative studies (Johnson & Onwuegbuzie, 2004). Furthermore, qualitative research is criticised for being too context specific, with unrepresentative samples, and claims that cannot be generalised to other populations and settings (Brannen, 2005; Johnson & Onwuegbuzie, 2004). Limitations relating to researcher bias and volume of data in qualitative research were minimised during Studies 1 and 2 through the application of a systematic Grounded Theory approach to the collection and analysis of qualitative data, which is described in more depth in subsequent sections. Additionally, Nvivo 10 software was also utilised in the organisation and analysis of the large volumes of qualitative data gathered during Studies 1 and 2.

2.2.3. Qualitative Research Methods

2.2.3.1. Semi-structured Interviews

Interviews are advocated as efficient methods for learning about people's experiences and perspectives, and interviewing multiple informants can underpin the creation of general theories and concepts about social phenomenon (Taylor, Bogdan, & DeVault, 2015). Qualitative interviews are advocated for examining social phenomenon as it is lived by the participants, and collecting a range of descriptions from participants is considered to facilitate the discovery of the human meaning of a phenomenon (Englander, 2012). However, there are also limitations. Without directly observing participants in their everyday lives, the researcher may lack contextual understanding of the perspectives they are investigating, which may lead to misunderstandings in language used during interviews (Taylor et al., 2015). Interviews are essentially artificial and potentially intrusive situations that commonly involve the researcher discussing research topics with people whom they are unfamiliar with, often under time pressures (Myers & Newman, 2007). It has been contested that interviews may potentially interfere with people's behaviour, and what participants say during interviews may not be a true representation of what they believe or how they act in everyday life. As in all social interactions people tend to manage the impressions that other people have about them and thus say different things dependant on the situation (Myers & Newman, 2007; Taylor et al., 2015). It is considered that what participants disclose depends on how they perceive the interviewer and how they think the interviewer perceives them. As the researcher is an unfamiliar person there are likely to be concerns on the part of the participant to

what extent the researcher can be trusted, and thus participants may not divulge information they deem sensitive (Myers & Newman, 2007). There are also differences from real-life conversations, in that researchers tend to withhold from expressing their own views about the phenomenon to avoid influencing the participants, the conversation is usually understood to be confidential and is largely one-sided, and the interviewer will tend to refrain from overtly disagreeing with participants (Taylor et al., 2015).

It is thus the researcher's role to maintain a balance between appropriate levels of discretion, whilst relating to participants as people and not just sources of data. Researchers may not be able to accept participants' narratives entirely at face value, but it is considered that a great deal can be learnt about how people perceive and experience a social situation from an interview (Taylor et al., 2015). It is advised that researchers should demonstrate an awareness of these limitations and take them into account when carrying out interviews. Strategies include maintaining participant motivation by building rapport with participants, showing genuine interest, and constructing relaxed situations that resemble the natural ways in which people converse with each other about important things and where participants feel comfortable they can talk freely (Taylor et al., 2015). An advantage of face-to-face interviews is that they provide the researcher with the opportunity to evaluate the validity of the participants' responses through the observation of non-verbal indicators, and the participant is typically unable to receive assistance from others in formulating their response (Barriball & While, 1994). Moreover, face-to-face interviews also allow the researcher to provide motivation to participants, which would otherwise be unfeasible during a questionnaire (Barriball & While, 1994).

In Studies 1 and 2, interviews were utilised as the main method of qualitative data collection in order to facilitate a description and gain an in-depth understanding of the social and behavioural impacts of the UFSB scheme at individual, family, school, community and macro levels. The interviews sought to gather descriptions of different experiences UFSB scheme, and identify the impacts of the scheme as per the lived experiences of different stakeholders. The questions comprised in interview schedules were constructed to generate discussion, and allow free response, with the aim of gathering rich, detailed data that was grounded in stakeholders' experiences. For Study 1, semi-structured interview schedules were developed, with the aim of

eliciting the views and experiences of senior level stakeholders, i.e. Local Authority and Public Health executives and elected members, and head teachers, on the impacts and issues associated with the UFSB scheme at local authority, community, school, family, and individual (child) levels. For Study 2, the aims of the interview schedules were twofold. Firstly, to gather the views of children, parents and school staff on the UFSB scheme, and the perceived impacts on children, parents, schools, and the wider community. Secondly, to gather views, attitudes and perceived norms towards breakfast consumption behaviours amongst the same children, parents and school staff. In line with the literature, interview schedules for both studies commenced with descriptive questioning to encourage participants to disclose the issues about the phenomenon important to them (Taylor et al., 2015). Subsequently, probing questions were used to inquire for further detail on participants' views and experiences. In addition to those provided in the interview schedules, probing questions were also used ad libitum following the disclosure of potentially interesting themes by participants. Moreover, as data collection progressed, in accordance with theoretical sampling techniques, further probing questions were incorporated into the interview schedules, in order to further explore and add detail to emergent concepts and themes (Corbin & Strauss, 2014).

2.2.3.2. Grounded Theory Approach to Qualitative Analysis

A Grounded Theory (GT) approach was selected for the analysis of qualitative data collected as part for Studies 1 and 2, in order to ensure that the findings and subsequent quantitative study outcomes were grounded in stakeholders' perceptions and experiences of the UFSB scheme. GT analysis commences at the start of a project with simultaneous data collection and analysis, and follows a cyclical process of coding, categorisation, and comparative analysis, cumulating in a 'Grounded Theory,' which can be defined as an abstract understanding of the studied experience (Charmaz, 2006). Using these processes is considered to enable the researcher to increase the analytical power of qualitative findings, moving beyond description to explanatory theoretical frameworks. Interviews for Studies 1 and 2 were audio recorded using a Dictaphone, and orthographically transcribed word-for-word, and then analysed using a three-stage GT approach, known as open, axial and selective coding. The GT coding process differs from conventional traditional constant comparative methods in that each phase requires a different coding process,

which allows the researcher to progress from simple coding of the data to more complex and detailed coding and modelling of the data (Corbin & Strauss, 1990; Walker, 2006). This style of coding is an inductive in the early stages, expanding and exploring the data for generalisations, patterns and themes; gradually becoming deductive as categories and themes are organised into explanatory theories about the phenomenon. It is considered that the logical and systematic processes undertaken during GT analysis overcomes limitations associated with lack of rigour in qualitative data (Walker, 2006). Therefore, by adopting a GT approach limitations and challenges associated with the volume of data generated by qualitative investigation were minimised in this thesis through the application of a systematic GT framework for the analysis and organisation of qualitative data.

During the first stage of analysis, all the data were imported into Nvivo 10 for ease of access and organisation. Open coding was the initial stage of the coding process, which involving a detailed line-by-line reading of the transcripts, attributing codes and memos describing the themes and concepts evident in the data. The key aim at this stage was to encapsulate the meaning of the data in words, lines and passages of texts using analytical techniques, including questioning and comparisons, as recommended in the literature (Corbin & Strauss, 1990; Walker, 2006). Open coding began upon the commencement of the collection of data and continued in an iterative process, informing further data collection. The subsequent process was axial coding. The purpose of axial coding is to reassemble the deconstructed data in new ways by making connections between codes and categories. During this process, codes were refined into larger themes and sub-themes, and a comparative method was utilised in order to identify relationships between and within these themes and sub-themes. According to the literature, the interplay between inductive and deductive processes, and proposing and checking, during this stage of analysis is a key factor in the generation of theories which are grounded in the data (Corbin & Strauss, 1990; Walker, 2006). These processes are also considered verification processes, which increase the validity of the research findings. An additional factor at this stage of analysis was the consideration of the context, for which observational field notes and photographs taken during visits to school, and participant demographic data, provided assistance. The final stage of analysis involved a process known as selective coding, whereby the data is further

refined into a central theme, model, hypothesis or theory (Corbin & Strauss, 2014; Corbin & Strauss, 1990; Walker, 2006). Selective coding enhances the processes involved in axial coding with a greater focus on factors including conditions, context and consequences relating to the phenomenon at the centre of the research, in order to develop a central concept. A reiterative comparative method was utilised to identify relationships within and between themes and sub-themes, and groups. Themes were refined and relationships between themes were established, which subsequently resulted in two conceptual models. These conceptual models are discussed in more depth in subsequent chapters.

2.2.3.3. Qualitative Validity and Reliability

Validity and reliability are factors that researchers should consider during study design, data collection, and analysis, and when judging the quality of the research (Morse, Barrett, Mayan, Olson, & Spiers, 2002; Patton, 2001). The terms validity and reliability in qualitative research cover a vast range of concepts relating to quality and rigor, including transferability, dependability, credibility, and trustworthiness (Golafshani, 2003; Merriam, 1995). It is considered that quality in qualitative research should be measured in terms of how well the research generates understanding and how accurately it presents participants perspectives, as opposed to how well it can be replicated and generalised (Noble & Smith, 2015). Methodological coherence, appropriate and sufficient sampling that underpins saturation of themes, concurrent collection and analysis of data, and theoretical underpinning and development of theories, are all indicative of high quality qualitative research (Merriam, 1995). Conventionally, internal validity is concerned with how closely research findings are associated with reality. However, in qualitative research, reality is not a single absolute truth that can be objectively observed and measured, and instead reality is believed to be constructed, multidimensional, and changeable (Merriam, 1995). Thus, the qualitative researcher aims to provide a truthful interpretation of reality. Strategies considered to assist in achieving internal validity in qualitative research include the demonstration of appropriate saturation of themes, triangulation, cross checks, and peer examination (Merriam, 1995; Sandelowski, 1993). In positivist terms, reliability is traditionally associated with replication, but in qualitative research there are often multiple perspectives of a phenomenon, and thus replication results in different

interpretations, as opposed to the replication of results (Merriam, 1995). Therefore reliability in qualitative research is concerned with dependability, consistency and coherence, and strategies considered to improve reliability include the aforementioned strategies, in addition to audit trails that allow for transparency and replication of the research processes (Noble & Smith, 2015; Sandelowski, 1993). Assessing the reliability of qualitative research requires researchers to make judgements about the ‘soundness’ of the application and suitability of the methods, and the integrity of the research conclusions (Noble & Smith, 2015). Furthermore, external validity is concerned with generalisability in realist terms, and is often reported as a limitation in qualitative studies due to the absence of methods such as random sampling (Merriam, 1995). The intentions in qualitative research tend to be concerned with gaining an in-depth understanding, as opposed to establishing generalised truths about many, and thus generalisability in qualitative research is more concerned with the consideration of contexts, settings and local conditions during interpretation of the data (Merriam, 1995). Therefore, strategies for increasing external validity in qualitative research include detailed descriptions of the research and data, and the seeking out of similarities and differences across different accounts through the collection of data from multiple sites, cases and situations, to ensure that different perspectives are represented and show variation on the phenomenon (Morse et al., 2002). External validity in qualitative research is judged through description of the data, context, and settings, in addition to description of the research processes, referred to as ‘thick description’ (Brink, 1993; Slevin & Sines, 2000).

2.2.3.4. Triangulation

Triangulation is a fundamental methodological strategy used in naturalistic and qualitative research to control bias and increase validity, by combining approaches, methods and data (Brink, 1993; Golafshani, 2003). It is considered that triangulation highlights convergences, inconsistencies, and contradictions, which when prevailed can result in superior explanations of the social phenomena being observed (Johnson et al., 2007). Triangulation has a direct link with data saturation, in that it enables the exploration of various levels and perspectives of a phenomenon (Fusch & Ness, 2015). There are various types of triangulation, including data (use of different data sources), investigator (use of different researchers), theory (use of multiple theoretical perspectives), and methodological (use of multiple methods)

(Johnson et al., 2007; Merriam, 1995). Between methods triangulation, i.e. qualitative and quantitative, is considered superior to within method triangulation, i.e. triangulating methods within one paradigm, because the strengths of each paradigm minimise the limitations of the other (Johnson et al., 2007). In this thesis, between and within methods triangulation were facilitated by the mixed methods approach, which allowed methodological comparisons to be made within and between qualitative and quantitative studies, and for qualitative concepts and theories to be examined further using quantitative methods. Additionally, data triangulation was possible as data were collected from a wide variety of stakeholders with differing experiences and perceptions, which allowed for checking the findings against different data sources and perspectives. Moreover, the theoretical underpinnings of this research including the mixed methods approach and positioning the research within conceptual models, also facilitated a more rich and detailed understanding of the phenomenon from various theoretical contexts. Finally, investigator triangulation was also employed during inter-coder reliability processes undertaken in as part of the analysis of data from Studies 1 and 2.

2.2.3.5. Cross Checking

As previously discussed, whilst qualitative researchers aim to seek open and honest discussions with participants, they should also be aware of distortions and exaggerations in participants' narratives. Researchers should also be aware of misunderstandings from the perspectives of participants and themselves during interviews (Taylor et al. 2015). Strategies for effective cross-checking of participants narratives in order to minimise misrepresentations and misconceptions, include a conscious inference and probing for additional details of a participants' stories (Taylor et al. 2015). Participants' stories can also be cross-checked against other sources of data including observations and official records for consistency (Patton, 1999). This means comparing and cross checking the consistency of data gathered from different people, at different times, and by different means (Patton, 1999). In addition, cross checking for consistency is also considered to be useful in reaching saturation, especially in exploring a phenomenon (Fusch & Ness, 2015). This thesis utilised the aforementioned strategies, including effective use of probing methods during interviews; in addition to cross checking interview data against contextual data, including observations in schools and school breakfast clubs, and data collected

on school breakfast delivery models and foods served. The aforementioned use of triangulation in this thesis also meant that various data sources were assessed against one another, allowing for cross-checking of interpretations of the data. This strategy is advocated for minimising the distortion of data from a single source, and therefore increases validity (Begley, 1996; Krefting, 1991). Moreover, the methods employed in the GT analysis also facilitated the cross-checking of narratives from different sources, e.g. children, parents/ carers, school staff, head teachers, and Local Authority and Public Health executives and elected members.

2.2.3.6. Peer Examination

Expert validation from peers, involving the independent analysis of the data by research colleagues, is considered to improve validity (Brink, 1993). The intent of inter-coder reliability and agreement is to test whether the primary researcher's coding would be reproducible by other equally capable coders (Campbell, Quincy, Osserman, & Pedersen, 2013). Inter-coder reliability measures to what extent two or more equally knowledgeable coders independently select the same code for the same unit of text, whereas inter-coder agreement involves two or more equally skilled coders reconciling coding discrepancies through discussion (Campbell et al., 2013). Peer examination was utilised in this thesis during inter-coder reliability and agreement processes for coding of data gathered during interviews for Studies 1 and 2. In accordance with the literature, approximately 10% of the interview transcripts for each study were randomly selected, and an appropriately skilled but impartial researcher, coded the transcripts using the coding framework developed for each study (Campbell et al., 2013; Mouter & Vonk Noordegraaf, 2012). In order to determine reliability, Cohen's Kappa statistic was used to establish initial agreement between the first and second coders. In determining inter-coder agreement discrepancies in coding were resolved through a discussion between coders. As a consequence of this process and in line with the literature, codes were refined and/ or merged, and coding definitions were clarified and/ or modified (Campbell et al., 2013). Cohen's Kappa statistic was utilised a second time to determine subsequent levels of inter-coder agreement. The results of the interrater reliability and agreement processes undertaken during Studies 1 and 2 are discussed in subsequent study chapters.

2.2.3.7. Saturation Processes

It is considered that saturation is attained once no new perspectives or insights emerge from the data perspectives. In order to achieve sufficient saturation of categories, the sample should consist of participants who have knowledge and/ or experience of the research topic, ensuring that sufficient data covering all aspects of the phenomenon have been collected (Morse et al., 2002). Likewise, searching for disconfirming evidence by examining a range of cases, including negative, positive and neutral cases, is essential in ensuring adequate saturation (Brink, 1993). The concurrent collection and analysis of data provides a knowledge on what is known, what is not known, and therefore needs to be known, and theory development is facilitated through ideas which emerge from the data that are corroborated in new data (Morse et al., 2002). Theoretical sampling (TS) is a strategy that is utilised in selecting participants and reaching saturation, which considered to aid the development of theoretical insights into social phenomenon (Taylor et al. 2015). This type of sampling is synonymous with Grounded Theory, as a rigorous method for sampling and analysis of data to produce a theory (Glaser, 1978; Glaser & Strauss, 1967). TS is a process that aims to generate a theory through a process of reiterative analysis and sampling, commencing upon initial data collection and determining further participant recruitment, resulting in the exploration of a wide range of perspectives. In the initial stages, TS incorporates elements of purposive sampling, and thus researchers should have an idea of where to sample, but not necessarily where it will lead (Coyne, 1997). Further data is collected to examine categories and themes, and relationships between them, and effective use of TS ensures that the full range, variation, representativeness is sought, with sampling ceasing when categories and themes are 'saturated' (Coyne, 1997). Theoretical sampling is a fundamental element of GT, which ensures that sampling is sufficient and relevant, and results in effectual saturation and development of concepts and theories. In accordance with the literature on the application of a GT methodology, this thesis utilised theoretical sampling as the recruitment strategy for whole thesis project and within individual studies.

2.2.4. Quantitative Influences and Approaches

Studies 3 and 4 of this thesis adopted a quantitative approach, in order to examine the key concepts, which emerged from the previous qualitative

investigations, and thus test the validity of the key qualitative findings. Therefore, the limitations posed by qualitative approach, namely, the abandonment of objective scientific procedures leading to an inability to generalise the findings, were minimised in this thesis through the incorporation of quantitative methods, with the anticipation of more refined findings. Quantitative research is advocated for testing and validating theories about how phenomena occur, allowing the researcher to eliminate confounding variables, and assessing cause and effect relationships (Johnson & Onwuegbuzie, 2004). Moreover, data collection using quantitative methods is typically quicker than qualitative methods such as interviews, thus allowing for larger numbers of participants to be sampled. In addition, quantitative research produces precise, numerical data, which in turn produces results that are independent of the researcher. However, quantitative research is criticised for being decontextualized and reductionist, in its intentions to generalise, thus failing to capture deeper meanings (Brannen, 2005). In this thesis these limitations were minimised through incorporations of a mixed methods methodology. Furthermore, where qualitative methods generate theories, quantitative methods make assumptions and test theories, are generally considered more objective and reliable leading to more accurate predictions, and can be generalised to larger populations (Bazeley, 2002; Taylor, 2005). In contrast to qualitative methods, quantitative methods study phenomena through the definition and measurement of variables, parts and/ or groups, and examine for interrelations between these variables, parts and groups (Bazeley, 2002; Taylor, 2005). The intent of quantitative methods is to be objective and limit personal bias, and instruments and data collection procedures are typically standardised, administered under standardised conditions, and designed to limit personal contact between the researcher and participants (Taylor, 2005).

2.2.5. Quantitative Research Methods

2.2.5.1. Self-report Questionnaires and Data

Self-report questionnaires were utilised as the main data collection tools in Studies 3 and 4 of this thesis. Self-report methods are a primary, valuable and valid measurement strategy of data collection in the behavioural sciences (Howard, 1994). The advantages of self-report methods are that they are convenient, relatively inexpensive, straight forward to administer, and relatively unobtrusive, compared to laboratory experiments (Cale, 1994; Stone, 2000). Moreover, self-report methods

have been advocated for gathering data on health behaviours, particularly food consumption and nutritional intake, where direct observation is not possible (Stone, 2000). However, there are also limitations associated with self-report measures, which may affect validity, including risks associated with measurement error, social desirability bias, and memory errors (Furnham & Henderson, 1982; Howard, 1994; van de Mortel, 2008; Stone, 2000). Social desirability bias is the tendency for participants to present themselves in a favourable way, in order to conform to socially accepted norms, avoid criticism, or gain approval, and is most likely to occur in socially sensitive questions (King & Bruner, 2000; van de Mortel, 2008). In addition, self-report measures often require certain cognitive processes in order to elicit accurate information, such as the ability to comprehend the question being asked, recall information from memory (what, when, how, frequency), decide on the accuracy of the information recalled, and comprise answers, all of which are prone to error (Stone, 2000). Cognitive related errors may be more prevalent when using self-report measures with children, as there are age related limitations in children's ability to recall events from the past. It is assumed that compared to adults children may have less prior knowledge, and are considered to notice less, omit more, forget more quickly, and be more susceptible to suggestion, and to combining imagination and perception in remembering (Cale, 1994). Moreover, children may have more difficulty in making precise judgements about time or estimate time, and estimating frequency (Cale, 1994). In this thesis, limitations associated with self-report data were minimised through the utilisation of validated measures in the construction of data collection tools, the provision of age appropriate self-report materials, and the provision of training in completing self-report measures. The development and utilisation of the questionnaires used to collect data for Studies 3 and 4 are discussed in the subsequent sections.

2.2.5.2. Breakfast Attitudes, Behaviours and Food Intake Questionnaire

In Study 3, questionnaires were developed with the aim of exploring children's and parents'/ carers' attitudes towards breakfast and breakfast consumption behaviours, and examine for potential interactions between children's and their respective parent's/ carer's attitudes towards breakfast and breakfast consumption behaviours. Two questionnaire tools were developed by adapting previously validated measures; one for children aged 9-11 and one for related

parents/ carers. Each questionnaire comprised of two parts. The first part focused on breakfast attitudes, and were constructed using the validated 'Breakfast Attitudes' survey (Tapper et al., 2008). The Breakfast Attitudes questionnaire was selected because it is currently the only validated tool that specifically measures breakfast attitudes in children (Tapper et al., 2008). In addition, the measure is quick and straightforward to administer, complete and score, and ideal for large samples and measuring interventions, where more time consuming dietary measures are not possible (Tapper et al., 2008). The 13 items in the survey are underpinned by a three component model, which supposes that attitudes are a combination of an individual's feelings, beliefs and past behaviour (Tapper et al., 2008). Research has shown that attitudes are often precursors to behaviour, and studies have found that children's attitudes towards breakfast are predictive of breakfast behaviour (Berg et al., 2000; Martens et al., 2005; Unusan, Sanlier, & Danisik, 2006). Furthermore, whilst the Breakfast Attitudes questionnaire has previously been utilised in studies with children, the authors note that it would also be suitable for use with older children, and with some minor modifications with adults (Tapper et al., 2008). In this thesis the questionnaire was adapted for use with both children and parents/ carers.

The second part of the questionnaires developed for Study 3, focused on breakfast food consumption and behaviours, and was adapted from the previously validated 'Day in the Life' questionnaire (DITLQ) (Edmunds & Ziebland, 2002; Moore et al., 2007). The DITLQ was originally developed as a measure for collecting data children's fruit and vegetable intake, suitable for children aged 7-11, that could be administered in the classroom environment (Edmunds & Ziebland, 2002). The measure was subsequently adapted and validated for use with children aged 9-11 years to measure children's consumption of breakfast foods, snacks, and fruits and vegetables, as part of the evaluation of the Welsh Assembly Government's Free School Breakfast Initiative (Moore et al., 2007). The adapted DITLQ focuses on details of breakfast consumed on the day of reporting, in addition to breakfast consumed the previous day, using words and pictures to facilitate recall of food intake and activities over two days. The rationale for utilising the adapted version of the DITLQ in the development of questionnaires for Study 3 was because it has shown to be a valid and reliable instrument for collecting data of foods and beverages consumed for breakfast, and is considered a useful measure for assessing

school breakfast interventions (Moore et al., 2007). Whilst there are various validated tools for measuring behaviour, they are largely unsuitable for use with children in schools. A validated 24-hour recall interview is considered to be an imperfect gold standard measure of children's dietary behaviours, yet it is time consuming and requires a high level of resources, and thereby is often inappropriate for evaluations of school based interventions (Lytle et al., 1993; Moore et al., 2007). Likewise weighed food diaries are also burdensome for participants to complete, and third party. i.e. parents'/ carers' completion of food records for children are only valid during the times when parent and child are together, and thus are not suitable for evaluating school based interventions (Moore et al., 2007). Moreover, food frequency measures are typically utilised in research with adults, and have been deemed to be of limited suitability for use with children as children's estimates of frequencies and historic food consumption are limited by their cognitive abilities (Baranowski et al., 1997).

2.2.5.3. Seven Day Breakfast Food Diaries

For Study 4, retrospective daily food diaries were chosen as the primary method for collecting data on the foods and beverages consumed across the morning by children attending primary schools with UFSB in operation. Bespoke 7 day Breakfast Food Diaries (BFD), for primary school children aged 9-11, were developed, with extensive work and advice from various specialists, including colleagues from the National Diet and Nutrition Survey, Public Health England, and Healthy Living, Northumbria University. The food diaries were adapted from a validated 4-day estimated food diary used to collect data from with children as part of the UK National Diet and Nutrition Survey (NDNS) (Lennox et al., 2008; Whitton et al., 2011). When compared to 24-hour recalls and weighed food diaries, the NDNS research team deemed that non-weighed estimated food diaries were a more flexible and adaptable method suitable for children (Lennox et al., 2008). Whilst the NDNS food diaries collected data for the whole day, in this thesis the diaries were adapted to collect data on foods consumed across the morning at home, on the way to school and at school from children aged 9-11 years. In order to improve the accuracy of children's estimation of portion sizes, resources Young Persons Food Atlas for Primary Aged Children (Foster & Adamson, 2012), which contains a selection of age appropriate photographs of foods and portion sizes derived from

dietary intakes recorded during the NDNS, were utilised in the design of the BFDs. The key aims of the BFDs were to capture what children were consuming at three key locations across the morning at school across five consecutive school days, and at any location on two consecutive weekend days. The level of detail required in the BFDs on dietary intake included food types, brand names, additional ingredients, preparation methods and estimates of amounts consumed. An accompanying Toolkit, which included exemplar descriptions of a range of possible breakfast foods and beverages, and photographs of portion sizes from the aforementioned Food Atlas, was also developed to assist participants with the estimation of portion sizes.

Estimated food diaries, like the BFDs developed for Study 4 are one of the most commonly used dietary assessment tools, alongside 24-hour recalls (Burrows, Martin, & Collins, 2010). Estimated food diaries are similar in design to weighed food diaries, but non-weighed food diaries use different methods to quantify the foods and beverages consumed, including the use of household measures such as cups and spoons, food photographs, from which the participant can estimate foods consumed and the researcher can calculate food and nutritional intake (Wrieden, Peace, Armstrong & Barton, 2003). The use of photographic atlases showing portion sizes are advocated as beneficial resources in non-weighed dietary recall methods (Wrieden et al., 2003). The advantages of daily estimated food diaries, when compared to 24 hour recall interviews, weighed food diaries, and biological markers, are that they are more cost effective, less time consuming and burdensome, relatively easy to administer, and are suitable for use with large numbers of children in school settings, and thus are effective in evaluating school based dietary interventions (Thompson & Subar, 2001). Additionally, it is considered that recording foods as they are consumed reduces error due to memory loss, and thus reduces omission of foods and tends to facilitate better description of foods consumed, such as portion sizes, which cannot be captured with the finite lists often provided in food frequency methods (McPherson, Hoelscher, Alexander, Scanlon, & Serdula, 2000). Moreover, daily food records are considered to be advantageous in gathering information on foods consumed at different meal times, locations and with whom, all of which are problematic with less burdensome food frequency methods (Thompson & Subar, 2001).

Nevertheless, there are also limitations associated with dietary recall methods and daily estimated food records. Written dietary record keeping requires participants to be literate, which limits use with certain populations, such as younger children, individuals with learning difficulties and/ or disabilities, and those who speak English as an additional language, thus limiting generalisability of the findings (Thompson & Subar, 2001). Food diaries also require participants to be motivated, as unlike food frequency questionnaires that follow a simple checklist format, food diaries require detailed descriptions of the food and therefore can be more burdensome to complete (Thompson & Subar, 2001). Assessing the diets of children is considered to be more challenging than adults, as diet variability tends to be higher and children may be less likely to be able recall and estimate food intake and portion size, and cooperate in procedures (Livingstone & Robson, 2000; Lytle et al., 1993). It is considered that younger children have limited ability to cooperate in dietary assessment, and do not attain the necessary skills and abilities to complete dietary recall records, such as developed concept of time, frequency and averages, ability to recognise and describe quantities, proportions, values and dimensions, ability for abstract thinking, and detailed knowledge of food items, until approximately age 8 (Livingstone & Robson, 2000). Moreover, research comparing energy and nutritional intake from self-complete dietary records, with biochemical markers, show underreporting in self-complete records, with higher levels of underreporting amongst individuals with high BMI, adolescents, and females (Macdiarmid & Blundell, 1998; Thompson & Subar, 2001). It is considered that underreporting may be due to incomplete recording, but also participation in the study may effect dietary choices leading to undereating, i.e. the Hawthorne effect, where participants change their eating behaviour when asked to record intake (Macdiarmid & Blundell, 1998; Thompson & Subar, 2001; Wrieden et al., 2003). Furthermore, in dietary assessment measures where food is not weighed, portion sizes must be determined in order to calculate food and nutrient intake, and the quantification of the amount of food consumed, other than direct weighing, is prone to error (Livingstone & Robson, 2000; Wrieden et al., 2003). Estimating amounts of foods is a complex cognitive task, which requires the recognition and description of quantities, in terms of proportions and whole units, and even with aids such as photographs, recalling

portions still requires an ability to think abstractly foods consumed (Livingstone & Robson, 2000).

In order to minimise these limitations it is advised that participants should be trained in the level of detail required complete dietary records adequately, including sufficient description of foods and amounts consumed, such as the name and brand name of the food, preparation methods, and portion sizes (Thompson & Subar, 2001). Research has shown that untrained participants have difficulty estimating portion size when reporting foods previously consumed, and this difficulty is more pronounced in children (Thompson & Subar, 2001). A rigorous assessment investigated the effect of training in improving the accuracy of estimated food portions in children aged 9-10 years demonstrated that training significantly improved ability to quantify foods (Weber et al., 1999). Therefore, in Study 4 all participants took part in training on day 1 of reporting prior to initial data collection, which involved an age-appropriate explanation of how to complete the BFDs, and how to use the accompanying Toolkit, using a specially developed PowerPoint resource. Additionally, a researcher was present on days 1 and 2 of reporting in order to check for accuracy, and to answer any questions. Furthermore, aiming to address the issues associated with children's cognitive ability to accurately report dietary intake, strategies were employed during the development of the Breakfast Food Diaries in this thesis, including the use of breakfast food imagery, i.e. Young Person's Food Atlas (Foster & Adamson, 2012), and behaviour chaining, i.e. aiding recall by linking food consumption to other activities (Livingstone & Robson, 2000). Moreover, the BFDs were designed to encourage children to reconstruct the context in which foods were eaten, e.g. events, activities, people etc. as it is considered that recall errors may be reduced using these types of prompts (Livingstone & Robson, 2000).

2.2.5.4. Quantitative Validity and Reliability

In quantitative studies validity and reliability are means by which research rigor and trustworthiness are measured (Roberts, Priest, & Traynor, 2006). Validity in quantitative research is concerned with the extent to which a concept is accurately measured, and reliability is concerned with the accuracy of the measurement (Heale & Twycross, 2015). Therefore, the instruments and measurements utilised in quantitative data are required to meet certain standards. Various categories of

validity have been defined, which are used to evaluate the rigor of research instruments, including content validity (the extent to which a research instrument accurately measures all aspects and content of a construct), construct validity (the extent to which the instrument measures the intended construct), and criterion validity (the extent to which the instrument is related to other instruments that measure the same variables) (Heale & Twycross, 2015). Reliability is concerned with the consistency of the measurement, i.e. the extent to which the instrument measures what it is supposed to measure, and the consistency of the results (Heale & Twycross, 2015). Thus, quality in quantitative research is judged on evidence provided on how all these factors have been addressed.

In this thesis, with respect to Study 3, two validated questionnaires were utilised in the development of the research tool used to gather data on children's and their parents'/ carers' attitudes towards breakfast and breakfast consumption behaviours, including the Breakfast Attitudes and Day in the Life Questionnaire (DITLQ). Previous validation of the Breakfast Attitudes questionnaire has shown good construct validity, high internal validity, and acceptable test/ retest reliability (Tapper et al., 2008). External validity was demonstrated in comparisons of breakfast attitudes data with other data, which showed that in accordance with the literature boys showed more positive attitudes towards breakfast than girls (Tapper et al., 2008). Moreover, comparisons with data from dietary measures showed that children who skipped breakfast demonstrated more negative attitudes towards breakfast, and children who consumed more unhealthy foods had more negative attitudes, whereas those who consumed more healthy foods had more positive attitudes (Tapper et al., 2008). In addition, comparisons with parental data showed that parents' perceptions that children frequently consumed a healthy breakfast were associated with more positive attitudes towards breakfast amongst children (Tapper et al., 2008). With regards to the DITLQ, validation for use in the evaluation of the Welsh Assembly Government's primary school breakfast initiative reported that the DITLQ provided an acceptably valid and reliable measure of foods eaten at breakfast (Moore et al., 2007). Additionally, unlike other 24-hour recall measures that typically focus on one day, the DITLQ requires reporting part of the previous day and part of the present day, which it is considered elicits more accurate responses (Edmunds & Ziebland, 2002; Moore et al., 2007). However, the DITLQ was not validated against a gold

standard measure, and instead was validated against a 24-hour recall measure, which is essentially another self-report measure, and thus susceptible to the same weaknesses as the DITLQ, including social desirability bias, participant motivation, and cognitive ability (Moore et al., 2007). Nevertheless, it is considered that within the parameters of these limitations, the DITLQ offers a useful and acceptably valid and reliable measure of the broad categories of foods consumed for breakfast, and offers significant potential as a method for evaluating dietary interventions (Moore et al., 2007).

In dietary assessment, validity of a research instrument refers to its ability to measure food consumption data that represents an accurate dietary intake of the individual (Burrows et al., 2010). It is thus common for dietary assessment tools to be compared against other methods in order to ascertain validity (Burrows et al., 2010). However, as previously discussed this technique is limited because the instruments being compared are susceptible to the same limitations (Burrows et al., 2010). Comparison with biomarkers, such as Doubly Labelled Water, are considered to be the gold standard reference method for validation of dietary intake measures, but they are costly, burdensome, and require high technical skills and resources to administer (Burrows et al., 2010). Validation studies into the use of estimated dietary record methods, with children and adolescents, have reported that these self-report methods can provide unbiased records of food and energy intake in lean subjects up to 9 years old, but underreporting in these methods has been shown to increase with age and BMI (Livingstone, Robson, & Wallace, 2004). In Study 4 of this thesis an estimated non-weighed daily food diary method was utilised, and was thus subject to these limitations. However, in developing the BFDs, a 4-day estimated (un-weighed) daily food diary used by the National Diet and Nutrition Survey to collect data from the UK population was utilised (Lennox et al., 2008). The NDNS research team previously compared the estimated food diary against a 24-hour recall method, and it was found that responses for the two methods were similar (Lennox et al., 2008). Moreover, the NDNS reported that they found no evidence of major differences within the scientific literature between the two methods, and the un-weighed four-day estimated food diary was considered to be more flexible and adaptable to different populations than weighed food diaries and 24-hour recalls (Lennox et al., 2008). In further improving the validity of the BFDs, resources a validated Young

Person's Food Atlas (Foster & Adamson, 2012) were also utilised in the development, providing photographs of age appropriate portion sizes of breakfast foods and beverages.

Finally, internal and external validity in quantitative research relate to the research and study designs. Internal validity is associated with the extent by which the designs are a good fit for the research questions (Twycross & Shields, 2004). Whereas external validity is concerned with the extent by which the results of a study can be generalised to wider populations, beyond the study sample and setting, and is associated with the accurate representation of a population within the sample, and how well the instruments facilitate generalisability (Twycross & Shields, 2004). It is considered that the use of validated methods and measures, which have previously been utilised with similar populations, and implementing strategies to minimise the associated and aforementioned limitations, increased the overall internal and external validity of the quantitative studies carried out in the latter part of this PhD project. For example, internal validity in this project was increased by using validated and reliable instruments and measures, which were appropriate for purpose in the context of the research questions for Studies 3 and 4. Whereas external validity in this project was increased, by enhancing the degree to which the research findings could be generalised outside of the study samples by using previously validated instruments in the development of data collection tools for Studies 3 and 4.

2.3. Research Ethics

The research undertaken for this thesis required careful ethical considerations. Research was carried out within a highly deprived area of the UK, with a hard-to-reach population and vulnerable participants, i.e. children. According to the British Psychological Society's Code of Human Research Ethics, research involving vulnerable groups requires special safeguards (British Psychological Society, 2010). Before research commences, appropriate risk assessments should be undertaken and ethical approval should be gained. It is stipulated researchers should ensure that participants from vulnerable populations are provided with sufficient opportunity to understand the nature, purpose and anticipated outcomes of the research. Moreover, guidance states methods should be utilised, which maximise understanding and thus ability to consent, for vulnerable participants. It is also

necessary for researchers to be aware of legislation applicable to the research location and participant group, and appropriate criminal records disclosures and clearances should be undertaken.

In this thesis, ethical approval was gained from the Faculty of Health and Life Sciences Ethics Committee, Northumbria University, and appropriate risk assessments were undertaken for each study. In accordance with University requirements, and UK Government legislation on working with children, enhanced disclosure and barring clearance was gained prior to research commencing. In addition, knowledge was gained on organisational policy, procedures and safeguards when undertaking research within schools. Consent was gained from children themselves and those legally responsible for the children, i.e. parents and school head teachers. Research information and consent were provided participants in formats relevant to age and participant group (i.e. children, parents, school staff, members of Local Authority/ Public Health). Specifically for children, research information was provided both verbally and in writing. It is advocated that children should be allowed to make their own decisions regarding participation in research, irrespective of parental consent, and children should be aware that it is their right to withdraw from the research (Gibson, 2012). Consistent with the literature on gaining consent from children, attention was paid to any indication (verbal or non-verbal) that children may want to withdraw from the research (Alderson, Priscilla and Morrow, 2004; Skånfors, 2009). Furthermore, for the purpose of safeguarding, data were collected from children within the school environment, and in small (i.e. focus groups) and large (i.e. whole classes).

CHAPTER 3: Universal free school breakfast: a qualitative senior stakeholder evaluation

3.1. Introduction

As the review of the literature in Chapter 1 demonstrated, research into school breakfast is a multidisciplinary field with a range of outcomes relating to health and education, and findings on school breakfast are mixed. Regarding health outcomes, research has suggested that school breakfast may improve nutritional intake, especially for children who are undernourished or from low socioeconomic backgrounds (Bhattacharya, Currie, & Haider, 2006; Kleinman et al., 2002; Murphy et al., 2011). However, possible detrimental effects of school breakfast on health have also been highlighted, with concerns about school breakfast potentially contributing to obesity rates by increasing snacking behaviours and ‘double-breakfasting’ amongst children, and thus increasing intakes of fats and calories, especially when school breakfast is universally provided (Belderson et al., 2003; Gordon, Devaney, & Burghardt, 1995). Moreover, whilst a fundamental aim of school breakfast initiatives may be to reduce breakfast skipping amongst children, research has indicated that instead of reducing overall rates of skipping, children substitute breakfast at home with breakfast at school (Crepinsek et al., 2006; Murphy et al., 2011). Furthermore, it is suggested that the provision of school breakfast may facilitate learning for undernourished children and children who have skipped breakfast, through the mediation of nutritional deficiencies and compensation for a decline in blood glucose after a prolonged period of fasting (Jacoby, Cueto & Pollitt, 1997). However, mixed results have been reported from studies examining the effects of school breakfast on cognitive performance (Adolphus et al., 2016; Chandler, Walker, Connolly, & Grantham-McGregor, 1995), and behaviour in school (Bro et al., 1996; Graham et al., 2015; Richter et al., 1997), and less conclusive evidence exists on the effects of school breakfast on educational attainment and achievement (Mhurchu et al., 2013; Jacoby et al., 1997). However, this research is predominantly quantitative and there are fewer qualitative evaluations of school breakfast schemes. Qualitative research examining school breakfast has largely focused on the views of stakeholders, including children, parents, and school staff and leaders (Bailey-Davis et al., 2013; Crawford et al., 2016; Shemilt, Harvey, et al., 2004).

For example, a recent process evaluation, which was undertaken at the same time as a cluster randomised controlled trial, considered the views of various stakeholders (Crawford et al., 2016). The Magic Breakfast project provided 106 schools in England with relatively high proportions of disadvantaged pupils, with support and resources (free breakfast foods and £300 grant) to implement and deliver a free universal before school breakfast club for all students from Year to Year 5, from September 2014 and July 2015. The aim of the project was to improve attainment by addressing hunger amongst children and increasing the number of children who consumed a healthy breakfast. The process evaluation involved case studies with four schools. Schools conformed to two delivery models, including the provision of school breakfast in a location external to the classroom with various food options in a buffet style format, and an in-class model with children being provided with individual servings. Observations, interviews and focus groups were undertaken in each school with leaders (head teachers, school breakfast co-ordinators and Magic Breakfast school change leaders; n = 10); staff delivering the provision (teaching assistants, pastoral staff, and parents; n = 9); teachers (n = 5); children who took up school breakfast (n = 30); children who did not take up school breakfast (n = 8); and parents of children who took up the school breakfast (n = 8). Findings focused on themes relating to free school breakfast project, concerned with ‘funding’, ‘access’, ‘practical considerations’, and ‘benefits’. Firstly, the theme ‘funding’ highlighted that grants of £300 were not sufficient, and consequently schools reported using pupil premium funds in the school budget to cover set up costs. Schools claimed to be covering costs associated with food items not provided by Magic Breakfast, such as milk and spreads, and for staff time involved in preparing and supervising breakfast. It was perceived there had been an overreliance on the goodwill of staff to deliver school breakfast. There were concerns about the sustainability of school breakfast once Magic Breakfast support was withdrawn, with specific concerns about how schools would cover costs without charging, which it was acknowledged would defeat the purpose of providing school breakfast in the first place and make it inaccessible to the children it was designed to support. Suggested ideas for sustaining school breakfast included generating new sources of income from alternative funders such as sponsorships. Secondly, the theme ‘access’ was concerned with facilitating equal access to school breakfast, how schools

organised the timing and delivery of breakfast, and whether schools should charge. The decision to provide free school breakfast was underpinned by the perception that cost acted as a barrier to participation, and thus free breakfast reduced barriers and stigma. With regards to timing and delivery, the provision of a breakfast just before the start of the school day, was advocated for tackling of problems associated with attendance and punctuality by enticing students and families to attend and be on time. Thirdly, the theme 'practical issues' revealed there were difficulties in the set up and delivery of school breakfast, such managing supply and demand of breakfast food items, with regular changes in children's preferences, in addition to wrong items being delivered by suppliers. In addition, school environments influenced the design of school breakfast menus, with the requirement of more hand-held items when breakfast was served in the classroom in order to minimise mess. Finally, the theme 'benefits' highlighted a number of positive aspects relating to the provision of school breakfast. It was considered that school breakfast alleviated hunger in children, who arrived to school hungry having not consumed breakfast or having consumed an inadequate breakfast. It was perceived that alleviating hunger amongst children meant that children were no longer unfocused and agitated during the school morning, and consequently classrooms were thought to be more settled and less disruptive with children being more able to concentrate. There was a general positive attitude towards school breakfast, and it was supposed that it improved health and nutrition, provided children with choice, and conferred social benefits. In addition to benefits for children and schools, school breakfast was also perceived to have benefits for parents and families, and was deemed to alleviate stressful morning routines. Whilst this study provided interesting and useful knowledge on the logistical issues involved in implementing a school breakfast programme and the outcomes for various stakeholders, research was undertaken in relatively early stages of implementation of the scheme. As funding and support from Magic Breakfast was reported to be a temporary measure, further research into the longer-term impacts from the perspective of sustainability and outcomes would be interesting.

Comparatively, a USA based qualitative study examined the perceptions of Government-Sponsored Free School Breakfast amongst a convenience sample of students ($n = 23$) and female parents ($n = 22$) recruited from 3 schools participating in the breakfast initiative (Bailey-Davis et al., 2013). In the context that participation

in school breakfast was reported to be less than half of that of school lunch, the aim of the study was to enhance understanding on the discrepancy between access and participation in school breakfast within a low income, urban area. The study utilised parent (n = 2) and student (n = 4) focus groups to explore topics relating to breakfast consumption behaviours, breakfast likes and dislikes, and views about breakfast, and participant observations. Data were coded using an inductive content analysis method in order to gain understanding of participants' experiences and perspectives, which involved the development of codes from key words and phrases. Findings were compared between students and parents in order to gain understanding on the similarities and differences in their perspectives. Findings focused on themes relating to 'sociocultural beliefs', 'physical availability', 'economic accessibility', 'social stigma', and 'breakfast consumption practices'. Both students and parents believed that consuming breakfast was important for learning, specifically in being able to focus, having energy, being alert, and avoiding fatigue, hunger, headaches, stomach pains, negative mood, and illness. However, both students and parents also claimed to prefer breakfast at home, mainly because children's preferences could be met, and parents were assured children had eaten. Amongst children school breakfast was perceived as being a second or even third choice, with social stigma, food preference concerns, and time pressures due to sleeping patterns, reported as reasons for the less desirable positioning of school breakfast, and thus the lack of participation/attendance. Suggestions for improvements included students being involved in the planning and changes of school breakfast, and the provision of monthly menus to parents and children, but there were a lack of suggestions on how to contend to the social stigma associated with school breakfast. Students reported purchasing food items on the way to school, despite parental rules against this, and discussed consuming two breakfasts a day across various settings such as home, on the way to school, and at school. Whilst this study provided important information about the sociocultural perceptions and experiences of parents and children, concerned with school breakfast provision, the study did not consider the views and experiences of schools involved in the provision. Themes concerned with stigma and practical considerations could perhaps have been explored in more depth with the inclusion of school staffs' views on the school breakfast programme.

Study 1 of this thesis extended on findings from qualitative evaluations of school breakfast programmes, and highlighted issues beyond those that have already been explored. The study presents a unique contribution to the research literature by presenting a conceptual model for understanding the issues involved in the implementation and delivery of a USFB initiative, and perceived outcomes of the scheme at various levels, from the perspectives of senior stakeholders. The investigations this study were influenced by socioecological theory; specifically the interplay between individuals, society and the environment, and the impact on health and health behaviour (Sallis, Owen, & Fisher, 2008; Stokols, 1996; Townsend et al., 2013). According to socioecological models, a reciprocal relationship between individuals and their social and physical environments exists, and compatibility between individuals and their environments is considered to have a strong influence on health and wellbeing. Therefore, the aims of Study 1 were examine key factors affecting USFB environments, such as the leadership, implementation and delivery of the USFB, and also explore the perceived impacts of the provision of a council-wide USFB programme on children, on family, school and community environments, and on the town overall. The following research questions underpinned these aims:

- What were the issues in the implementation and delivery of the UFSB scheme, according to senior level stakeholders?
- What were the perceived impacts of the scheme on children, parents, families, communities and the town, according to senior level stakeholders?

3.2. Method

3.2.1. Study Design

This study employed a qualitative grounded theory design to examine the views of senior level stakeholders involved in the implementation and delivery of a local authority led UFSB programme. Qualitative approaches are perceived to be beneficial in gaining knowledge on governmental interventions, by facilitating the exploration of the contexts in which these initiatives operate; highlighting impacts on different groups in the population, and identifying successful and unsuccessful outcomes, and factors relating to delivery and organisation (Spencer et al., 2003). Purposive and theoretical sampling processes were employed in the recruitment of participants. Data were analysed using a grounded theory method; namely open,

axial and selective coding. In order to increase the validity and credibility of the findings a variety of strategies were employed including triangulation, member checks, participant quotations, debriefing and interrater reliability. Multiple methods of triangulation were utilised, including interviews with participants from the Local Authority, Public Health and schools, and a three staged systematic analysis, which allowed for checking the findings against different data sources and perspectives. A more in-depth discussion on the aforementioned methods is provided in the Methodology in Chapter 2.

3.2.2. Recruitment

Participants were recruited from senior directorates within the Local Authority and Public Health, including those involved in the leadership, implementation and delivery of the UFSB scheme, and from the senior staff body of mainstream primary and secondary schools participating in the UFSB scheme. In recruiting participants, a non-probability approach was utilised with purposive and theoretical sampling strategies. The purposive element of the sampling framework was underpinned by the literature on typical and critical case sampling (Bryman, 2015; Richie & Lewis, 2015), by which participants are recruited on the basis of their position as a pivotal individual involved in the UFSB scheme at a senior level. This approach is considered extremely valuable to evaluation type research because it helps to highlight the features of a process (Patton, 2012; Richie & Lewis, 2015). Theoretical sampling, is a concept driven approach, which allows for participants are sampled on the basis of their potential contribution to the development of themes that emerge from the data, thereby allowing the researcher to explore emergent constructs in depth (Corbin & Strauss, 2014; Richie, Jane; Lewis, 2015). Theoretical sampling is deemed to be especially useful when undertaking research into new or unchartered fields, facilitating the exploration of issues from various angles and fortuitous events (Corbin & Strauss, 2014).

In this thesis study, six participants were initially purposively recruited in April 2015, and subsequently a further thirteen participants were recruited using theoretical sampling techniques, over the period of nine months. This allowed for an ongoing iterative process of recruitment, data collection and analysis. The final sample included nineteen participants (11 females and 8 males; mean = 46 years; range = 32- 58), comprising of eight participants from within the Local Authority

and Public Health, and eleven participants employed in senior roles within mainstream primary schools or specialised schools, participating in the UFSB scheme. Data collection concluded after nine months, when it was considered that saturation of categories and themes had been achieved. In accordance with the advice on employing Grounded Theory methodologies, a technique known as theoretical saturation was utilised for this thesis study. Theoretical saturation is attained when every category is well developed, and its properties and dimensions are defined, detailed and include sufficient variation (Corbin & Strauss, 2014). This technique is supported by the use of the aforementioned theoretical sampling technique, which allows for concepts to be explored in more depth during an ongoing iterative process of data collection and analysis, where themes are developed, tested and refined, and all major concepts are developed, display variation and are cohesive (Corbin & Strauss, 2014).

All participants for this study were recruited from a town within the North West of England, UK, within an area experiencing significant levels of deprivation. Senior school staff were recruited from nine schools, located within the aforementioned town. The demographic characteristics of each school and associated communities are provided in Table 3.1. All nine schools were located in an area inhabited by a higher percentage of white British citizens (>88% white British) than the proportion across whole of the North West of England (87.1% white British) and England overall (79.8% white British). Only four of the participating schools (Schools, 4, 5, 6, 7) had a higher proportion of the populace claiming working age benefits than the population across the whole of the North West of England (19%). However, all but one school, (School 9), had a greater percentage of the residents in the community claiming working age benefits, than the whole of England overall (15%). Two thirds of schools (Schools 2, 3, 5, 6, 7, 9) had a sizable proportion (>30%) of students eligible for free school meals (FSM), with one school (School 2) having almost half of students eligible for FSM, and a further three schools (Schools 3, 7, 9) having over half of the student populace eligible for FSM. All the nine schools were located in communities within the bottom half of neighbourhoods ranked on indicators of deprivation, such as income, employment, health, education, crime and living environment (Indices of Deprivation, 2015). Three schools (Schools 5, 6, 7) were situated in communities, which ranked in extremely low

(<10% of neighbourhoods) on the index of deprivation, with two of these schools (Schools 6, 7) positioned in the bottom 1% of deprived areas in England (Indices of Deprivation, 2015).

Table 3.1. School characteristics and school area demographics for Study 1

School	School demographics ^a		School and local area demographics ^b			
	Pupils on role ^(N)	School type	% Pupils entitled to FSM	% All people of working age claiming a key benefit	% White British	Indices of deprivation: total deprivation ^c (Rank: 1 - 32,844)
1	398	Voluntary Aided School	12.1	17	96.3	10346
2	186	Pupil Referral Unit	48.4	17	94.9	9927
3	53	Community Special School	51.5	16	93.9	13995
4	194	Voluntary Aided School	14.4	21	96.4	9270
5	671	Academy Converter	38.5	29	96.41	3561
6	228	Academy Converter	34.8	44	96.4	188
7	451	Community School	63.2	55	88.0	18
8	450	Voluntary Aided School	13.9	16	95.2	7600
9	95	Community Special School	54.8	15	95.1	10779

(a) Information taken from: < <http://www.education.gov.uk/>>

(b) Information by ward taken from: <http://www.neighbourhood.statistics.gov.uk>

(c) All 32,844 neighbourhoods in England have been ranked on a range of deprivation topics including income, employment, health, education, crime and living environment, with the most deprived neighbourhood in England having a rank of 1, as of 2015

At the time the data were collected all nine schools were participating in an established UFSB scheme funded by the local council, and operating since January 2013. Schools applied different models to suit school resources and attending children. Breakfast was served in all schools either, before the start of the school day, at the start of the school day, or during the period between school starting and first break time. Breakfast was served in the classroom, school hall/ canteen or in the school yard. Moreover, items served largely consisted of, handheld bread items such as bagels, malt loaf, waffles and pancakes, fruit served as whole pieces and prepared in bags, yoghurt drinks, milk and water.

3.2.3. Materials

Research information sheets and opt-in consent forms were devised for all participants (See Appendix A for examples). Demographic data were collected from all participants at the consent stage of recruitment via a short questionnaire incorporated into the consent forms. Furthermore, a semi-structured interview schedule, was developed with the aim of eliciting the perceptions of senior level stakeholders on the impacts and issues associated with the UFSB scheme at local authority, community, school, family, and individual (child) levels (See Appendix B). The interview schedules comprised of predominantly open ended and probing questions. One-on-one semi-structured interviews were chosen as the method for data collection for the present study, to allow for a more in-depth exploration of individual perceptions and experiences and deeper probing of personal or contentious issues (Barriball & While, 1994; DiCicco-Bloom & Crabtree, 2006). As data collection progressed, in accordance with the aforementioned theoretical sampling technique, further probes were incorporated into the interview schedule, in order to further explore and add detail to emergent concepts and themes (Corbin & Strauss, 2014).

3.2.4. Procedure

Following ethical approval from the Faculty of Health and Life Sciences Ethics Committee at Northumbria University, participants were recruited via email. For individuals from within the Local Authority and Public Health, research information and opt-in consent forms were sent, consent was gained and dates and times were organised for interviews via personal assistants within the Local Authority. Six participants from this group took part in the first set of interviews

during April 2015. These interviews were undertaken face-to-face and took place in council offices. Subsequently, a further two participants were interviewed by telephone during August 2015. Participants from the senior school staff group were all recruited via school email contacts and interviewed by telephone between June and December 2015. All interviews were arranged at the convenience of the participants.

The decision to undertake both face-to-face and telephone interviews was a pragmatic choice to reduce the burden on participants, thereby increasing participation, with the additional benefit of less impact on time and other resources. The reported advantages of telephone interviews include decreased costs in budgets such as travel, increased ability to sample widely geographically dispersed participants, decreased requirement for space, decreased social pressure, increased rapport and increased researcher safety (Novick, 2008; Sturges & Hanrahan, 2004). However, the absence of non-verbal visual cues may be considered a limitation (Novick, 2008; Sturges & Hanrahan, 2004). Nevertheless, research has shown that, when compared to other modes of interviews, qualitative telephone interviews showed no significant differences in the depth of consent and quality of themes; thereby suggesting telephone interviews could be utilised successfully in qualitative research, and alongside face-to-face interviews (Novick, 2008; Sturges & Hanrahan, 2004).

In the current thesis study each interview commenced with a brief introduction to the research aims and objectives, and all participants were informed of their right to withdraw from the interview at any time and their freedom to refrain from answering any questions they were uncomfortable answering. Additionally, participants were advised of confidentiality and anonymization procedures, and prior to recording, permission was gained from participants to record their voices. No participants opted out of the study at this point. Participants were encouraged to speak freely regarding each topic of interest and prompted where necessary. Interviews concluded when all the topics were exhausted and the interviewee felt they had nothing more to add to the discussion. Finally participants were thanked, verbally debriefed and provided with a written debrief form (See Appendix C for an example). A total of 19 interviews were undertaken overall, ranging in timescales between 20 and 90 minutes. Interviews were audio recorded using a Dictaphone

recorder and transcribed verbatim for subsequent analysis. (See Appendix D for examples of transcripts from interviews with senior stakeholders).

3.3. Analysis

Data transcripts were the main unit of analysis. Each individual recording was listened to in its entirety and orthographically transcribed to gain a holistic sense of the data and provide a written narrative of each participants' contribution. Specific grounded theory methods were utilised in the coding of the data transcripts. This coding framework was underpinned by Strauss and Corbin's coding processes identified as open, axial and selective coding (Corbin & Strauss, 1990). These analysis procedures are described in more depth in the Methodology in Chapter 2. During the first stage of analysis all the data was imported into Nvivo 10 for ease of access and organisation. During open coding the data from the two participant groups, (i.e. Group 1 = Local Authority and Public Health participants; Group 2 = School Participants), were analysed as separately at this stage in order to ensure that the key issues emerged distinctly for each group. Following this stage of analysis two banks of codes were developed for each group. The subsequent process in the analysis was axial coding, where codes were refined into larger themes and sub-themes, and a comparative method was utilised in order to identify relationships between and within these categories and sub-categories. During this phase of analysis data collection was ongoing. In accordance with the literature on theoretical sampling and saturation techniques, data collection concluded when it was considered that no more key concepts were emerging from the data and current themes, concepts and categories had become saturated (Corbin & Strauss, 2014; Walker, 2006). The final stage of analysis was selective coding, which involved a greater focus on factors including, conditions, context and consequences, and the data was further refined into a central conceptual model. In the present study, a reiterative comparative method was utilised to identify relationships within and between themes and sub-themes, and groups. As part of this analytical process, the refined themes and relationships from each of the previously mentioned groups were merged, and a model was developed to demonstrate a framework for understanding the issues encountered in the leadership, implementation and delivery of a UFSB scheme. A visual representation of this conceptual model is provided in Figure 3.1. (Examples of excerpts for themes and sub-theme are provided in Appendix E)

Reliability analysis was conducted on 10% of the data in accordance with recommendations set out in the literature (Mouter & Vonk Noordegraaf, 2012). The second coder providing confirmation there was 100% agreement between the audio recordings and the corresponding transcripts. Moreover, there was reasonable agreement (Cohen's Kappa = .72) between first and second coders interpretation of the transcripts. Subsequent discussions were undertaken between first and second coders and following this process clarification was gained between coders and agreement between first and second coders was increased to (Cohen's Kappa = .86), demonstrating considerable agreement between coders. Further detail on the processes involved in inter-rater reliability in the qualitative studies in this thesis, and the literature supporting these processes is provided in the Thesis Methodology in Chapter 2. (Examples of coding discrepancies and resolutions are provided in Appendix F.)

3.4. Findings

The findings from semi-structured interviews with senior level stakeholders are presented in the sections below, in themes and sub-themes relating to leadership, implementation and delivery of the UFSB scheme, and the perceived outcomes of the UFSB scheme for children, parents, families, schools and the community. *Group 1* includes findings from Local Authority and Public Health participants, whom were significantly involved in the leadership, implementation and delivery of a UFSB scheme at a directorate and/ or executive level. *Group 2* includes senior level school staff from mainstream primary and specialised schools participating in the UFSB scheme. The findings are represented in a visual model in Figure 3.1.

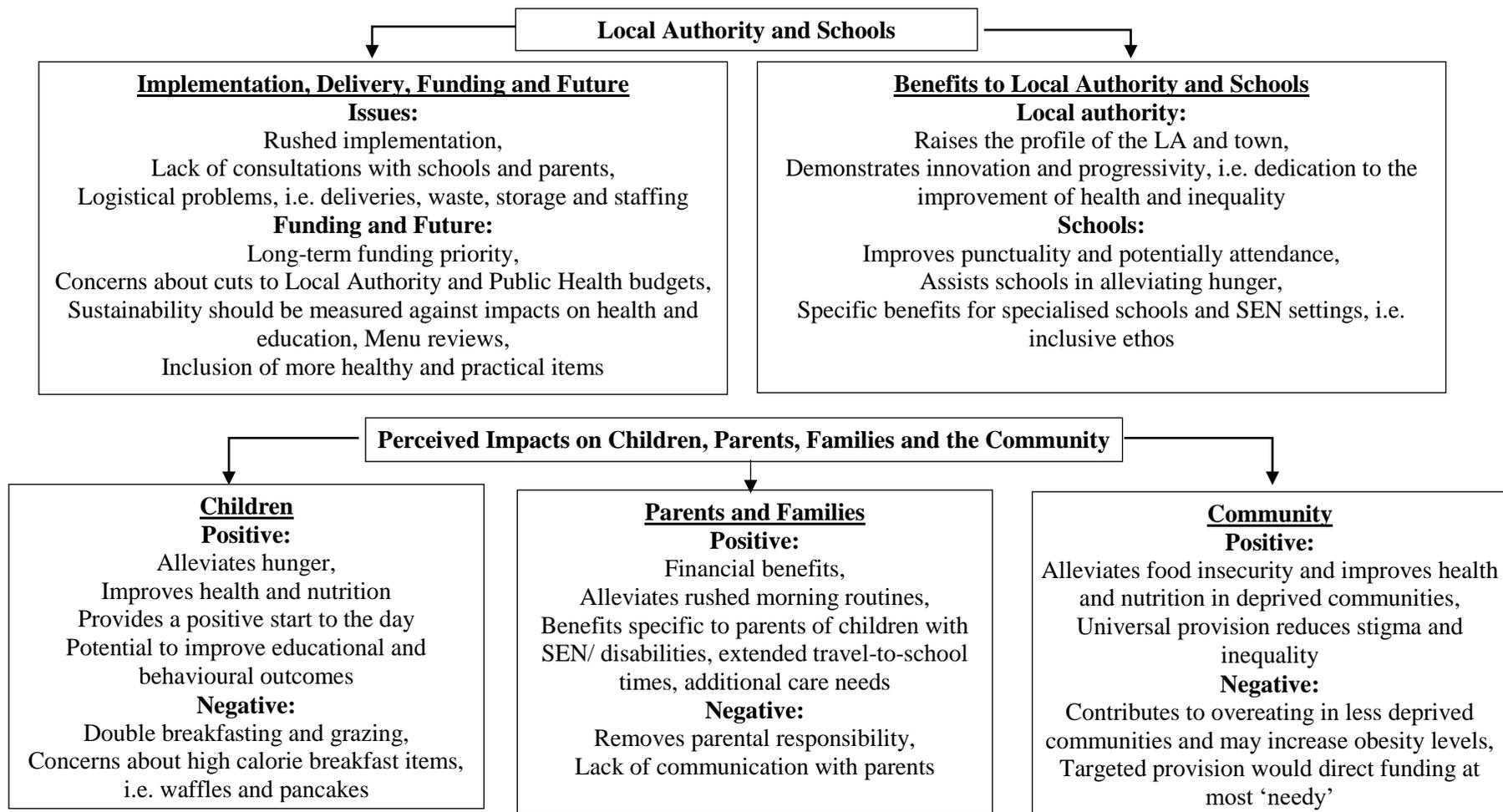


Figure 3.1. UFSB: a qualitative process evaluation according to the perspectives of senior stakeholders - visual model of the findings for Study 1

3.4.1. Theme: Implementation, Delivery, Funding and Future of the UFSB scheme

This theme comprises of two sub-themes, relating the reported issues encountered in the implementation and delivery of the UFSB scheme, and the funding and future of the scheme.

3.4.1.1. Sub-theme 1: Issues in the Implementation and Delivery of the UFSB Scheme

Group 1 - Local Authority and Public Health:

The implementation period of the UFSB scheme was considered to be rushed, with a lack of communications with schools participating in the scheme. It was reported head teachers were informed of the Council's plans to introduce the UFSB scheme during the period when the scheme was announced in the local press. It was acknowledged, in retrospect, that communicating the scheme to head teachers, subsequent to the UFSB scheme being announced in the media, may have been problematic for schools, making it difficult for them to opt-out of the scheme: *"It had been announced in the press and which school was going to say to parents your children are not going to have the free breakfast"*. Thus, it was deemed the absence an appropriate communication strategy may have contributed to issues with schools in the initial stages, which perhaps may have been resolved prior to implementation: *"You set yourself up for issues and complaints and if you don't [consult]."* Issues encountered with schools in the primary stages of delivery, included problems with storage of breakfast items, high levels of waste, and provision of additional staffing. It was reported these issues were resolved through reorganisation of deliveries of breakfast items, funding for additional rubbish collections and reimbursing schools for additional staff time spent on school breakfast duties: *"We have bought bins. We've paid for additional bin collections. [...] We are paying for staff time to prepare and accept deliveries and distribute it out."* It was considered high levels of waste in the early stages of the scheme were due to costing and delivery of the UFSB scheme at 100%: *"It was a universal offer so obviously we costed and planned delivering at 100%."* Waste was therefore reduced once knowledge was gained on portion sizes across different age groups: *"It settles down and you start to understand portion control and the difference from reception through to year sixes."*

Moving forward it was regarded communication with schools was an area that required improvement, and it was acknowledged the Local Authority needed to reengage schools, and work with them to gather data on the scheme and reduce costs: *“We've struggled to get the schools to engage with us on it so there's no ongoing active interest.”*

Group 2 - Senior School Staff:

The aforementioned issues concerned with rushed implementation and absence of an appropriate communication strategy were also highlighted by senior school staff. It was reported some senior school staff felt obliged to participate in the scheme without prior communication from the Local Authority: *“There was no dialogue. [...] It was a question of well you will implement it and if you don't implement it then you will look very good when you.”* The publication of the UFSB scheme in local and national media, preceding consultations with schools was also any area of discontent for senior school staff, which placed schools in a difficult predicament with parents and the local community: *“We felt almost forced into implementing the scheme because it was said that every primary school will be serving this. We thought if we are the only school that says to our parents, we are not going to do it, that makes the school look bad.”* Moreover, the introduction of the scheme was perceived as a top down approach on schools, as opposed to a collaborative approach with schools: *“The council leaders basically stood at the front of a huge meeting of head teachers and said, ‘This is what is happening, you're all going to have to offer breakfast and you're all going to do it like this.’”* Additionally, it was supposed the issues, which emerged in the implementation of the scheme, may have been avoided with adequate planning and problem solving with schools: *“We are the people who actually working in the schools delivering the programme. We know the sorts of things that they didn't think about.”*

Some of the issues encountered by schools in the implementation of the UFSB scheme included problems with storage of school breakfast items and high levels waste. It was reported that storage issues were resolved quickly by renegotiating more frequent deliveries: *“We negotiated with the contractors to come twice a week rather than once a week.”* High levels of waste in the initial stages resulted in foods being used by staff, sent home with children, and taken to local food banks: *“A head teacher colleague of mine, on a Friday, on his way home, was*

going via the food bank and dropping in food.” Nevertheless, waste was reduced once schools had a knowledge about the quantity and choice of breakfast items children consumed, and could reduce their orders accordingly: *“In the first instance there was an awful lot of waste, but people now are ordering smartly.”* Moreover, some staff reported reducing waste by changing from individual serving model to a self-serve model, resulting in children only taking the food they wanted to eat and being less likely to part eat foods: *“They help themselves and if they don't want it they don't get it.”*

3.4.1.2. Sub-theme 2: Funding and Future of the UFSB Scheme

Group 1 - Local Authority and Public Health:

Whilst the UFSB initiative was a priority for the current administration and there were no plans at the time of the interviews to cut the scheme, it was acknowledged that councils had been advised by central government to prepare for up to 40% cuts to overall budgets, and therefore were unable to forecast the impact of such cuts on public spending: *“All councils have been prepared, have been told to prepare for 40% cuts. I have no idea how 40% cuts will impact on councils.”* It was recognised the cost of the scheme would need to be examined at some point to assess its sustainability: *“At some point we are going to have to look at whether it is sustainable.”* Moreover, it was considered the scheme needed to be measured against impact on factors such as educational attainment, attendance and punctuality: *“If you can actually start to measure the impact on educational attainment and attendance, that'll be a positive impact, which may then justify carrying on with the spend.”* A long-term future for the UFSB scheme was anticipated, as it was deemed that the UFSB scheme had become embedded within schools, families and the local community. As a significantly deprived town, it was supposed a considerable number of families would presently rely on the scheme for a variety of reasons, including low incomes, food insecurity and rushed morning routines: *“It would really cause people an inconvenience if you took away now, so I don't see it stopping in the short term.”* There were concerns that terminating the scheme would have a detrimental impact on children, families and schools: *“You can't play with people's lives to the point that you switch this on and off.”* Therefore, making cuts to the scheme or changing it in anyway, such as means testing, was considered to be a

problematic political decision: *“It’s embedded now and to try and take it away would be very a difficult contentious political decision.”*

Group 2 - Senior School Staff:

Moving forward senior school staff reported they would like more frequent reviews of the menu and more practical, but healthy school breakfast items: *“I think that the council need to look into healthy options, because I know it’s quick for the fact they can just pick it up and eat it there and then, but we’ve got to look at the wider impact on the children.”* There were concerns raised that without frequent reinvention, children may get menu fatigue and interest in the scheme may reduce. It was suggested children should be included in decision making about breakfast items and menus: *“I think they should involve the children in some of the possible products that they offer and involving them in getting their views.”* Moreover, some senior school staff reported they would also like to explore healthier options such as cereals and porridge. One school claimed they had expressed an interest in offering cereals and porridge, but were not being supported by the Local Authority to make the necessary changes to move to a full breakfast service model before the start of the school day: *“We had some conversations with the council, but nothing came of it because it almost seemed like it was too hard. We couldn’t do this on that sort of scale that all schools might want.”* Conversely, other senior school staff maintained that they felt supported by the Local Authority to deliver more options such as cereal, porridge and toast, but were discouraged to do so by the additional challenges: *“It would mean washing bowls, spillage, just the whole milk and cereal, that kind of thing. It’s just not practical.”*

3.4.2. Theme: Wider Benefits of the UFSB Scheme for Local Authority and Schools

This theme relates to the wider benefits of the UFSB scheme to the Local Authority and Schools. It comprises of two sub-themes relating to the perceived benefits of the scheme to the Local Authority, and the supposed wider benefits of the scheme for participating schools.

3.4.2.1. Sub-theme 1: Raises the Profile of the Local Authority

Group 1 - Local Authority and Public Health:

It was considered publicity of the UFSB scheme raised the profile of the Local Authority and the town nationally: *“It’s given us a lot of credibility.”*

Additionally, coinciding the implementation of the UFSB scheme with the introduction of the School Food Plan, was perceived to have promoted a positive representation of the Local Authority, as pioneers in working with schools to improve nutrition and diet: *“The director of the School Food Plan came and visited a number of schools, looked at the program in action, and thought it was absolutely amazing.”* Furthermore, it was reported that members of the leadership team were invited to government and public sector conferences to present information about the UFSB scheme: *“XX and myself spoke in the House of Commons regarding this because it's had so much publicity around the whole of the country.”* It was also claimed other local authorities sought information about the UFSB scheme: *“It has set us apart in the sense that lots of people want to do it, but they have not been able to find that magic key to doing it.”* Ultimately it was perceived the scheme raised the credibility of the Local Council amongst local and national government: *“It's been received really well and I think we've been seen as ground breaking.”* It was considered the unique scale and universality of the scheme, not provided anywhere else within England, demonstrated the Local Authority was forward-thinking and intuitive: *“We're quite at the forefront, in terms of doing this. There's nowhere else in the country offering anything quite like what we're doing.”*

3.4.2.2. Sub-theme 2: Wider Benefits to Participating Schools

Group 2 - Senior School Staff:

The UFSB scheme was supposed by some senior staff to have had positive impacts on punctuality, due to the appeal of a free breakfast meal at school: *“It's also helped with getting children into school. They want to be in now because they know that they are going to get their breakfast.”* In some schools it was considered certain children and parents were more likely to arrive to school on time since the introduction of the UFSB scheme: *“Children like to be pushing their parents to get them into school because they want the breakfast.”* Moreover, in schools that offered breakfast before and at the start of the formal school day, it was maintained there had been a definite improvement in punctuality, through the provision of a greater window of time to arrive to school: *“Now they can be five minutes late and still be in school okay.”* This additional window of time was reported to provide the added benefit of less congestion around school: *“It helped us because we've not had a load of congestion.”* Furthermore, it was thought free school breakfast may also have the

potential to positively impact on attendance, particularly for children experiencing food insecurity: *“They know that they are going to get their breakfast, they get their dinners. Where the parents are not feeding them they know that they are going to be fed.”*

In contrast to mainstream primary schools, it was reported special schools had children attending from a wider age range, with all children being offered a free breakfast meal: *“We offer to all our children and we have got 2 to 19-year-olds.”* It was considered universal provision of the UFSB scheme was beneficial in SEN settings because it integrated well with the positive inclusive ethos in schools and did not segregate children based on proxy measures of income: *“It doesn't make anybody feel different. Everybody is the same. It has got a very positive ethos in school.”* Moreover, senior staff from special schools reported the UFSB scheme had been incorporated with the curriculum, across a variety of areas including personal, social, health and economic education, catering and hospitality, and general communication and social skills: *“We have that as part of our life skills. It's as though you're working in a café. Obviously food hygiene, how you would present food and how you would communicate with people.”* Furthermore, as children attending specialised schools may have an earlier morning than their peers attending mainstream primary schools, due to being transported to school and to accommodate for additional care needs, it was considered that having the resources to provide a breakfast meal was particularly beneficial. The flexible nature of the UFSB scheme was considered by senior staff from special schools to have been beneficial in the implementation of the scheme: *“It's quite flexible for us because the Key Stage 2 all come in and have breakfast straightaway. The old ones come in at different times; it enables us to give them their breakfast a bit later.”*

3.4.3. Theme: Perceived Outcomes of the UFSB Scheme for Children

This section focuses on the perceived impacts of the UFSB scheme on children. The first part focuses on the supposed positive outcomes of the UFSB scheme for children, including alleviating hunger, improving dietary health and habits, and apparent educational benefits. The second part focuses on the alleged negative outcomes UFSB scheme on children, including concerns about the potential for children to overeat across the morning ‘double-breakfasting’, and the high calorie content of some school breakfast items served.

3.4.3.1. Sub theme 1: Alleviates Hunger and Provides a Healthier Breakfast
Group 1 - Local Authority and Public Health:

The fundamental intention in introducing the UFSB scheme was to ensure that primary school children were no longer hungry across the school morning. Prior to the introduction of the scheme it was claimed children were arriving to school hungry, some having not eaten since their last meal at school: *“The information we were getting back from schools around the number of kids who were coming in having not eaten and teachers providing food.”* Prior provision for hungry children was reported to have been met by individual schools and teachers, on an ad-hoc basis: *“Individual teachers, individual welfare assistants and learning support assistants, actually paying for some kind of food out of their own money.”* This was deemed unacceptable by the Local Authority; hence the introduction of the UFSB scheme, and ensuring all primary school children had the opportunity of a breakfast meal: *“That made quite clearly that there was a definite need first thing in the day.”* However, it was considered, whilst the town overall experienced high levels of deprivation, there was a greater need for the scheme amongst the more deprived communities within the town: *“The scheme is being more formally welcomed in the very deprived areas. They were the ones that had to deal with the kids that were arriving malnourished and that's inevitable.”*

It was also thought school breakfast may be typically healthier than breakfast at home or on the way to school: *“They may not be getting a healthy breakfast at home. If we can promote a healthy breakfast in school then that benefits them [children].”* It was perceived school breakfast perhaps provided some children with a wider choice than they may encounter at home. Additionally, it was felt school breakfast provided children with autonomy and independence to make their own decisions and choices, and perhaps encouraged children to try new foods: *“I would hope that children were trying things that they didn't try previously.”* Moreover, it was believed that eating with their peers may encourage children to sample different foods: *“Peer pressure is a great thing, so if their friend's trying something they tend to try it.”* Since the introduction of the UFSB scheme, it was thought children were less likely to buy high calorie foods and beverages to consume on the way to school, and parents were also less likely to give children money to buy breakfast on the way

to school: *“Parents are less likely to give them money as well. [...]They can say well get your breakfast when you get to school.”*

Group 2 – Senior School Staff:

Senior school staff also considered the UFSB scheme alleviated hunger amongst children in primary schools, by providing children with the opportunity to have something to eat and drink in the morning at school: *“It ensures that all our young people have the opportunity of having something to eat first thing in the morning. I know some of our young people are very hungry. The fact that the food is always there is reassuring for them.”* In addition it was also thought the UFSB scheme bridged the gap between breakfast and lunch for children who received an early breakfast, perhaps due to parents leaving early for work or travel to school times: *“The youngster who has already had porridge at 6:30 that morning, you're looking at two and half hours later. It's a long time to lunchtime, so it bridges that gap.”* Moreover, feeding hungry children in the mornings was believed to be easier for schools since the introduction of the UFSB scheme because it afforded easy access to practical food items: *“If they do say that they're hungry, I've got the resource there. I don't need to go to breakfast club stores and pull it out of my reserves. It's there and it's available.”*

Senior school staff also perceived, for some children, the breakfast meal served at school may be healthier than breakfast at home or on the way to school: *“We've got children seeing healthy breakfast displayed in the morning. It's fresh and it's good for them.”* School breakfast was thought to provide children with independence to make choices about the foods they wanted to eat and potentially encourage children to try new foods they may not have previously consumed, *“It's actually given them the choice. You've taken away, you will eat this or you won't eat it.”* Prior to the introduction of the UFSB scheme, senior school staff reported some children arrived to school in the mornings with high calorie/ low nutrition snack foods and beverages, such as crisps, chocolate, biscuits and carbonated drinks: *“They would often come into school and buy a can of pop on the way, crisps on the way and eat that for breakfast.”* It was deemed these behaviours had reduced with the introduction of the UFSB scheme: *“I have not seen in months, children walking to school eating junk. I did see that before breakfast came along.”* Additionally, it was considered parents were less likely to provide children with money to buy breakfast

on the way to school since the introduction of the UFSB scheme: *“Some of our parents here would give their kids money to get breakfast on the way to school, so they might get back crisps to bags of sweets. Now they are coming into school and getting something of some nutritional value.”*

3.4.3.2. Sub-theme 2: Perceived Educational Benefits of the UFSB Scheme

Group 1 - Local Authority and Public Health:

In addition to alleviating hunger, raising educational attainment was also an aim of the UFSB scheme. Feeding hungry children in the morning was considered a means of improving attainment, by ensuring children were not hungry and thereby ready for learning: *“We have poor levels of educational attainment. It's great that we can feed those kids properly, so that they are ready to learn.”* With regards to impacts on educational outcomes other than learning, it was considered that UFSB had the potential to improve punctuality because children were more like to arrive on time: *“I am aware that kids now get to school earlier than what they did.”*

Moreover, for children from chaotic or working households, where time may be limited in the morning, it was perceived the UFSB scheme provided children with a calm and positive start to the day. This positive start to the day was also presumed to provide children with social development opportunities to interact with their peers and staff whilst eating breakfast, which was thought may not be feasible every morning at home: *“The fact the children sit down with their friends and have their breakfast. I do believe that it has a very calming influence.”* This was deemed to have beneficial impacts on the school environment and classroom behaviour: *“The key feedback from heads is that they are ready to learn and breakfast plays an important role in it.”* It was perceived that by alleviating hunger, and improving the school environment, free school breakfast would contributed to happier, healthier, well-nourished and attentive children, leading to longer term impacts on educational attainment.

Group 2 – Senior School Staff:

It was perceived amongst senior school staff that school breakfast reduced children’s anxieties about being hungry and therefore was beneficial for learning: *“It reduces their anxiety and their anger because they know that they are going to get something when they get to school. [...] It improves their behaviour because they are not hungry.”* It was reported, for some children, school breakfast was their first meal

of the day, which ultimately prepared them for a morning of learning: *“For some children it's their first meal of the day and it means that they're ready to learn and they get something inside them before they start.”* It was supposed, since the introduction of the UFSB scheme, children were no longer losing concentration in class due to hunger: *“We don't have hungry children who lose focus and attention.”* Likewise, school breakfast was also considered to impact positively on the school environment, providing a calm and positive start to the school day: *“They can have a bit of time and a bit of something to eat with their friends, and maybe read a book. It is quite a nice time in the classroom that is a positive experience for them.”* Furthermore, it was considered school breakfast provided schools resources to feed children quickly, meaning staff were spending less time on feeding hungry children and more time on facilitating learning: *“The fact that the breakfast that we've got is easily available and you can just give them something quite quickly. It means that once they get into lessons they can start learning.”* In the longer-term it was envisaged these positive outcomes on learning, behaviour and the school environment, would have a positive impact on educational attainment.

3.4.3.3. Sub-theme 3: Double-Breakfasting and Grazing across the Morning Group 1 - Local Authority and Public Health:

Local Authority and Public Health participants were aware of concerns about the potential detrimental impacts of the UFSB scheme on children, such as encouraging overeating and increasing obesity levels: *“There is some concern that maybe some children are double eating in the morning.”* It was perceived a small minority of children, perhaps from more affluent areas of the community, may be eating breakfast at home and at school: *“If they are getting an unhealthy breakfast at home in the more affluent families, and then getting a healthy one at school it is still adding calories.”* However, it was contested that concerns about children overeating in the mornings may be exaggerated and conceivably most children would not continue to consume foods and beverages once they were satiated: *“If they are not particularly hungry, if they only want a piece of fruit in the morning that is all they will take. They don't cram it in.”* Moreover, it was highlighted some children may be receiving an early breakfast, due to having working parents or a longer travel time to school, and may therefore be hungry during the school morning. It was perceived school breakfast ensured that all hungry children were provided for regardless of the

circumstances. In order to prevent potentially undesirable impacts of double-breakfasting, it was considered that communications with parents needed to be improved as a matter of urgency: *“We need to get the right message to parents that we will be providing breakfast for those kids.”*

Group 2 – Senior School Staff:

There were concerns raised amongst senior school staff about the potential impact of free school breakfast on obesity levels, due to increased opportunities for grazing and ‘double-breakfasting’ behaviours. It was perceived, in some instances, school breakfast may be being treated as a mid-morning snack: *“For some children it's just a complimentary snack,”* which was felt to contravene the fundamental purpose of the scheme. There were concerns raised that some children may be eating more than one breakfast across different locations in the morning, including at home, on the way to school and at school – including free school breakfast and in some cases fee charging breakfast clubs: *“So they have breakfast at home, breakfast at breakfast club, and then they come into school and have bread product.”* Moreover, it was considered a number of parents were still providing children with a breakfast in the mornings, irrespective of the free breakfast served at school: *“A lot of parents said to me privately that, ‘We don't need the scheme. I feed my child in the morning. I believe it's my responsibility to feed my children.’”* There were apprehensions these children may consequently be overeating across the morning, which it was feared may lead to detrimental impacts on obesity levels, *“There may well be some negative features of feeding children who don't need a second breakfast.”* In one school it was considered that the UFSB scheme contravened healthy diet initiatives and encouraged children to eat more regularly: *“We are doing all sorts of healthy eating work, we are using the pupil premium money to try and get children fitter and healthier. [...] Then we are chucking all the sugar and stodge at them in the morning.”* Notably, it was believed the likelihood of ‘double-breakfasting’ was more probable when free school breakfast was served in the classroom, where food was available to all children: *“They just have it anyway because it's there, because children will eat if there is food there.”*

Reported strategies for managing ‘double-breakfasting’ in schools included discreetly supervising portions for children who had already eaten breakfast: *“We do have to try and get around it and we do that by cutting the toast into smaller pieces,*

offering half a crumpet.” Additionally, communications with parents were thought to be particularly important in managing ‘double breakfasting’, especially in SEN settings, where children may have care, diet and health plans in place as part of safeguarding their wellbeing: *“Through discussing with the parents we have managed to reach individual conclusions and solutions to that problem. All of our children have care plans and diet plans, so it is done on a very individual basis.”* Furthermore, some senior school staff contended that generally most children were capable of managing their food consumption across the morning and were unlikely to overeat free school breakfast items: *“Children don't overeat. They are not just going to sit there and eat and eat.”* Furthermore, some senior staff highlighted that children who receive an early breakfast may be hungry by mid-morning, and therefore may require an additional snack to satiate them until lunch time: *“Some of our children might have their breakfast at 7:30, but then it's five hours before they have their lunch. We are quite careful about what they do have.”*

3.4.3.4. Sub-theme 4: High Sugar and Fat School Breakfast Items

Group 1 - Local Authority and Public Health:

Further issues were highlighted about high sugar and fat school breakfast items and concerns were raised about obesity and dental health amongst children. In the initial stages of the scheme fruit juice and sugary breakfast bars were available on the school breakfast menu, but due to concerns about sugar content and detrimental impact dental health these items were removed: *“We used have fruit juice on. That's now had to come off. [...] It was public health, because it has an impact on dental health.”* It was highlighted that the nutritional value of the school breakfast menu had to be balanced against providing items children will eat, and items that were practical in the context of the different environments they were served: *“You've got to go with something that is fairly easy to eat with your hands, that doesn't require a lot of clearing up afterwards.”* Moreover, it was reported that providing practical breakfast items that were also healthy in terms of balanced nutrition was also difficult: *“The handheld one does offer a real challenge in getting a good variety of healthy items in there.”* There was a preference towards serving children foods such as cereals, porridge and hot foods, which it was felt may be healthier for children. However, it was acknowledged the delivery of these items in different school environments was challenging and not feasible for some schools,

“You're not able to serve porridge or hot food very easily or toast.” Moving forward, it was considered further discussions were required with suppliers to improve menu choices and explore the provision of cereal and porridge.

Group 2 – Senior School Staff:

There were concerns raised amongst some senior school staff that free school breakfast items served to children, including ready-made pancakes, waffles and brioche, were too high in sugars and fat: *“I was looking at one of the waffles, I've got the pack in front of me here and the, on the traffic light system they have now on the packets, it's red for fat, saturates and sugars. Each waffle contains 93 calories and, 5.2 g of fat.”* It was deemed the provision of these items should be reviewed by the Local Authority and Public Health to assess the impact on dietary and dental health: *“Apart from leading to obesity there's the impact on the teeth as well. It's not probably encouraging very good eating habits, having very sweet items available every single morning.”* It was contended the provision of these particular foods as mid-morning snacks, potentially fostered detrimental eating habits, which may have detrimental impacts on dental health and obesity: *“You wonder why you have got real problems with tooth decay. We are certainly not teaching a good pattern of eating by the time we have breakfast so close to the lunch.”* Furthermore, it was asserted, by some senior staff, that the provision high calorie, hand-held items, for free school breakfast, also contributed to detrimental dietary behaviours associated with obesity: *“Perpetuating fast-food mentality. It's just reinforcing the McDonald's mentality of something quick and easy and it's full of sugar.”*

3.4.4. Theme: Perceived Outcomes of the UFSB Scheme for Parents and Families

This section focuses on the perceived positive and negative outcomes concerned with the UFSB scheme, on parents and families. The first part of this section focuses on the perceived positive impacts of the UFSB scheme, including financial assistance and alleviating morning routines, and benefits specific to parents of children with SEN/ disability. The second part focuses on the perceived negative outcomes including concerns about the scheme removing parental responsibility, and the lack of communication with parents regarding the UFSB scheme.

3.4.4.1. Sub-theme 1: Financial Benefits for Parents and Families

Group 1 - Local Authority and Public Health:

It was considered amongst Local Authority and Public Health participants that the UFSB scheme provided a small level of financial assistance to parents and families: *“Parents that would otherwise struggle, are still struggling, but hopefully it will just make things a little bit easier for them.”* This was considered to be particularly beneficial for those families on low incomes, who may be experiencing poverty and food insecurity, and those parents with multiple children: *“I think it's an amazing scheme if you have got one, two or three kids in particular.”* Additionally, it was also supposed the UFSB scheme conferred financial benefits for parents who previously provided children with money to purchase breakfast on the way to school. Moreover, it was thought providing this small level of financial assistance to parents and families may also lead to wider impacts on the local economy, with money being directed into other areas, such as the evening meal: *“That must release some of your money that you've got to be able to spend in other ways and hopefully redirect it to food in the evening.”*

Group 2 – Senior School Staff:

It was also considered amongst senior school staff participants that UFSB provided parents with a small level of financial assistance, which was thought may be especially significant to those on low incomes and families with multiple children. Likewise, the UFSB scheme was thought to be of benefit to parents who previously provided children with money to purchase breakfast on the way to school: *“The parents I know who are maybe a little bit financially better off because they're not having to give the kids money to give them something on the way to school.”* Moreover, universal provision of school breakfast was also perceived to offer a small level of financial assistance to those parents not eligible for free school meals, but still be on low incomes: *“I've also got some parents who are just on, kind of the borderline, just slightly too much to be in receipt of pupil premium. A breakfast for their child every day is saving a little bit of money for them which they can then spend in different ways.”*

3.4.4.2. Sub-theme 2: Alleviates Rushed Morning Routines for Families

Group 1 - Local Authority and Public Health:

The UFSB scheme was also thought to alleviate rushed morning routines for families. It was deemed the provision of a breakfast meal at school reduced stress for families during school mornings: *“It is a very difficult time of the day and we all get it wrong sometimes. We all run out of time to do hair, to sort out shoes, school bags, and no matter how much you try the night before, it's difficult.”* Factors assumed to contribute to the school morning rush for parents included work and educational commitments, household responsibilities, and caring for very young children and/ or multiple children: *“It's about households being very busy. If there are five children in the house, mum and dad both work shifts. Everyone's busy and everyone's hurrying about.”* The provision of a UFSB scheme was considered to demonstrate recognition that school mornings may be challenging for families. Additionally, it was thought modern lifestyles resulted in the majority of families not having time to sit together and eat breakfast on a school morning: *“The number of families that do actually do a full sit down breakfast altogether is limited.”* As opposed to this social time in the morning being eroded, since the introduction of the UFSB scheme, it was considered children had gained social interaction with their peers at breakfast time.

Group 2 – Senior School Staff:

The UFSB scheme was also considered amongst senior school staff to alleviate rushed morning routines for families. It was acknowledged school day mornings may be rushed and stressful for families for a variety of reasons: *“I think it's just taken that little bit of pressure. If they oversleep they don't have to say, ‘Oh God we haven't had a breakfast, I've got this to do, I've got that to do and then I've got the house to clean.’”* It was acknowledged mornings may be rushed for those parents with employment or educational commitments, who also may need to leave home early in the morning: *“I have got lots of professional parents who in the morning don't have time to give their children breakfast. Full-time working parents need to be at work.”* Moreover, it was highlighted that families with very young and/ or multiple children may experience additional pressures in the morning: *“I have parents who, their children come to school on their own because they've got other drop-offs, they might have younger children or older children.”* It was supposed a free school breakfast helped to alleviate rushed mornings by saving time spent on

making and eating breakfast for children and assisting parents in getting children to school on time: *“Mornings can be very busy, especially if you've got a lot of children, so it might be something that means they're going to get to school on time.”*

3.4.4.3. Sub-theme 3: Benefits Specific to Parents of Children with SEN/ Disabilities

Group 2 – Senior School Staff:

It was highlighted by senior staff from special schools that free school breakfast provided support to parents of children with special educational needs and/or disabilities. It was described that morning routines for these families may be more complicated, particularly for parents of children with profound and/or complex SEN/ disabilities, for whom everyday tasks required additional care, assistance and time: *“Most of them need support for dressing, support to get into a wheelchair, support feeding. Kids aren't able to get out of bed at the last minute and get up and down to transport.”* Moreover, it was reported that children attending SEN schools, often had further to travel to school and/or were provided with transport, which often meant leaving home earlier in the morning: *“All of our children are bussed into school. They are collected from home because they are actually needing to be transported to school.”* In these instances it was perceived UFSB scheme was advantageous to children and their families, by both alleviating morning routines and providing children with a breakfast subsequent to a potentially very early morning and longer journey to school: *They might have been up since 6:30 and arriving at school quarter to nine, so already they have had quite a significant morning, in the respective getting out of bed and getting ready, so they are ready for something.”*

3.4.4.4. Sub-theme 4: Removes Parental Responsibility

Group 1 - Local Authority and Public Health:

It was acknowledged there were concerns raised in the community about the UFSB scheme removing parental responsibility and facilitating detrimental parenting behaviours: *“The only potential negative really is on that dependency issue. There are a number of different elements of children's lives that unfortunately sometimes parents think I don't have to do that.”* Nevertheless, it was deemed that as opposed to fostering poor parenting traits, the introduction of the UFSB scheme showed a recognition that children were arriving to school hungry, and aimed to feed these children, irrespective of their parents' behaviours. It was also contended, that within

an area of such significant levels of deprivation, experiencing high levels of alcohol and substance abuse, domestic violence and neglect, there would inherently be parents with chaotic lifestyles: *“Neglect is our biggest issue. There are a lot of stresses and strains, drug and alcohol abuse, domestic violence. There may be lots of chaos, and we need to lift up some of these burdens.”* The UFSB scheme was thought to facilitate families in getting children to school on time, in addition to providing children with a breakfast meal and positive start to the day. Feeding hungry children was considered to be a greater priority above and beyond the criticism that UFSB cultivates dependency and removes parental responsibility.

Group 2 – Senior School Staff:

It was perceived by some senior school staff the UFSB scheme removed parental responsibility and promoted poor parenting behaviours: *“What you are doing is you are saving parents the hassle and deskilling them.”* Concerns were raised about removing parents’ responsibility to provide their children with a breakfast meal, and placing that responsibility on the school and the state. There were apprehensions this may deskill parents and create a generation of families who do not eat breakfast together at home. However, some school staff contended that within an area of such high deprivation, it was inherent some parents would send their children to school without breakfast: *“You tend to think that everybody is like yourself and you would send your child off to school having had a good breakfast but that isn't the case.”* As opposed to deskilling parents, some senior school staff maintained the UFSB scheme demonstrated a recognition of the reality for some children living in the community and experiencing deprivation: *“It's that understanding of what life could be like for some of our children. It's not these kids' faults that they have not got parents who are able to provide breakfast.”*

3.4.4.5. Sub-theme 5: Lack of Communication with Parents

Group 1 - Local Authority and Public Health:

It was presumed, amongst Local Authority and Public Health participants, that schools were in a better position to communicate the scheme to parents due to already having an existing a relationship: *“Those parents have more of a relationship with teachers and schools.”* It was deemed centralised communication of the UFSB scheme to parents via the local council would be difficult due to the variation in models across different schools: *“To try and communicate 20 different*

models of what's happening. We can't say to every parent, 'your child can arrive at school 8.30 – 8:45 and they will have a breakfast comparable to what you would have at home.'” Communication with parents was an area that was believed to require improvement, in order to reduce the likelihood of the potential detrimental effects of the UFSB scheme, such as double-breakfasting and contributing to obesity: *“There's more we need to do in relation to parents understanding this.”* It was considered parents should be provided with the appropriate knowledge about the breakfast items served as part of the scheme in order to make informed decisions about providing breakfast at home.

Group 2 – Senior School Staff:

It was reported by some senior school staff that in the initial stages of the scheme there were criticisms from parents, who were offended by the perception that parents in the town were unable to feed their children a breakfast meal. Some parents had allegedly complained to schools that they were able to provide their children with breakfast and did not require the scheme: *“A lot of parents were quite shocked at the fact that we were saying they weren't feeding their children. [...] Some parents thought that it was patronising; that they were being criticised about their parenting.”* It was supposed these negative parental perceptions may have been overcome through more effective communication with parents: *“I think if they took a little bit more time to go out to parents that would have helped.”* It was deemed communication with parents required improvement, in order to identify parents’ views about the scheme, and involve them in the decision making processes: *“I think they need to be aware of what we are providing and I think we need to get their opinions on what is best for their children.”* It was also judged more communication was necessitated with parents to prevent issues such as overeating and ‘double breakfasting’ behaviours: *“I think they should do more surveys saying what is it your child wants, does your child have breakfast.”*

3.4.5. Theme: Perceived Impacts of the UFSB Scheme at a Community Level

The following section focuses on the perceived impacts of the UFSB scheme on the wider community. The sub themes focus on perceptions that the scheme reduces inequalities and deprivation in the community, views on universal provision of the UFSB scheme, and concerns about children’s dietary habits and the safeguarding of children during weekends and school holidays.

3.4.5.1. Sub-theme 1: outcomes of the UFSB scheme in communities with different levels of deprivation

Group 1 - Local Authority and Public Health:

The overall community served by the UFSB scheme experienced significant and multiple levels of deprivation, including high levels of child poverty, poor dietary health, obesity issues and poor educational attainment: *“Child poverty rates, our poor diet and nutrition issues, obesity levels, poor educational attainment.”* It was reported that prior to the introduction to the UFSB scheme individual schools were taking measures to alleviate food insecurity in their communities by feeding hungry children, providing breakfast tokens outside of the school term, sign posting to food banks and providing small weekend money lending schemes. It was asserted the UFSB scheme aimed to contribute to the mitigation food insecurity and health inequality associated with high levels of deprivation: *“They are born into diabetes, being overweight, poverty, poor housing. As things stand their life expectancy is one of the worst in the UK.”* It was acknowledged the UFSB scheme had a greater impact on the more deprived communities: *“It’s been very supportive in terms of families in deprived areas where they haven’t got the resources to provide a nutritious breakfast.”* Furthermore, it was reported UFSB was just one of many initiatives, which aimed to alleviate the issues associated with high levels of deprivation in the wider community.

Group 2 – Senior School Staff:

Senior school staff also considered the UFSB scheme had different impacts in different communities within the town. Senior staff, in less deprived wards, with lower levels of children eligible for free school meals, considered there was probably less of a need for a universal scheme within their schools: *“There isn’t necessarily a need for all of ours. We have got something like 8 of our 400 children who are pupil premium and that tends to be free school meals.”* There were concerns that within schools in less deprived areas more children may be ‘double-breakfasting’, and the UFSB scheme may be having longer-term detrimental impacts on obesity: *“It’s just a case of children eating food that they don’t really need. Hence, maybe children will actually become overweight.”* However, in the more deprived communities the UFSB scheme was thought to be extremely beneficial to families experiencing poverty and food insecurity: *“The council has recognised the deprivation. Whether*

it's down to a parenting skill or whether it's down to not having enough money, It's a way of getting to the root of the issue, which is making sure that the children get fed.” It was perceived the scheme was fundamental in these communities where there were extremely high levels of deprivation and more children were arriving to school hungry: *“Many of them don't have breakfast in the morning, so providing a small breakfast for them is one positive way that we can reduce the barriers that some of our children have.”*

3.4.5.2. Sub-theme 2: Universal vs Targeted Provision of UFSB

Group 1 - Local Authority and Public Health:

The universality of the UFSB scheme was considered to be an important factor in increasing participation and reducing social stigma: *“We have a universal scheme and that's the great thing that all our kids get this, so there's no stigmatisation of the poor kids.”* It was reported the Local Authority had received criticism from more affluent communities and the political opposition for delivering the scheme on a universal basis, as opposed to potentially more economical means tested scheme targeting the most needy families and children: *“There has been a political argument within the council around the opposition saying should it be means tested and that it would reduce the cost.”* Nonetheless, it was disputed that savings in costs through means testing would be negated by increased administration and burdens on schools: *“With means testing you end up spending more on the admin.”* Additionally, it was contended means testing would result in stigmatisation of the UFSB scheme and have detrimental impacts on participation: *“I think it would cause more problems and stigmatise things.”* Furthermore, it was argued the high levels of participation in the UFSB scheme, demonstrated it was utilised by families at both ends of the income scale: *“It is appreciated, by not just those at the bottom end of the income scale, it's taken up by those with slightly higher incomes.”* It was also noted that the average income in the town was relatively low on national comparisons, which was also considered to be relative to the case for universal provision: *“The average wage is fairly low here anyway. There aren't many families out there who are earning so much money that they'd be able to pass up the possibility of a free meal.”* Ultimately, the universal element of the UFSB scheme was considered to be a key factor in embedding the scheme within the community and creating a positive ethos towards the programme: *“The universality of it is a*

really important feature in terms of reducing inequalities in the town, and not stigmatising it in any shape, way or form. It is a programme that is for everybody and everybody can benefit from it.”

Group 2 – Senior School Staff:

Some senior school staff considered universal provision of the UFSB scheme was necessary in order to remove barriers, so everybody was equal and to eliminate stigma. It was deemed it would be extremely difficult for schools to provide breakfast to a targeted group of children, especially younger children or those with special educational needs: *“If it was means tested we couldn't say to our children you can have it but you can't.”* Furthermore, universal provision was considered to be extremely important in SEN schools, where the universal element of the UFSB scheme was aligned with an inclusive ethos: *“It doesn't make anybody feel different. Everybody is the same. It has got a very positive ethos in school.”* Conversely, other senior staff from less deprived wards felt a more targeted approach would have had a greater impact at a lower cost: *“I mean it's very expensive and I'd like to think it was more targeted, rather than universal.”* Potential suggestions for a means tested scheme included schools using their knowledge of families and children to offer targeted support: *“It should be done on our knowledge of the family.”* This approach was favoured as opposed to using measures such as free school meals: *“Whenever you do means testing, it always comes back to free school dinners and that's wrong because we have a lot of deprived children who have working parents on minimum wage, who are seasonal workers.”* It was considered perhaps surplus funding from reducing costs, by targeting the scheme, could potentially be used to fund other periods, where children may be going hungry, such as after school, weekends and school holidays.

3.4.5.3. Sub-theme: Concerns about Children and Families during Weekends and School Holidays

Group 1 - Local Authority and Public Health:

There were significant concerns highlighted about children's diets and welfare during the school holidays, particularly the longer school holidays: *“Kids will arrive back at school in September clearly less well-nourished than what they left in July.”* Local Authority and Public Health participants were aware of reports, from schools and children welfare workers, that children were arriving back from the

longer school holidays less well-nourished and showing declines in readiness to learn: *“There was a lot of evidence from our school catering staff, and from school nurses, that after the long summer holidays children were going back substantially skinnier than they had left the school at the end of July.”* It was acknowledged school holidays may impact on families’ finances, especially those on low incomes, those entitled to free school meals and/ or those with multiple children to care for: *“It’s quite a significant difference for them during the holiday period; if they’ve got a few children as well.”* There were apprehensions children may not be receiving the quantity and/ or quality of dietary nutrition required for their development during the school holidays. In addition to concerns about children losing weight during the school holidays, there were also concerns about obesity, with apprehensions about greater access to fast and snack foods: *“We do seem to have a problem with children being either underweight or overweight and not a great deal in between.”* Furthermore, there were also concerns raised about children being unsupervised during the school holidays, leaving them more vulnerable to ant-social behaviour and crime: *“We’ve just got too many kids in the school holidays who are not supervised and are left to roam. We know the crime patterns and various other community issues.”* It was considered that concerns about children’s dietary habits, as well as additional apprehensions about children being unsupervised school holidays, necessitated a need for some type of provision during school holiday periods: *“The next step is to try and manage this over the school holiday period as well.”*

Group 2 – Senior School Staff:

Senior school staff also raised concerns about food insecurity in the wider community and children’s dietary behaviours outside of school: *“You worry what happens during school holidays. What do they do during the six weeks holidays when they’ve had breakfast every single day in school?”* For children who received free school breakfast, lunch, milk and fruit, it was acknowledged that parents would have the additional cost of providing these foods during school holidays: *“You are taking all that away for six weeks and you’re saying to parents you have got to feed them. They’re not getting any extra money to feed the children, so it’s every man to himself.”* For those parents on low incomes, it was recognised this may be difficult, especially during the longer school holidays. In order to alleviate some of these issues, senior school staff reported offering food assistance to families, by

signposting to food banks and providing families with breakfast tokens to use at Surestart Centres: *“We offer breakfast tokens to families - families that we see as being needy families.”* It was highlighted that, in addition to a lack of income to support the purchase of additional foods during weekends and school holidays, children may also be receiving less nutritional diets with increased access to high calorie fast and snack foods. There were also concerns about children’s welfare during the school holidays, with reports that workloads for school staff who deal with children’s welfare increasing subsequent to school holidays: *“Working with social workers and family support workers - when it comes to the beginning of the term their workload goes through the roof.”* It was considered, for some children, during the school holidays, they were more likely to witness domestic violence and/or be subjected to abuse and neglect: *“There’re a lot of young children witnessing domestic violence, young children being neglected.”* It was perceived provision was not only needed to support children’s diets during the school holidays, but also to safeguard and protect children’s wellbeing and vulnerability to anti-social behaviour: *“It’s needed now.”*

3.5. Discussion

According to the perspectives of the senior level stakeholders interviewed as part of this study, the outcomes and issues associated with a council-wide UFSB scheme were multiple and varied, and both positive and negative. The findings of this study, highlight the issues encountered in the implementation and delivery of the UFSB scheme, from the perspectives of the leadership team within the Local Authority and Public Health, and senior staff within mainstream primary and specialised schools delivering the scheme. Additionally, the findings identified the perceived impacts of the UFSB scheme, on children, families, schools and the community. A reoccurring issue regarding the initial delivery of the UFSB scheme was the lack of an effective communication strategy in the implementation and initial delivery of the scheme by the LA to schools, parents and the wider community. It was generally acknowledged by both groups that the implementation process of the UFSB scheme was impetuous, and did not allow for appropriate consultations with other stakeholders. School initiatives to improve health behaviours have been shown to be more effective when parents are involved (Centers for Disease Control and Prevention, 2012). It is suggested parental engagement and involvement fosters

positive health behaviours amongst children, and children who are supported by their parents are considered to be less likely to engage in unhealthy eating and other risk behaviours (Centers for Disease Control and Prevention, 2012). Moreover, research literature examining the barriers to schools in creating healthy nutritional environments, advocates schools employing collaborative approaches, with the cooperation of various sectors of the community, including families, third sector organisations, government and the media (Cho & Nadow, 2004). School locations are considered to provide the ideal location and facility where these sectors of the community can collaborate in providing a framework for underpinning a healthy lifestyle for children (Cho & Nadow, 2004).

Despite the issues with communication, the UFSB scheme was associated with a range of perceived positive outcomes for children, parents, families, schools and the wider community. For children, positive outcomes included alleviating hunger, and improving diet and nutrition; thereby cumulating in improved educational, behavioural and social outcomes. It was agreed amongst senior stakeholders that the UFSB scheme achieved its fundamental aim of alleviating hunger in primary school children during the school morning. However, it was contended the UFSB scheme had greater impact on reducing hunger in schools located in more deprived communities. Research suggests that breakfast skipping behaviours have an increased prevalence amongst children from lower socioeconomic backgrounds, which consequently contributes to health inequalities within deprived communities, and thus universal provision of school breakfast disproportionately benefits children from lower socioeconomic backgrounds (Moore et al., 2014; Moore et al., 2007). Moreover, universal provision is considered to play an important role in reducing health inequalities in deprived communities by facilitating healthy breakfast behaviours and removing barriers to participation (Moore et al., 2014). Therefore, whilst in this study there were concerns about reverse negative impacts on less deprived areas of the community, it is evident the perceived disproportionate advantages of the scheme in more deprived schools, may in fact reduce health inequalities in the wider community.

In spite of the consensus that the UFSB scheme alleviated morning hunger in children, there were mixed views regarding the nutritional value of some the items served as part of school breakfast; specifically brioche, waffle and pancake items.

Concerns pertained to high levels of sugars and fats, and the potential contribution to increased obesity levels and declines in dental health, amongst children. Research into the impact of school breakfast composition on childhood obesity and dental health is limited. It has been contended UFSB programmes enhance nutritional intake amongst children from low income families, and schemes have typically been employed in the USA as interventions to alleviate hunger and improve nutritional deficiencies (Kleinman et al., 2002). Previous USA based research has demonstrated access to school breakfast can considerably improve the nutritional quality of children's diets, through the reduction of calories from fat, and increases fibre, iron and potassium intakes (Bhattacharya et al., 2006). More recent research into a UFSB scheme in the UK, concluded school breakfast had the potential to alleviate health inequalities for children from deprived households, by improving the nutritional content of their breakfast meal (Jenkins, Benton, Tapper, Murphy, & Moore, 2015). However, studies have raised concerns about children consuming high levels of saturated fat at school breakfast, although it has been noted that nutrient intake varies dramatically with the nutrient value of the school breakfast menu (Friedman & Hurd-Crixell, 1999). Considering concerns regarding certain school breakfast items containing high levels of fats and sugars, in this study and in previous research, it is evident that these issues require further investigation in order to determine the impacts of school breakfast composition on obesity and dental health. However, in view of the diversity of school breakfast models and variety of food items served, generalisations about populations may be difficult to ascertain. Perhaps a practical solution, in mitigating the issue of serving high fat and sugar school breakfast items, may be for school breakfast schemes to explore more cereal based options, as highlighted by senior stakeholders interviewed for this current thesis study. As previous research has shown children and adolescents who consume breakfast cereals regularly have significantly lower BMI levels, and it has been suggested regular consumption of breakfast cereals results in a reduced likelihood of being overweight/ obese (De La Hunty et al., 2013).

In addition to concerns regarding the nutritional value of some of the items served as part of the UFSB scheme, there were also apprehensions raised regarding the potential for children to overeat across the school morning at multiple locations. There have been concerns raised in the literature regarding the potential for school

breakfast to inadvertently increase obesity, particularly where children are eating more than one breakfast meal (Jenkins et al, 2015). A recent study into breakfast consumption amongst UK primary school children, reported almost half of participating children had eaten breakfast items at home and at school; however, an analysis of total energy showed no significant differences between children who ate two breakfasts and those who ate one (Jenkins et al, 2015). Conversely, a USA based longitudinal research study reported there were significant increased odds of overweight/ obesity amongst breakfast skippers, compared to double breakfast eaters, and those children who regularly consumed breakfast at school, including double breakfast eaters, were more likely to be within a healthy weight range compared to those who skipped breakfast (Wang et al., 2016). Additionally, research, into the USDA's School Breakfast Programme, reported the availability of UFSB was associated with an increased likelihood of eating more than one breakfast at home and school (Bernstein et al., 2004). Students who consumed an additional breakfast had higher energy intakes at breakfast and across 24 hours, when compared against those who ate one breakfast. However notably, fat and sugar intake across 24 hours did not differ significantly between students who only ate breakfast at home, and those who ate breakfast at both home and school (Bernstein et al., 2004). The evidence suggesting that those students who eat two breakfast are not significantly more likely to be overweight/ obese appears to be contradictory, because ultimately an additional meal is being consumed. It has been suggested that 'double-breakfast' eaters may be more physically active and expend more energy throughout the day, or those consuming a higher number of calories in the morning compensate with reduced calorie consumption later in the day (Wang et al., 2016). It is therefore evident that further research is required in order to examine energy intake across a whole day for children who skip breakfast, and those who consume one or more breakfasts, in order to gain a better understanding of the associations between breakfast, calorie intake, and adiposity, in children and adolescents. Moreover, further research is required to examine the prevalence of double-breakfasting in the context of different school breakfast environments, as previous USA based studies have suggested a higher prevalence of double breakfasting behaviours when breakfast is served in the classroom (Van Wye, Seoh, Adjoian, & Dowell, 2013; Wang et al., 2016).

Finally, with regards to parents and families, UFSB was considered to confer financial benefits, alleviate food insecurity and reduce stress associated with rushed morning routines. Previous research has highlighted school breakfast alleviates morning routines for parents with employment and/ or caring responsibilities, particularly where school breakfast is served earlier before the start of the school days, thereby providing an element of child care (Harrop & Palmer, 2002). Moreover, school breakfast provision is considered to ease rushed mornings, in the case of lengthy journeys to school and/ or work, or chaotic households (Harrop & Palmer, 2002). It has also been suggested free school breakfast provision is beneficial to families, especially those experiencing food insecurity, providing a small financial benefit to parents (Harrop & Palmer, 2002; Lewis, & Cooper, 2013). However, in spite of these supposed benefits for parents, in the current study, there were also concerns raised that UFSB encourages detrimental parenting behaviours, by removing parental responsibility to provide breakfast, leading to further dependency and an erosion of traditional family meal times. It has been proposed consumption of breakfast at home may be an indicator of a child's home environment and the capacity for parents/ carers to provide a nurturing environment for children (Rogers, 2016). However, it has also been contested the presumption that a child's breakfast consumption at home is a predictor of 'good parenting', is not currently grounded in scientific evidence, with many well-intentioned child feeding practices, such as pressuring and restricting, being ineffectual and potentially counterproductive (Littlecott, 2016; Moore, Tapper, & Murphy, 2007). Furthermore, it is contended that prevalent levels of breakfast skipping amongst children and adolescents cannot be solely explained by parental failures in providing a nurturing school environment, and whilst parenting clearly has a significant influence on how young people eat, it is not the sole influencing factor (Littlecott, 2016).

Whilst the present study provides a unique and insightful contribution into the leadership, management, implementation, delivery and perceived benefits of a council-wide UFSB, from the perspectives of senior level stakeholders, the study is not without limitations. The findings are restricted to a population within a highly deprived council within the North West of England, UK, and not necessary representative of the UK population. However, considering school breakfast interventions are often targeted at deprived communities, the findings from the

current study may have particular relevance as a point of reference to those involved in the leadership, management, implementation and/ or delivery of school breakfast schemes. Additionally, senior stakeholders from only nine out of thirty three of the schools participating in UFSB scheme, accepted an invitation to take part in the study. In an effort to raise participation all thirty three schools were provided with numerous opportunities to participate, but either refused to participate or did not respond to our invites. It is acknowledged that school staff, particularly those at a senior level may indeed have multiple role and responsibilities, which may impact on their ability to make time to participate in research. Despite the limitations outlined, the current study revealed a number of factors associated with the leadership, management, implementation and/ or delivery that have not been explored within UK literature, and thereby offers potential further areas for future research.

CHAPTER 4: Universal Free School Breakfast: a Qualitative Model for Breakfast Behaviours

4.1. Introduction

The fundamental aim of free school breakfast is to feed children who arrive to school hungry, thereby reducing breakfast skipping, and improving nutritional intake, health and wellbeing. Breakfast skipping is reported to be a prevalent behaviour amongst children and adolescents (Deshmukh-Taskar, Nicklas, O’Neil, Keast, Radcliffe, Cho, et al., 2010; Keski-Rahkonen et al., 2003; Levin, Kirby, & Currie, 2012; Rampersaud et al., 2005). The motives for skipping breakfast may be related to deprivation, rushed morning routines, fatigue and lack of appetite, and as a means weight control. Breakfast skipping is associated with detrimental outcomes such as overweight and obesity (Elgar et al., 2005; Huang et al., 2010; Levin et al., 2012), and deleterious health behaviours such as snacking, smoking, alcohol consumption, weight control and lack of physical activity (Levin et al., 2012; Revicki, Sobal, & DeForge, 1991; Utter et al., 2007). In addition, research indicates that breakfast skipping may lead to greater declines in cognitive performance across the morning, although findings are mixed (Wesnes, Pincock, & Scholey, 2012). Universal provision of free school breakfast is suggested as a means of addressing breakfast skipping amongst all children (Leos-Urbel, Schwartz, Weinstein, & Corcoran, 2013; Moore et al., 2014). Interventions to improve child health behaviours and outcomes are increasingly delivered through schools, as it is supposed that such interventions reduce health and educational inequalities, through nurturing healthier children, who thus become better learners (Inman, Bakergem, Larosa, & Garr, 2011). However, as discussed in the findings from Study 1 and the literature (Bernstein et al., 2004; Jenkins et al., 2015; Van Wye et al., 2013), there are also concerns about the potential for children to overeat across the morning, consuming breakfast at home and at school, especially when school breakfast is free and available to all.

During the pilot stage of the UFSB programme in Blackpool, a mixed methods evaluation was undertaken to identify the benefits of the UFSB on children, parents and school staff by a team of researchers at Northumbria University (Defeyter & Graham, 2013; Graham, Russo & Blackledge, 2014). For the qualitative phase of the evaluation, children (N = 38), parents (N = 17) and school staff (N = 14)

were recruited from the five schools taking part in the USFB pilot, to participate in semi-structured interviews in order to determine their views on the advantages and disadvantages UFSB scheme. Four out of the five schools offered breakfast in the classroom at the very start of the school day, and one school provided breakfast in the school hall 20 minutes prior to the formal start of the school day. In all schools, children were offered three items each day consisting of a selection from fruit juice or water, a bread or cereal item such as a bagel or cereal bar, and either a dried, chopped or whole fruit item. Findings highlighted that the UFSB scheme was considered to provide a healthy and varied breakfast to children who might otherwise skip breakfast. The USFB scheme was also considered to alleviate rushed school mornings, by reducing pressure at home in the mornings, facilitate children getting to school on time, and provide a more smooth transition between home and school. Furthermore, it was considered that school breakfast provision afforded children with social opportunities with their peers and staff, and it was perceived to have led to improvements concentration, mood and energy levels at the start of the day for some children. However, concerns were highlighted regarding the nutritional content of some food items served at school breakfast, and the potential for children to overeat across the school morning. Moreover, there were concerns raised amongst school staff about the impact on learning time when breakfast was served in the classroom. Further reported issues included lack of communication about the UFSB scheme with parents, and the high financial investment by the council. These findings offered essential knowledge on the perceived benefits of the UFSB scheme, and the issues encountered at the pilot stage of the programme. This knowledge was especially useful in the initial stages of this thesis, since it was not possible to collect data prior to the introduction of the USFB scheme, due the scheme already being established for over a year before research commenced.

The current study aimed to expand on the research undertaken by Graham et al. 2014, and the small body of qualitative findings concerned with school breakfast, (Bailey-Davis et al., 2013; Crawford et al., 2016; Shemilt, Harvey, et al., 2004), by exploring the behavioural contexts in which the UFSB scheme operated from a socioecological perspective. Socioecological theory focuses on the interrelations between intrapersonal, interpersonal and macro level factors in human health. According to socioecological theory, health behaviours are shaped by biological,

psychological, social, cultural, environmental and institutional factors, within which a reciprocal cycle of influence occurs (Sallis et al., 2008; Stokols, 1996; Townsend et al., 2013). Socioecological models have been utilised in research investigating dietary behaviours in children and adolescents; enhancing knowledge on the factors and barriers that affect dietary behaviours (Story et al., 2008, 2002; Townsend et al., 2013). The current study used a socioecological framework to investigate breakfast behaviours, and explore the internal and external factors that influence breakfast behaviours, within a deprived community served by a USFB scheme. The aims of the current study were to gain knowledge on the sociocultural beliefs associated with breakfast consumption and the socioeconomic factors that affect breakfast consumption, and investigate potential interactions between these sociocultural and socioeconomic factors with the USFB scheme. The following research questions provided a framework for the exploration these aims:

- What are children, parents/ carers and school staff views, beliefs and attitudes towards breakfast?
- What are the internal influences and external barriers to breakfast consumption according to children, parents and school staff?
- What are the views towards and experiences of the UFSB scheme among children, parents and school staff?

4.2. Method

4.2.1. Study Design

This study employed a qualitative design, combined with specific Grounded Theory methods in the analysis, in order to examine the behavioural contexts in which the USFB operated. Qualitative approaches are advocated for the study of complex phenomenon and for providing knowledge on the contexts in which interventions and initiatives operate (Johnson & Onwuegbuzie, 2004; Mertens, 2014; Spencer et al., 2003). Purposive sampling processes were employed in the recruitment of participants, to ensure data was gathered from those involved in or impacted by the UFSB scheme. Data were analysed utilising a specific grounded theory method, namely open, axial and selective coding. In order to increase validity and reliability, a variety of strategies were utilised including triangulation in the data and analysis, member checks, participant quotations, debriefing and interrater reliability. Multiple methods of triangulation were used, including interviews with

different stakeholders, and three-stage comparative analysis. A more detailed discussion on the aforementioned is provided in the Thesis Methodology in Chapter 2.

4.2.2. Recruitment

Data were collected from a purposive sample of children, parents/ carers and school staff who were recruited from three primary schools, located in an area of high socioeconomic deprivation within the North West of England, U.K. A non-probability approach was utilised; specifically purposive sampling, with the sample selected on the basis of their experiences and interactions with the phenomenon (Kruger, 1981). Therefore, purposive sampling was used to identify and select participants who were knowledgeable and/ or had experience with the UFSB scheme (Palinkas et al., 2013). In total, 47 participants (children, parents/ carers and school staff) were recruited from three schools participating in the UFSB scheme, during September 2014. All schools had a higher proportion of the populace claiming working age benefits than the proportion of the population across the whole of the North West of England (19%) and England overall (15%). School 1 had a particularly high proportion of children entitled to free school meals (61.8%), three times higher than the proportion eligible in the other two schools. The proportion of those claiming working age benefit within the local ward that School 1 was located, was also higher than the subsequent two schools. Whilst all three school wards rank highly as ‘most deprived’ on the Indices of Deprivation (Department for Communities and Local Government, 2015), School 1 ranked highest on income, employment, health and housing deprivation indicators. The demographic characteristics of each school are provided in Table 4.1.

Table 4.1. School characteristics and school area demographics for Study 2

Schools	School demographics ^a		School and local area demographics ^b			
	Pupils on role ^(N)	School type	% Pupils eligible for FSM	% All people of working age claiming a key working benefit	% White British	Indices of deprivation: total deprivation ^c (Rank: 1 - 32,844)
1	453	Community Aided	61.8	34	94	957
2	486	Voluntary Aided	20.6	22	96.1	5029
3	210	Voluntary Aided	20.0	24	94.9	3433

(a) Information taken from: <http://www.education.gov.uk/>

(b) Information by ward taken from: <http://www.neighbourhood.statistics.gov.uk>

(c) All 32,844 neighbourhoods in England have been ranked on a range of deprivation topics including income, employment, health, education, crime and living environment, with the most deprived neighbourhood in England having a rank of 1, as of 2015

At the time the data were collected all three schools were participating in an established UFSB scheme, funded by the local council, which had been operating for over one and a half years. Information pertaining to the breakfast model adopted by each school is provided in Table 4.2.

Table 4.2. School breakfast models for Study 2 schools

Schools	School breakfast models (a)			
	School breakfast timings (b)	Food served	Food serving model	Milk and fruit served at break-time
1	8:15am	Toasted bread products, Water	Self-serve	Yes
2	8:50am	Bread products, Fruit, Yoghurt, Water	Self-serve	Yes
3	8:30am	Bread products, Fruit, Yoghurt, Water	Individualized servings	Yes

(a) Information provided by schools at the time of the study

(b) Schools 1 & 3 provided breakfast before the start of the school day. School 2 served breakfast at the start of the formal school day.

Fifteen predominantly white British children (mean = 9:0 years; range 6;2 to 10;8 years; 8 female/ 6 male) were recruited from the three participating schools. Parents/ carers of participating children were also invited, including a sample of sixteen predominantly white British parents/ carers (mean = 41;10 years; range 26;8 to 65;2 years; 12 female/ 4 male). Finally, sixteen predominantly white British female school staff (mean = 41; 11 years; range 24; 0 to 60; 2 years), from three participating schools, were recruited, including a sample of teachers, teaching assistants, school breakfast staff and managers. Full ethical approval was obtained from the Faculty of Health and Life Sciences Ethics Committee at Northumbria University Newcastle. Schools were provided with £25.00 and parents were provided with £10.00 each for remuneration for their participation. Children were provided with a token including a sticker following their participation.

4.2.3. Materials

Research information sheets and opt-in consent forms were devised for all participants, with the language adapted to suit the three different groups of participants i.e. children, parents/ carers and school staff. (Examples of invites, research information and consent forms are provided in Appendix G). Demographic data were collected from all participants at the consent stage of recruitment via a short questionnaire incorporated into the consent forms. Furthermore, Semi-structured interview schedules considered the socioecological influences of this thesis and were developed with the intention of exploring the behavioural contexts in which the USFB scheme operated. Open ended and probing questions examined the internal influences of breakfast behaviour, including participants' views, beliefs and attitudes towards breakfast; the external barriers to breakfast consumption; and views towards the USFB scheme. Minor adjustments in language to reflect participants' ages and relationship to the USFB scheme were made to the interview schedules. (Examples of interview schedules for children, parents and school staff are provided in Appendix H). Semi-structured interviews were selected for use with parents and school staff to allow for a more in-depth exploration of perception, experiences and personal or contentious issues (Barriball & While, 1994; DiCicco-Bloom & Crabtree, 2006). By contrast, small focus groups were utilised with children. The rationale behind choosing focus groups to collect data from children was that it is considered that children may be more likely to feel empowered and supported to speak freely in the presence of their peers (Morgan, Gibbs, Maxwell, & Britten, 2002). Group interviews are advocated with children for revealing consensus views, thus generating more rich responses (Lewis, 1992). As data collection progressed, further probes were added to the interview schedule in order to investigate emergent and unanticipated themes and concepts (Corbin & Strauss, 2014).

4.2.4. Procedure

Research information and opt in consent forms were sent to parents/ carers of participating children, parents/ carers, and school staff. Opt in consent was also gained from children prior to the commencement of data collection. Interview and focus groups dates and times were arranged via a central contact within each participating school, at the convenience of schools and participants. All interviews and focus groups took place during September 2014, within each of the participating

schools, in a room provided for specific use for the research. Each interview and focus group commenced with a brief introduction to the research aims and objectives, and all participants were informed of their right to withdraw from the interview at any time and their freedom to refrain from answering any questions they were uncomfortable answering. Additionally, participants were advised of confidentiality and anonymization procedures, and prior to recording, permission was gained from participants to record their voices. No participants opted out of the study at this point. Discussions were guided by the interview schedules and participants were encouraged to speak freely regarding each topic of interest and prompted where necessary. Interviews and focus groups concluded when all topics were exhausted and participants felt they had nothing more to contribute to the discussion. Member checks were utilised throughout to increase validity. Finally participants were thanked, verbally debriefed and provided with a written debrief form. (Examples of debrief letters for children, parents and school staff are provided in Appendix I.) The interviews and focus groups were audiotaped using a Dictaphone recorder and transcribed verbatim for subsequent analysis. (Examples of interview transcripts are provided Appendix J).

4.2.5. Analysis

Data transcripts were the main unit of analysis. Each interview/ focus group recording was listened to in its entirety and orthographically transcribed to gain a holistic sense of the data and to promote consistency and reliability in the results and interpretation. All data were imported into Nvivo 10 for ease of access and organization. Analysis of the data commenced upon initial data collection with open coding. Following this stage, a bank of codes and memos on were compiled and in Nivo 10, and subsequently codes were organised and merged during a deductive process to reduce redundancy and aid organisation. The successive phase of analysis was axial coding, whereby codes were subjected to a comparative analysis, and relationships were identified between codes, then further reconstructed into a smaller number of larger tentative categories and themes. An additional factor at this stage of analysis, was consideration of the research context, for which observational field notes, photographs, and participant demographic data provided assistance to the analysis. The final stage of analysis, selective coding, facilitated the refinement of the themes and sub-themes into a conceptual qualitative model for breakfast

behaviours. (Examples of excerpts for themes and sub-themes are provided in Appendix K)

In contrast to Study 1, whereby a prolonged period of data collection allowed for the utilisation theoretical sampling and theoretical saturation methods, restricted timescales within schools in this study meant that data was gathered over the period of one school week. Thus, different methods were utilised in the current study to achieve data saturation, including the use of probing questions in the interview protocols, and the addition of further probes following a review of the data subsequent to visiting each school. Probing questions are considered to be useful in reaching saturation, especially in exploring a complex phenomenon (Fusch & Ness, 2015). Moreover, methods of triangulation were utilised in order to improve the validity and reliability of the results and thus achieve data saturation (Fusch & Ness, 2015). Data triangulation was utilised through the attainment of data from multiple sources including children, parents and school staff, and from different schools. According to the research literature, data triangulation has a direct link with data saturation, in that it enables the exploration of various levels and perspectives of a phenomenon (Fusch & Ness, 2015).

Reliability analysis was conducted on 10% of the data transcripts in accordance with recommendations set out in the literature (Mouter & Vonk Noordegraaf, 2012). The second coder confirmed that there was 100% agreement between the audio recordings and the corresponding transcripts. Moreover, there was reasonable agreement (Cohen's Kappa = .76) between first and second coders interpretations of the transcripts. Subsequently, a discussions were undertaken between the coders and following this process clarification was gained between coders and agreement between first and second coders was increased to (Cohen's Kappa = .87), demonstrating considerable agreement between coders. (Examples of coding discrepancies and resolutions are provided in Appendix L).

4.3. Findings

The qualitative model for breakfast behaviours consists of three domains directly relating to breakfast behaviours, the internal influences of breakfast consumption, and the external barriers to breakfast consumption. The primary domain entitled, 'Breakfast Behaviours', includes themes relating to regular breakfast consumption, later breakfast consumption, breakfast skipping, double

breakfasting, and breakfast on the way school. A secondary domain entitled, 'Internal Factors Influencing Breakfast Consumption', encompasses themes relating to sociocultural beliefs, attitudes, and views about the importance of breakfast, and breakfast at home vs breakfast at school. A further secondary domain entitled, 'External Factors Influencing Breakfast Consumption', comprises of themes relating to the socioeconomic factors that are perceived to impact on breakfast consumption behaviours including, poverty and food insecurity, employment, educational, family and household commitments, and family structures. The findings are presented below in narrative format with verbatim quotations from participants in order to represent and retain stakeholder voice and experience. A visual representation of this model is presented in Figure 4.1

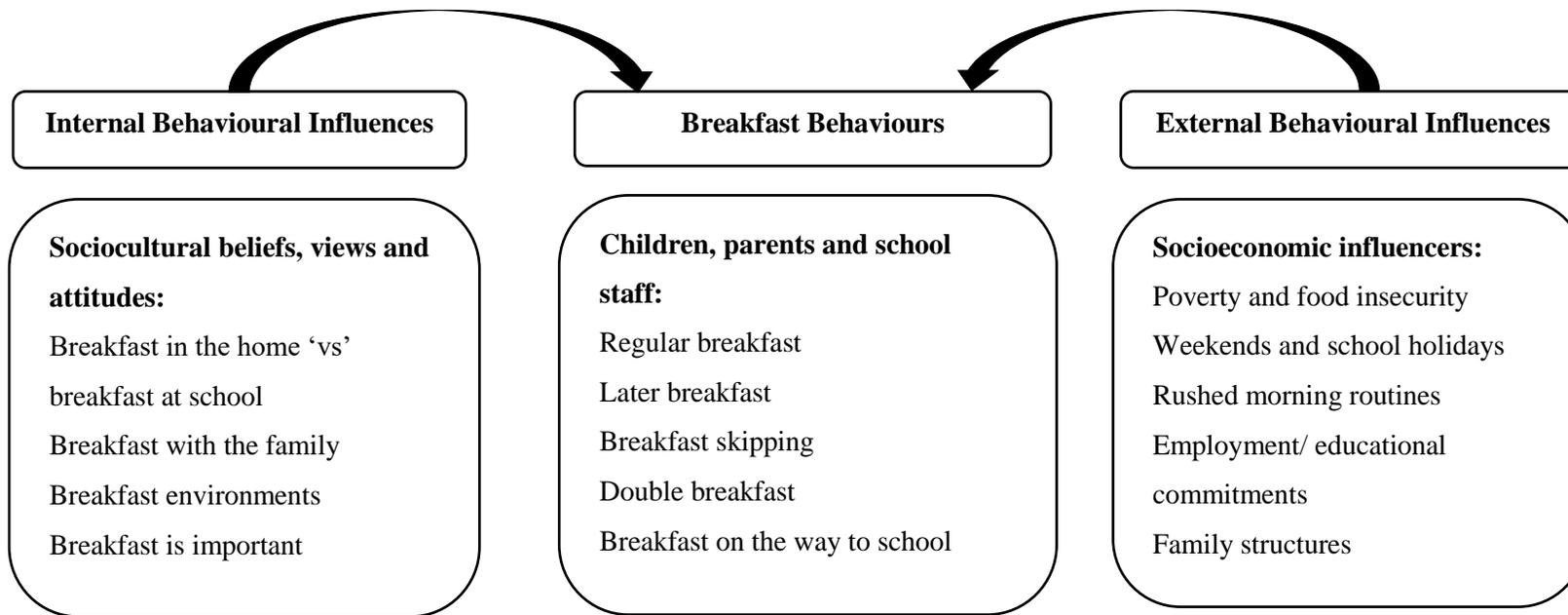


Figure 4.1. UFSB: A Qualitative Model for breakfast behaviours - Visual model of the findings for Study 2

4.3.1. Breakfast Behaviours

This first domain relates to the self-reported breakfast behaviours amongst children, parents/ carers and school staff. The sub-themes focus on regular breakfast consumption, later breakfast consumption and breakfast skipping amongst both children and adults, and double-breakfasting and breakfast on the way to school amongst children

4.3.1.1. Regular Breakfast Consumption

Children, parents and school staff, who reported regular breakfast consumption, described the breakfast meal as a habitual part of their daily routine, held in a similar regard to behaviours such as washing, brushing teeth and putting on clothing, *“I think it’s just in your routine, it’s just part of what you do, you get up, have a shower, get your breakfast”* (Parent/ carer). Moreover, among those who reported eating breakfast every day, breakfast was considered to be part of the family’s routine, suggesting that habitual breakfast consumption may typically be adopted across the whole family unit. Additionally, for those who reported that they consumed breakfast every day, illness or sleeping late were perceived to be valid reasons for skipping the breakfast meal, *“Only if we’re ever ill. No other reason that we wouldn’t have it”* (Parent/ carer), suggesting strong behavioural intentions towards consuming breakfast every day. Participants who reported eating breakfast regularly described consuming a variety of breakfast foods and beverages including, cereals, bread products, fruits, dairy products, tea and coffee, *“I’ll go home now, I’ll have a couple of slices of toast with my marmite and off I go to work and I’ll be fine”* (Parent/ carer).

4.3.1.2. Later Breakfast Consumption

Reports of eating breakfast later in the morning were primarily related to adult participants, namely parents/ carers and school staff. Some parents/ carers and school staff reported that they consumed breakfast regularly, but later in the morning. Those who ate breakfast later, also reported that they did consume beverages early in the morning, including: probiotic drinks, tea, coffee and water, *“I tend to drink, the odd time I’ll have a cuppa tea, but I drink a lot of water”* (Parent/ carer). A minority of participants, who reported they consumed breakfast later, described eating foods high in fat for breakfast, *“I have a fry up every day, and then do my work”* (Parent/ carer). Lack of appetite and professed feelings of fullness early

in the morning were provided as explanations for consuming a later breakfast. In some instances these feelings of fullness were due to late night eating, *“I probably eat a bit late at night time, maybe so I’m still a bit full in the morning”* (Parent/ carer), thereby suggesting a potential association between late night eating and breakfast consumption later in the morning.

Moreover, rushed morning routines were also cited as explanations for consuming breakfast later in the morning; with work and educational commitments, household and family responsibilities, and families with multiple or young children considered to be key contributors to chaotic mornings, *“I’m up and I don’t want anything to eat at 6oclock in the morning, so I won’t”* (School Staff). It was perceived that these commitments and responsibilities in the morning contributed to a lack of time, resulting in an inability for adults eat breakfast early in the morning. Furthermore, parents/ carers, who reported consuming breakfast later, expressed concerns about the potential detrimental impact of their own breakfast behaviours on their children’s behaviours, *“I suppose it’s not setting a good example cause they don’t see you doing it”* (Parent/ carer). Some children were aware that their parents/ carers consumed breakfast later in the day, *“My mum sometimes doesn’t have any, but [has breakfast] when she gets home”* (Child).

4.3.1.3. Breakfast Skipping

Breakfast skipping was discussed by parents, children and school staff, both concerning self-reported behaviours and concerns about children skipping breakfast. In sharing their experiences of breakfast skipping, some parents/ carers and school staff described instances where skipping the breakfast meal had made them feel fatigued, nauseous and ill, *“I feel a bit yucky and dizzy and I’ve been having a lot of headaches”* (Parent/ carer); *“I’ve missed my breakfast when I’m in a hurry and you’ve just got no energy, nothing”* (School staff). Corresponding with those who ate breakfast later, professed feelings of fullness and lack of appetite, sometimes due to late night eating, were also cited as explanations for skipping breakfast completely, *“I just think oh I’m not hungry at the minute, I don’t fancy it at the minute”* (Parent/ carer); *“I have had times where my children’s like, ‘well I’m not hungry, I don’t want anything”* (Parent/ carer). Likewise household, work, educational and family commitments, contributing to rushed morning routines, were also reported a key factors in the prevalence of breakfast skipping.

A minority of children, who reported skipping breakfast, described lacking energy, feeling fatigued and worrying about having to wait until lunch time to alleviate their hunger, *“When I don’t have my breakfast I have to wait all that time until dinner time and it just makes me real tired like I’m going to fall to sleep”* (Child). There were concerns about the impacts of the negative consequences of skipping breakfast on children’s learning, with school staff reporting instances where children had skipped breakfast and consequently were unwell at school, *“They can be more sluggish, they can lack, I think it’s the headache, it’s everything that comes with it, but grumpiness and they’re lethargic”* (School Staff). Moreover, school staff reported that children who missed their breakfast meal typically lacked energy and displayed detrimental behaviours such as negative mood and frustration in the classroom.

In the context of children, suspected instances of skipping breakfast as a means of weight control, were reported by school staff at one school where a minority of older female children were found to have been skipping breakfast and attempting to skip school lunches, *“Skipping breakfast and then cause they’re on school dinners trying to stop eating.”* Some parents/ carers and school staff considered that these eating behaviours, among young girls, may be attributed to imagery in the media and popular culture, and changing body shapes due to the onset of puberty, *“Girls already year 6 being body conscious. They don’t like that they’re changing cause if you think about cartoons, all cartoons have got little girl figures and by the end of year 6, some of them haven’t got their little girl figure, they’re changing”* (School Staff). Within this school, it was reported that staff and parents/ carers worked together to identify children who were skipping breakfast, so support and monitoring could be implemented for these children at home and school.

4.3.1.4. Double Breakfasting and General Overeating

School staff expressed concerns that some children were eating breakfast foods across multiple locations and felt that consequently they were overeating, *“Other children who eat at home, go to early birds, have their breakfast there, come in school have their breakfast there and by then break might have a piece of fruit”* (School staff). Whilst school staff did confirm that the majority of children would inform staff if they had consumed breakfast at home, it was also reported that a minority of children were perceived to be overeating in the mornings, *“A lot of them*

do just say I've had it already and they're fine and they know, but some of them do eat loads" (School staff). Moreover, some school staff conveyed concerns about the potential of double breakfasting to contribute to rising obesity among children, *"In the wider scheme you've got obesity issues"* (School staff). In certain circumstances school staff provided justification for children eating breakfast foods at home and at school; for example where children walked to school, *"His parents say he has a breakfast, but for him all that energy he's used walking he's already worked his breakfast off"* (School staff). In addition, some school staff also reported that most children were efficiently managing their breakfast food intake at home and school, and would stop eating once they were satiated, *"Mine last year were quite good at saying, no I've already had breakfast I'm not hungry, they'd only really eat when they were hungry"* (School staff).

Staff concerns may be valid in light of a minority of children reporting that they frequently ate more than one breakfast, *"Two and one basically, maybe three if I'm lucky."* (Child), and prevalent perceptions among children that two breakfasts may be healthier than one, *"If you have two breakfasts it might make you healthier than just one"* (Child). Moreover, some children reported that they had observed some their peers overeating at school breakfast, *"Some people just get one thing and then another and then another and then another"* (Child). Reassuringly, children maintained that they moderated their breakfast consumption in school, only consuming small items and declining breakfast foods at school when they had already eaten similar items at home, *"I had toast and today it was toast but I just couldn't fit any more toast"* (Child). In discussing double breakfasting behaviours some children confirmed that they did not consume less breakfast food at home to counterbalance for breakfast eaten at school, *"No I have the same about at home"* (Child). Whereas other children reported that they consumed breakfast at home every day, and consumed breakfast at school sometimes, *"I sometimes eat it and sometimes don't"* (Child). On these occasions, children claimed they were more likely to eat additional breakfast foods at school if it was foods they liked, *"I have a lot of stuff for breakfast to get me energy up and I just come into class and I can't eat anymore but I just can't resist pancakes"* (Child).

Finally, parents/ carers, who provided their child with an early breakfast, due to work commitments, claimed that the provision of breakfast at school assured them

that their child would not be hungry later in the morning, *“Even though he has had a small breakfast at like 8 o clock it puts him over till dinner time”* (Parent/ carer). Encouragingly, some parents/ carers did claim to moderate their children’s breakfast consumption at home by providing a reduced amount of breakfast food when their child would be eating breakfast at school, *“Obviously I control the amount he has in the house, normally I would give him a certain amount, I give him slightly less than that”* (Parent/ carer). Interestingly, it was also noted that the negative stigma, associated with not providing children with breakfast at home, may be an attributable factor in the prevalence of parents/ carers who have continued to provide breakfast at home, in the knowledge that they will be consuming breakfast at school, *“I think some parents as well they don’t to be seen, do you know like, you can’t afford to give your kids breakfast”* (Parent/ carer).

4.3.1.5. Breakfast on the Way to School

School staff reported that prior to the introduction of the UFSB children were arriving at school with snack food items, such as crisps, chocolate, and sweets for their breakfast, *“Snack foods like crisps and this is what we see children walking to school with chocolate bars”* (School staff). In addition, some children claimed that some of their peers received money from parents/ carers to purchase food for breakfast from the shop on the way to school, *“A lot of children get money from their parents and they can just go to the shop and buy sweets for their breakfast”* (Child). Rushed morning routines were considered to contribute towards the prevalence of children eating snack foods for their breakfast on the way to school, and/ or purchasing food from a shop in the mornings, *“It’s the rush, getting everyone ready for school and then maybe just sent out the door and a lot of them do come in eating an apple, drinking a fizzy drink”* (School staff). It was also supposed that the prevalence of children arriving at school with snack food items may be attributed to the high levels of socioeconomic deprivation in the local area, *“We’re in a deprived area so a lot of children come to school without breakfast or with a chocolate bar in their hand or a bag of crisps in their hand”* (School staff). Promisingly, it was considered among school staff that the UFSB scheme was providing a positive intervention, and reducing instances of children eating snack foods on the way to school, *“A lot of the children that we have in breakfast club were the ones walking to school with a bar of chocolate in their hand or a little fist of biscuits but now they’re*

not” (School staff); and/ or purchasing snack foods for breakfast from a shop, “*Children don’t stop off at the shop the same cause they’re coming here*” (School staff).

4.3.2. Internal Factors Influencing Breakfast Consumption

This secondary domain highlights the internal factors that were considered to influence breakfast behaviours amongst children, parents and school staff. The sub-themes focus on the perceived importance of the breakfast meal, and socio-cultural beliefs about the breakfast environment, i.e. home vs school, and breakfast with the family.

4.3.2.1. Perceived Importance of the Breakfast Meal

Breakfast was perceived overwhelmingly among participants as the most important meal of the day, “*I think it’s really important. You need a good breakfast before you go out. It is the most important meal of the day*” (School Staff). Breakfast was believed to be of significant importance due to its timing; typically after a long period of sleep and fasting, “*That’s the longest spell you’ve been without food so I think yeah breakfast is important*” (School Staff). In this context, eating breakfast was thought to be associated with increased feelings of energy and alertness, “*It kick starts your day, it starts off your metabolism and it wakes you up*” (School Staff). Moreover, children also recognized breakfast as being of vital importance for the energy required for school activities, “*It can keep people’s energy up and you can run around more often instead of being slow and not playing a lot*” (Child). It was considered that breakfast consumption had positive impacts on learning and classroom behaviours for children, via perceived benefits on health, wellbeing and cognition, “*It keeps them healthy and people get ready to learn*” (Child); “*It is brain food, they’re going to be more content going to the classroom and learning*” (Parent/ carer). Comparably, it was also deemed that skipping or missing the breakfast meal may result in negative impacts on learning, “*It feeds the brain and so you know if they’ve not had anything to eat first thing the morning, there are not motivated, they’re sluggish*” (Parent/ carer); and classroom behaviour, “*The bad behaviour creeps in, because they just don’t know what to do and then they’re not concentrating so they will have annoyed the person next to them*” (School Staff). Children who skipped breakfast in the past, reported negative impacts on attention

and memory, *“You just forget everything that you’re doing and the teacher has to stop helping other people and go through it again”* (Child).

4.3.2.2. Sociocultural Beliefs about the Breakfast Environment – Home vs School

There was a prevalent perception among participants that home was the superior environment for children to consume their breakfast meal. A primary factor among parents/ carers and school staff underpinning the belief that the home was the best environment for children to consume their breakfast, was the perception that breakfast provision for children was a parents’ job, *“I just think it’s your job isn’t it?”* (Parent/ carer). Some parents/ carers perceived that the UFSB scheme reduced parental responsibility, and potentially led to increased complacency amongst parents with regards to their care responsibilities of children, *“Once you stop actually giving them breakfast at home you’re starting on a lazy path there. Oh I won’t bother, let school do it”* (Parent/ carer). These parents/ carers were resolute that school breakfast provision would not prevent them from providing their children with breakfast at home, *“There’s no way I’d let anyone else feed Katy*”* (Parent/ carer); *“When we thought they would have breakfast at school, it didn’t stop us giving them breakfast at home”* (Parent/ carer). Motivations for holding a preference towards children eating breakfast in the home included, parents/ carers ability to exercise more control over what children were eating at home for their breakfast meal, thus providing them with assurances their child would not go hungry whilst at school, *“Knowing that their tummy’s full and then you’re not going to worry when they’re at school that they’re hungry - I know that she’s had enough”* (Parent/ carer). Additionally, certain parents/ carers expressed concerns about their children not eating breakfast at school, *“I can see what they’re eating and make sure that they are actually getting breakfast whereas if I just it to school they might just come in and think oh I can’t be bothered, I’m not in control of it”* (Parent/ carer). In some of these cases it appeared that there was a perceived lack of trust that children would actually eat breakfast at school, in addition to a reluctance to relinquish control over their child’s breakfast consumption.

It was also acknowledged that breakfast at home was not always practical due to lifestyle factors such as work commitments and family structures, *“If your mum and dad’s rushing out to work or they’ve got other siblings to take to school, you*

can't always eat in your home" (Parent/ carer). There was an acceptance that in these circumstances, school breakfast was preferable as opposed to a rushed breakfast, breakfast eaten on the way to school or even no breakfast, *"Ideal world it would be at home, but if that's not the option or if they struggle then I agree that it should be somewhere else rather than just as they're walking"* (School Staff). Furthermore, the provision of a 'healthy' breakfast meal was also regarded as a significant factor beyond merely the environment where breakfast was served, *"As long as the person's getting a decent healthy, well fairly healthy anyway meal, it doesn't really matter"* (Parent/ carer).

4.3.2.3. Sociocultural Beliefs about Breakfast with the Family

Breakfast with the family was deemed to be of significant importance among certain participants and a key motivation for preferring breakfast at home, *"Some families want to spend some time with them when they have their breakfast before they go to school"* (Child). Some parents/ carers considered breakfast a time for family communications, *"You're sat bonding with your kids sat having something to eat"* (Parent/ carer). Likewise, some children reported that they felt more comfortable eating breakfast at home with their family, *"You're eating with your mum and dad at home so it makes you feel even more comfortable"* (Child). Additionally, there was also prevailing opinion amongst adult participants that breakfast should be served and eaten at a table, preferably with the family, *"In my house all together at a table, nowhere else, TVs not on, phones aren't allowed at the table"* (Parent/ carer). Eating breakfast at the table was associated with 'good family values', and a decline in these values was perceived as a general decline in traditional family values, *"This is what goes wrong in our days with people, they don't sit at a table and eat their meals together"* (School Staff).

Whilst there was a preference towards eating breakfast with the family, in some of these instances household commitments meant that parents/ carers could not always eat breakfast with their children, *"My two little boys sit and they have their breakfast and I have mine and we like chat, well I'm actually getting on with jobs"* (Parent/ carer). Some parents/ carers claimed that rushed morning routines meant that eating together as a whole family was often unrealistic, particularly for large families and families with young children, *"I know it's hard for some parents, I mean I'm rushing about and it's only just myself and Suzy* - especially if they've got*

babies and little ones to look after” (Parent/ carer). In addition, as parents themselves, some school staff reported that work commitments prevented them from eating breakfast at home with their children, *“Everybody’s got busy lives haven’t they? I don’t do it at home with my children”* (School Staff). There was an acknowledgement, among participants, that breakfast at school was a positive alternative to a rushed breakfast or no breakfast at home, *“Obviously it would be better at home to sit having conversations with maybe your siblings and your mum and dad but if that’s not possible, then to bring them somewhere - I think it’s best for them rather than having nothing”* (School Staff).

4.3.3. External Factors Influencing Breakfast Consumption

This secondary domain focuses on the external factors that were considered to influence breakfast behaviours amongst participants and the community in general. Sub-themes relate to socioeconomic external barriers to breakfast consumption, such as poverty and food insecurity, work and educational commitments, and families with multiple and/ or young children.

4.3.3.1. Poverty and Food Insecurity

As evident from the deprivation measures provided in Table 4.1, the town in which participating schools are located experiences multiple levels of deprivation, *“This catchment area that’s what it come down to, it’s a deprived area for many reasons”* (School staff). It was perceived that rising levels of poverty in the area had resulted in families experiencing increased food insecurity, *“It’s such a poor deprived area, and people just can’t afford [food]. There’s food banks in the area - there were never food banks when I first moved here”* (Parent/ carer). It was considered that rising levels of food insecurity were having a detrimental impact on breakfast consumption behaviours, *“In this catchment area, we’re in a deprived area so for whatever reason a lot of children come to school without breakfast”* (School staff). Concerns about the impact on parents’/ carers’ ability to afford the cost of breakfast foods were also highlighted, *“We are quite a poverty stricken area and it perhaps doesn’t seem a great deal of money to somebody that’s got a little bit in their pocket but when you have nothing, cereal, toast, it can mean you know going without”* (School staff). This was a particular worry for large families with multiple children to feed, *“There are families of concern that we think we know they’re not going to have that breakfast when they get home and they won’t have the quality.*

When there are lots of them, big families, you know it's the cost, especially during [school] holidays" (School staff). Moreover, school staff expressed additional concerns about families in the areas experiencing working poverty, *"It tends to be the working parents that struggle, the working parents and the ones who can't claim for anything"* (School staff), who may be doubly disadvantaged by low incomes and a lack of eligibility for benefits such as free school meals.

Reassuringly, it was perceived that the UFSB scheme was contributing to the mitigation of food insecurity in the community. It was supposed that the provision of a breakfast meal for children provided a small level of financial assistance for families and reassurance for families experiencing food insecurity, *"I think it just takes the pressure off them and it just gives them the knowledge that the child is going to come to school, have something to eat to set them up for the day till lunch time"* (Parent/ carer). The universal element of the free school breakfast program was considered a significant feature for those parents experiencing working poverty, and potentially not eligible for free school meals.

4.3.3.2. Food Insecurity during Weekends and School Holidays

Disconcertingly, a minority of children did confide that they experienced food insecurity during weekends and school holidays and implied that they consequently sometimes missed breakfast; *"Sometimes I don't have any...because sometimes on weekends there isn't any breakfast things in, because erm the food are only in little boxes and erm there's isn't any left"* (Child). Additionally, some school staff reported that they were aware of families who were experiencing amplified food insecurity during weekends and school holidays, because of the additional food costs for breakfast and lunch, particularly during the longer summer holidays, *"You're thinking if this is the beginning of the summer holidays, they've got 6 weeks"* (School Staff). There were concerns among school staff about particular families' access to adequate food during weekends and school holidays and specific anxieties about the impact on children experiencing food insecurity during these periods, *"You know certain children and you think what's going to happen to them over the holidays. You're worried, are they getting fed, and probably the answer is no, they're not and it must be hard for children as well"* (School staff). As well as the costs of providing food for children that they would normally receive at school, it was also highlighted that parents/ carers with work or educational

commitments may also have extra childcare costs, *“Childcare is an issue, they can’t all pay £25 for whatever”* (School staff). Living in a seaside town reliant upon seasonal local tourism, it was considered that the issue of childcare was amplified for some working parents/ carers during the school holidays, specifically those in employment where they were unlikely to be authorized leave during busy school holiday periods, *“Holidays are a killer, a lot of them are working in the holidays and they can’t have the time off in the summer, so for us as a seaside town”* (School staff).

School staff reported organizing food provision assistance to families during school holidays via local food banks, and it was considered there was a definite need for breakfast provision during school holidays to alleviate food insecurity for families during these difficult periods, *“I think for some children, some families there is a definite, definite need, you know we’ve had to give food parcels out and things”* (School staff). However, it was also acknowledged that provision during school holiday periods would be difficult due to perceived funding issues and sustainability of a holiday feeding program, and the potential negative stigma it may attract, *“How would we cope during the holidays, and if we did there would be a stigma”* (School staff). School staff had concerns that schools would find it difficult to offer food provision to children during the school holidays due to these issues.

4.3.3.3. Work/ Educational Commitments and Family/ Household Responsibilities

It was considered that work and educational commitments contributed to rushed morning routines, and consequently had an impact on breakfast behaviours amongst families, *“There’s a lot of chaos in my house in a morning. You know everyone is busy getting ready for work.”* (Parent/ carer). Parents/ carers and school staff claimed that combinations of work and/ or educational commitments, and household and family responsibilities, often had a detrimental impact on their breakfast behaviours, *“Yesterday I didn’t [eat breakfast]. I’ve got to go to work in the afternoon. I need to make sure that I’ve got everything done by lunch time get him ready for school.”* (Parent/ carer); resulting in them skipping breakfast or eating breakfast later. Encouragingly, in schools where breakfast was served before the start of the formal school day, it was considered that free childcare in the morning, in addition to a free breakfast, alleviated morning routines for parents/ carers with

educational commitments, *“I’ve got to be at college for 9 in the morning, so that helps me drop them off before.”* (Parent/ carer), or work commitments, *“If someone has a 9 to 5 job they’re going to struggle to get them up, ready and fed and brought to school.”* (Parent/ carer). It was also perceived that the provision of free school breakfast before the start of the school day alleviated the financial costs associated with fee bearing breakfast clubs, which were utilized by working families, *“If they’ve got work and they don’t have to pay for breakfast club. They can drop them off a little bit earlier and then get to work and I know some parents that do that.”* (Parent/ carer).

4.3.3.4. Large Families and Families with Young Children

The impacts of having multiple or young children on morning routines and breakfast behaviours were also discussed, *“It could be a struggle you know three children and a baby”* (School staff). It was perceived that the additional responsibilities associated with having very young or multiple children may have a detrimental impact on breakfast consumption behaviours, in that parents/ carers do not have time for their own breakfast and consequently skip breakfast or eat breakfast later. Parents with young children reported frequently skipping breakfast, due to caring, family and household responsibilities, resulting in a lack of time in the morning, *“I’ve got my hands full. I’m up and I get everything ready. Usually I try and do it [eat breakfast] before her bottle, but if not then I’d quickly do theirs’ and I’d just leave mine and that’s when I’d forget to have it”* (Parent/ carer). However, it was considered that free school breakfast provision alleviated rushed morning routines for larger families, *“I know it can be quite a rush in the morning when you’ve got lots of children, so to bring them in and know that they’re here and they’re ready”* (Parent/ carer). The provision of a breakfast meal at school was thought to afford parents/ carers additional time in the mornings if they no longer were required to provide breakfast at home for children. It was apparent that the UFSB scheme eased morning pressures for parents/ carers with young children, *“My mum has a baby now so it and now she needs, she doesn’t have much time to do our breakfast so I think it’s helping her that we go to breakfast club”* (Child). Moreover, it was supposed that free school breakfast alleviated some of the financial pressures associated with the costs of providing breakfast food for larger numbers of

children," *I think it helps them, a million percent, especially if they've got a few children*" (Parent/ carer).

4.4. Discussion

The current study set out to examine the behavioural contexts in which the USFB scheme operated, by investigating breakfast behaviours, sociocultural beliefs about breakfast, and the socioecological barriers to breakfast consumption, according to key stakeholders at the centre of a council wide UFSB initiative. A grounded theory analysis of qualitative data, collected during semi-structured interviews and small focus groups, revealed a qualitative model for breakfast behaviours. This model, represented in Figure 4.1, consists of three domains relating to breakfast behaviours, and the internal and external factors that influence breakfast behaviours. A range of breakfast behaviours were reported including, regular and later breakfast consumption, breakfast skipping, double breakfasting and eating breakfast on the way to school. Internal influencers of breakfast behaviours included sociocultural beliefs, views and attitudes about the breakfast meal; including the importance of breakfast, and breakfast at home vs breakfast at school. External influencers of breakfast behaviours included socioeconomic factors such as poverty, food insecurity, family structures and work/ educational/ household responsibilities. It was considered that the UFSB scheme alleviated a number of barriers to breakfast consumption, particularly socioeconomic factors relating to poverty, food insecurity, work/ educational commitments and family structures.

Later breakfast consumption and breakfast skipping were reported as prevalent behaviours amongst adult participants in this study. Parent/ carers and school staff discussed lack of appetite and rushed morning routines as barriers to early and/ or regular breakfast consumption. Breakfast skipping in adults has been associated with lower socioeconomic backgrounds (Keski-Rahkonen et al., 2003) and increased levels of BMI and obesity (Huang et al., 2010; Keski-Rahkonen et al., 2003). Moreover, adult breakfast skipping has been correlated with health compromising dietary behaviours, and conversely regular breakfast eating has been associated with healthful behaviours (Keski-Rahkonen et al., 2003). Previous research has reported associations between breakfast skipping, an absence of appetite for breakfast and overeating in the evenings (Pawlow, O'Neil, & Malcolm, 2003), in addition to lack of sleep, morning fatigue, shift work (Keski-Rahkonen et al., 2003).

In the current study, adults expressed concerns about the impact of their personal breakfast behaviours, i.e. eating breakfast later and skipping breakfast, on children and expressed anxieties about the potential for children to model these breakfast behaviours. Research has found that parental breakfast eating is significantly associated with childhood breakfast eating, with children of breakfast skipping parents being more likely to skip breakfast themselves (Keski-Rahkonen et al., 2003; Pearson, Biddle, & Gorely, 2009). It is therefore evident that interventions, which aim to positively influence children's dietary behaviours, may benefit from consideration to the significant role that parents/ carers may hold in influencing positive change to children's diets, and aim to foster more open and in-depth dialogue with parents/ carers.

Concerning children's breakfast behaviours, there were concerns raised in this study regarding breakfast skipping behaviours amongst children, and the potential for over eating across the school morning in the presence of a universally free school breakfast scheme. Whilst it was perceived that the UFSB scheme may alleviate the detrimental consequences of breakfast skipping amongst children, this was relating to children who did not consume a breakfast meal at home. Conversely, for children who did consume a breakfast meal at home, there were concerns and evidence that UFSB increased the potential for these children to consume more than one breakfast 'double-breakfasting'. In the current study it was considered that double-breakfasting was more likely to occur when schools adopted a classroom based model with all children present, as opposed to breakfast before the start of the school day in school canteen/ hall where children choose to attend. Research into the potential for free school breakfast contributing to overeating amongst children is limited and findings are mixed. Concerns have been highlighted with regards to school breakfast contributing to obesity, particularly where school breakfast is available to all children (Jenkins et al, 2015). Research has shown that whilst a large proportion of children attending schools where a free school breakfast scheme was in operation consumed breakfast at home and school, differences in energy intake were not significant over a full day (Jenkins et al, 2015). However, other research has shown that students who consumed two breakfasts had higher energy intakes at breakfast and across 24 hours, but fat and sugar intakes did not differ compared with those who consumed one breakfast (Bernstein et al., 2004). It is evident that further

research is required to examine nutritional intake amongst children in the presence of free school breakfast schemes, in order to gain more knowledge on the outcomes of consuming breakfast at multiple locations. Study 4 (Chapter 6) of this thesis therefore examined children's energy and macronutrient intakes across the morning at school and at home, and according to double-breakfast frequency.

Furthermore, findings from the present study highlighted certain sociocultural attitudes and beliefs, which internally influenced breakfast behaviours and in some cases acted as barriers to participation in the UFSB scheme. There was a prevalent belief amongst participants that breakfast in the home environment was superior to breakfast in the school environment. There was a lack of confidence in the UFSB scheme amongst parents/ carers, and reluctance to relinquish control over children's breakfast consumption. Research has shown that associations exist between parental attitudes and beliefs towards breakfast, and children's/ adolescents' breakfast behaviours (Cheng et al., 2008; Pearson et al., 2009). As the primary providers of food, parents/ carers are considered to have significant influence over children dietary behaviours, in addition to influencing food preferences, attitudes towards foods, and beliefs about eating practices, although these influences are thought to decline as children get older and consume more meals outside the home (Franko et al., 2008; Pearson et al., 2009; Story et al., 2002). In addition to correlations between parental attitudes towards breakfast and children's/ adolescents' breakfast consumption behaviours, research has also shown associations between parental and child breakfast consumption behaviours (Keski-Rahkonen, Kaprio, Rissanen, Virkkunen, & Rose, 2003). As it is evident that parents/ carers have a key influential role in children's eating behaviors, school based interventions such as the UFSB may benefit from the consideration of parents'/ carers' views, and including parents/ carers in decision making processes, in addition to including the views of children.

Finally, findings from the current study also highlighted socioeconomic factors such as employment, educational, household and family commitments and responsibilities that influenced breakfast behaviours. It was considered amongst participants that additional work/ education/ family/ household responsibilities contributed to rushed morning routines, and subsequently influenced breakfast behaviours with the family. Previous research into UK school breakfast clubs cited

rushed and chaotic mornings as key factors in children not being offered breakfast in households where there is food available (Harrop & Palmer, 2002). Moreover, rushed morning routines are reported as a primary factor breakfast skipping amongst children and adolescents (Bruening, Larson, Story, Neumark-Sztainer, & Hannan, 2011; Reddan, Wahlstrom, & Reicks, 1997; Wahba, Mekawy, Ahmed, & Mohsen, 2006). In the current study, there was a prevalent perception that free school breakfast eased morning routines for families with additional responsibilities and commitments, such as work and study commitments, and families with young and/or multiple children. These findings lend further support to the previous qualitative evaluation of the UFSB scheme, which reported the scheme eased morning routines and contributed to a more positive and calmer start to the school day for children (Graham et al., 2014).

Further external socioeconomic factors considered to influence breakfast behaviours in the current study were poverty and food insecurity. These issues, and a rise in food bank provision and use, were of particular concern within the town served by the UFSB scheme. Moreover, food insecurity, specific to weekends and school holidays, was raised as a key concern. It was perceived that families within the community were experiencing amplified food insecurity during these periods, due to the additional costs for food usually provided at school, and in the case of working parents/ carers, childcare costs. Additionally, school staff reported they had organized food assistance for a minority of families in the past. A recent review into household food security in the UK contends that accessing food aid is often a last resort when parents/ carers have exhausted all other strategies (Lambie-Mumford, et al., 2014). Moreover, recent reports have shown significant increases in food bank usage in the UK 2010 and 2013, with estimates of further rises in usage due to ongoing pressures on household incomes in the UK (Gordon et al., 2013). It has been suggested that the UK's poorest households are increasingly unable to maintain a healthy balanced diet, with accounts of individuals reducing food consumption to the point of malnutrition and children arriving to school hungry (Gordon et al., 2013). In addition, a review into food aid in the UK reported that an increasing number of parents/ carers were experiencing difficulty in providing sufficient food during school holidays, particularly those from low income families usually in receipt of free school meals and breakfast club support (Lambie-Mumford, et al., 2014). It is

claimed that these spikes in deprivation during the school holidays periods, have led to a rise in food bank use during the school holidays (Lambie-Mumford, et al., 2014). In the current study it was considered that the UFSB scheme alleviated hunger in children and contributed to the mitigation of food insecurity for families on low incomes, but only during the school terms. Comparably, a largescale USA based study demonstrated that UFSB schemes had the potential to alleviate food-related concerns for families at-risk of food insecurity, but however, did not necessarily alleviate food insecurity for families already experiencing high levels of deprivation (Bartfeld & Ahn, 2011). Therefore, perhaps school based interventions to improve nutrition and health amongst children may perhaps may be insufficient to alleviate food insecurity for children experiencing deprivation.

Whilst the findings from the current study offer an original qualitative insight into breakfast attitudes, views, beliefs and behaviours amongst children, parents and school staff involved in a council-wide UFSB scheme, the study is not without limitations. At the time of the study the UFSB scheme had been established for one and a half years, which placed limitations on the study design, meaning it was not possible to incorporate pre and post intervention measures. However, an evaluation during the pilot stage did provide an indication of the potential impacts and issues associated with the scheme at an early stage of implementation (Graham et al., 2014). A further limitation in this study was the use of a sample from a small number of schools located in one highly deprived area of the UK, not necessary representative of the UK population. However, the aim of this study was not to infer causality or wide ranging generalization, but instead to present the behavioural context in which a UFSB scheme operated. Additionally, participants were recruited from only three of the thirty-three schools participating in the UFSB scheme and it is acknowledged these findings may therefore not be fully representative of the community served by the scheme, particularly given the levels of inequality within the town. Further research is necessitated, particularly at a national level in the UK, in order to gain a more comprehensive knowledge into the effectiveness of school breakfast, in the context of outcomes relating to the child, school, family and wider community.

CHAPTER 5: A Cross-Sectional Study Examining Child and Parental Breakfast Consumption Behaviours, Breakfast Food Intake and Attitudes towards Breakfast

5.1. Introduction

Understanding influences of children's dietary behaviours is important in terms of enhancing knowledge concerned with children's dietary health. It is posited that dietary habits established during childhood persist into adulthood and are associated with adult health outcomes (Mikkilä et al., 2005; Scaglioni, Salvioni, & Galimberti, 2008; Victora et al., 2008). A number of theories aim to provide understanding about the innate, learned and environmental factors that influence and motivate children's dietary behaviours and children's food preferences (Patrick & Nicklas, 2005; Scaglioni et al., 2008). Approaches to understanding dietary behaviours in children have focused on the influence of significant others, such as family and peers. For example, Social Learning Theory (Bandura, 1977) emphasises the social influences of behaviour, highlights the role of observational learning and modelling, and provides a framework for understanding how social interactions determine cognitions and behaviours. As the primary providers of food, parents are considered to have an important influence on children's dietary attitudes, preferences and behaviours (Unusan, Sanlier, & Danisik, 2006). Parents provide the food environments, which shape young children's experiences with food and eating, and research has shown that children's dietary behaviours are strongly influenced by the family environment (Patrick & Nicklas, 2005; Scaglioni et al., 2008). Characteristics within the family environment, which are thought to influence children's dietary behaviours, include sociodemographic factors, parental dietary behaviours, parental child feeding practices, and the foods parents make available to children (Cutting, Fisher, Grimm-Thomas, & Birch, 1999; Fisher & Birch, 1999; Johnson & Birch, 1994; Scaglioni et al., 2008). These environments are considered to foster the development of healthy and unhealthy eating behaviours for children (Scaglioni et al., 2008). It is suggested that parental eating behaviors and parenting practices shape the development of children's eating behaviors, including eating styles, food preferences and management of energy intake (Birch et al., 2001; Johnson & Birch, 1994). Furthermore, research indicates that in addition to children modelling their

parents' dietary intakes, they may also have similar attitudes towards food and diet as their parents (Brown & Ogden, 2004).

Concerning breakfast, research has reported that modelling by parents and home environments supportive of breakfast, were associated with daily breakfast consumption amongst adolescents (DeJong, van Lenthe, van der Horst, & Oenema, 2009). Moreover, research has shown that perception of parents' food consumption played an important role in children's behavioural intentions towards consuming particular breakfast foods (Berg et al., 2000). It has therefore been suggested that since parents shape the home environment, and have a significant influence over children's breakfast consumption, interventions to improve breakfast consumption may benefit from targeting parents as well as children (DeJong et al., 2009). In addition, research has also focused on the associations between children's attitudes towards breakfast and breakfast behaviours, including breakfast skipping and consumption of healthy and unhealthy foods (Moore et al., 2007; Murphy et al., 2011; Tapper et al., 2008; Tapper, Murphy, Moore, Lynch, & Clark, 2007). Studies have reported correlations between positive attitudes towards breakfast, and increased consumption of healthy foods and decreased likelihood of skipping breakfast (Murphy et al., 2011; Tapper et al., 2008). In the context of school breakfast, research has shown more positive attitudes amongst children attending schools with UFSB in operation (Murphy et al., 2011). However, whilst research has provided knowledge on children's attitudes towards breakfast and breakfast behaviours, there is a lack of research examining the relationship between children's and parents' attitudes towards breakfast, breakfast behaviours and food intake at different locations across the morning.

5.2. Study Aims

This study intended to extend on prior research findings by investigating potential associations between children's and parents' breakfast behaviours, food intake and attitudes towards breakfast within one study. Additionally, the study also aimed to objectively probe into the findings from Study 2, specifically, children's and parents' breakfast behaviours and internal influences of breakfast behaviours. The aims of this study were as follows:

- Investigate potential relationships between the number of healthy and unhealthy breakfast food items consumed at home and attitudes towards breakfast, for children and parents individually
- Investigate potential relationships between children's and parents' attitudes towards breakfast and consumption of healthy and unhealthy breakfast food items at home, in a matched sub-sample
- Examine children's and parents' breakfast consumption behaviours and breakfast food intake at different locations across the morning
- Investigate the frequency of double-breakfast consumption (breakfast at both home and school) amongst children

5.3. Method

5.3.1. Participants

Children and parents were recruited from four schools participating in the UFSB programme to take part in the study. Children were aged 9-11 years, corresponding to UK primary school Year 6, Key Stage 2, and parents were recruited from the same year group. Ethical approval was gained from the Faculty of Health and Life Sciences at Northumbria University, Newcastle Upon Tyne, UK. All 33 schools participating in the UFSB were invited to take part and sent research information (See Appendix M), and 7 schools provided consent from the school head and access to participants. Subsequently, parental research information packs, including a description of the research aims and purpose, procedures and requirements, right to withdraw and contact information for the research team, were distributed to parents of children via schools (See Appendix M). Parents/ carers were informed that if they wanted to participate in the study, and/ or provide consent for their child to participate in the study, they needed to respond to the research team by sending the appropriate completed consent forms back to their child's school. The terms of the study stipulated that either parent/ child combination could participate or parents and/ or children could participate alone. Parental response rates were low (< 25%), and consequently 3 schools withdrew from the study due to a lack of parental response. For those children whose parents provided consent for them to participate in the study, child friendly research information and consent forms were provided via their school teachers (See Appendix M). Questionnaires were sent to 62 children and 59 parents, and 37 children and 32 parents returned completed questionnaires.

Data were collected between April and July 2015, during school terms. Schools were provided with £25.00 and parents were provided with £5.00 for their participation, and children were provided with a sticker as a token of appreciation.

5.3.2. Measures

5.3.2.1. Demographic Measures

Data on age, gender and ethnicity on children and parents were collected from parents via self-report questionnaires incorporated into consent forms. (See Appendix M) For ethnicity, categories were dichotomised into White British, Asian/Asian British, Black/ Black British, Mixed/ Other, and later collapsed into two categories, namely white British and other ethnic groups. For parents, additional data were collected on socioeconomic status, including eligibility for free schools meals and employment status. (See Appendix N) Data were also collated on school characteristics and demographics from UK Government data on schools and their communities.

5.3.2.2. Attitudes towards Breakfast, Breakfast Consumption Behaviours and Food Intake Measures

Two matched questionnaires, including one for children and one for adults, were developed in order to gather data on attitudes towards breakfast, breakfast consumption behaviours and food intake for this study. The questionnaires comprised of two main parts. The first part focused on attitudes towards breakfast, and the second part focused on breakfast consumption behaviours and food intake. For the attitudes element of the questionnaires, the Breakfast Attitudes Questionnaire (BAQ) (Tapper et al., 2008) was utilised. For the breakfast consumption behaviours and food intake element of the questionnaire utilised in Study 4, the 'Day in the Life' questionnaire (DITLQ) (Edmunds & Ziebland, 2002; Moore et al., 2007) was adapted to gather data over two consecutive mornings. The questionnaire focused on foods consumed at chronological time points across the morning at home, on the way to school and at school for children, and at home and outside the home for parents. Both the BAQ and DITL are previously validated measures (Edmunds & Ziebland, 2002; Moore et al., 2007; Tapper et al., 2008). A more in-depth discussion on the validity and reliability of the BAQ and DITLQ, and the rationale for utilising the measures in the current study, is provided in the Thesis Methodology in Chapter 2. (See Appendix O for examples of children and parent questionnaires)

5.3.3. Procedures

Children completed questionnaires on one day during the school week following school lunch, with instructions that questionnaires should not be completed on a Monday, in order to ensure that data were gathered on two consecutive school days. Questionnaires were completed in schools as part of a supervised classroom activity. For parents, instructions and questionnaires were provided via schools, with parents returning questionnaires to schools following completion. Parents were provided with the same instructions as children regarding completion of the questionnaires on one day during the school-week (Tuesday to Friday), following lunch. Subsequently, children and parents were provided with written debriefs via schools (See Appendix P)

5.3.4. Data Coding

The breakfast attitudes element of the questionnaires was scored according to the recommended scoring criteria outlined by Tapper et al. (2008). Each of the 12 items were scored on a five point scale ranging from 'Agree', which was a score of 1, to 'Disagree a Lot', which was given score of 5. Items 1, 12, and 13 were reverse scored. An average breakfast attitudes score was calculated for each child and parent by dividing the sum of all the scale items responses by 13. An average score of 3 is indicative of a neutral attitude towards breakfast, average scores above 3 indicate a more positive attitude, and average scores below 3 indicate a less positive attitude.

Breakfast behaviours included breakfast consumption frequency, and frequency of breakfast consumption by location. The frequency of breakfast consumption/ skipping was coded as 2 for consumed breakfast foods on both days of reporting, 1 for consumed breakfast foods on one day, and 0 for did not report consuming breakfast foods on both days of reporting. Breakfast consumption by location was determined as consumed or not consumed on 0, 1 or 2 days of reporting.

For breakfast food intake, all food items, including milks, but excluding other beverages, were categorised into seven food groups for children and eight food groups for parents, using similar methods utilised in previous research (Murphy et al., 2011; Tapper et al., 2008). For children, food groups included savoury breads, sweetened breads, ready to eat cereals and oats, fruits, vegetables, milks and yoghurts, and sweets. For parents, food groups included savoury breads, ready to eat

cereals and oats, fruits, vegetables, meats and eggs, milks and yoghurts, sweets, and savoury snacks.

For children and parents who consumed breakfast at home on at least one day of reporting, foods consumed at home only were categorised into two groups; namely healthy and unhealthy, using a similar procedure utilised in previous research (Murphy et al., 2011; Tapper et al., 2008). For children, healthy foods consumed at home included those within the savoury breads, ready to eat cereals and oats, fruits, vegetables, and milks and yoghurts food groups; and unhealthy foods consumed at home included those within the sweetened breads and sweets food groups. For parents, healthy foods consumed at home included those within the savoury breads, ready to eat cereals and oats, fruits, vegetables, and milks and yoghurts food groups; and unhealthy foods consumed at home included those from the meats and sweets groups. For each parent and child, who consumed breakfast at home on at least one day, overall healthy and unhealthy breakfast food items consumed at home scores were calculated. Examples of the foods categorised into healthy and unhealthy groups, reported by children and parents at home, are provided in Table 5.1.

Table 5.1. Examples of healthy and unhealthy breakfast foods consumed at home for Study 3

Breakfast Categories and Sub-Categories	Examples of Foods and Drinks Consumed by Children and/ or Parents at Home
Healthy Breakfast Items	
Savoury Breads	Toasted bread, sliced bread, bread rolls.
Ready to Eat Cereals and Oats	Ready to eat cereals (sweetened and unsweetened), Oat based cereals, cereal bars, muesli.
Fruits	Fresh fruits, bagged/ chopped fruits, dried fruits.
Vegetables	Fresh vegetables and baked beans.
Milks and Yoghurts	Milk on cereal, milk, flavoured milk, yoghurts.
Unhealthy Breakfast Items	
Sweetened Breads	Scotch pancakes.
Meats	Bacon.
Sweets	Biscuits, cakes, pastries, chocolate.

Savoury breads were grouped under ‘healthy’ due to the associated nutritional benefits. According to the UK Government’s Eatwell Guide, meals should be based on starchy foods, including breads, because they are good sources of energy and nutrients, especially wholegrain varieties (NHS Choices, 2017). Moreover, nutrients lost during the milling process of flour, such as calcium, iron, and the B vitamins thiamine and niacin, must be restored to white and brown bread flour by law in the UK, to ensure appropriate levels of these key nutrients (British Nutrition Foundation, 2016c). According to population level data in the UK, bread is thought to provide more than 10% of daily intake of protein, folate and iron, and around 20% or more of fibre, calcium and magnesium (British Nutrition Foundation, 2016c; Whitton et al., 2011). Ready to eat cereals and oats were also categorised under ‘healthy’, as like bread, breakfast cereals are starchy foods, which are of

significant importance for dietary health and should comprise over a third of food intake (Public Health England, 2017). It is acknowledged that a number of ready to eat cereals, such as cornflakes and sugar coated cereals, typically contain more sugars and have a higher glycaemic index than unsweetened oat and bran based cereals (British Nutrition Foundation, 2016c). However, breakfast cereals consumed in the UK are typically fortified with vitamins and minerals essential for growth and development. Research also shows that the consumption of fortified breakfast cereals, is associated with superior nutritional intakes and reduced BMI and risk of obesity (Albertson, Anderson, Crockett, & Goebel, 2003; De La Hunty et al., 2013; Deshmukh-Taskar, Nicklas, O'Neil, Keast, Radcliffe, Cho, et al., 2010; Rampersaud et al., 2005). Fruits and vegetables were included in the 'healthy' category as current UK Government guidelines recommend that children and adults should consume at least five portions a day as part of a healthy diet (Public Health England, 2017). There is evidence to suggest that people who consume lots of fruit and vegetables are less likely to develop chronic diseases such as coronary heart disease and some types of cancer (Public Health England, 2017). Finally, milks and yoghurts were categorised under the 'healthy' food group, as dairy foods are considered to be good sources of protein, essential for growth and repair, and calcium, which helps to maintain healthy bones and teeth (NHS Choices, 2015). Moreover, fats in milks and yoghurts provide essential vitamins such as B2 and B12, and minerals such as magnesium and potassium (NHS Choices, 2015).

Sweetened breads and sweets were categorised as 'unhealthy', because they typically contain medium to high levels of sugars and/ or fats. According to Government guidelines, foods high in sugars, fats, and/or salt should be consumed infrequently and in small amounts (Public Health England, 2017). Regular consumption of foods high in sugars and fats increases the risk of obesity and tooth decay (Public Health England, 2017). Concerning the decision to categorise meats as 'unhealthy', it was acknowledged that meats are good sources of protein, vitamins and minerals. However, the meats reported in this study were processed meats, which are typically high in fats, saturated fats and salt. According to Government guidelines, consumption of red and processed meats should be limited, as high intake has been associated with increased risk of colorectal cancer (Public Health England, 2017). High fat intakes are associated with increased risk of being overweight and

obese, and high intakes of saturated fats, have been associated with raised blood cholesterol, which is a risk factor in coronary heart disease (British Nutrition Foundation, 2016a). In addition, consuming high amounts of salt is associated with increased risk of high blood pressure, which increases the risk of developing heart disease or stroke (Public Health England, 2017). Moreover, in addition to containing high levels of fats, processed meats consumed for breakfast may be cooked in oils or fat. Eggs were excluded from the analysis of healthy and unhealthy foods at home, because the cooking methods, e.g. fried, boiled, poached, could not be ascertained.

5.3.5. Analysis

The results were analysed to provide a description of all children's (N = 37) and parents' (N = 32) profile characteristics and demographics, breakfast consumption behaviours and food intake. Frequency of breakfast consumption and skipping, and location of breakfast consumption for two days are presented for children and parents. For children, foods are presented as consumed at home, on the way to school and at school, and for parents foods are presented as consumed at home and outside the home. Following this a sub-sample of children (n = 33) and parents (n = 27) who consumed breakfast foods at home on at least one day of reporting was determined. Descriptive analysis in this sub-sample included the number of healthy and unhealthy food items consumed at home by children and parents, and attitudes towards breakfast. As data were not normally distributed, Wilcoxon signed-rank tests were utilised to compare differences between the number of healthy and unhealthy foods consumed by children and parents. To investigate potential correlations between the numbers of healthy/ unhealthy items consumed at home and attitudes towards breakfast amongst children and parents, Spearman Rank Correlation Coefficient tests were used. A further matched sub-sample of children (n = 24) and their respective parents (n = 23) was determined in order to examine for potential associations between children and parents. Spearman Rank-Order Correlation Coefficient tests were utilised to assess for potential associations between matched parents' and children's consumption of healthy/ unhealthy items at home, and parents' attitudes towards breakfast and children's consumption of healthy/ unhealthy items at home. Databases containing these data were created in IBM SPSS Statistics (version 23). Statistical analyses were performed using IBM SPSS, and the significance level (a-level) was set at $p < 0.05$.

5.4. Results

5.4.1. Participant and School Demographics

Children's ages ranged 9 to 11 years (mean age = 9.9 years), and parents' ages ranged from 23 to 50 years (mean age 38.3 years). The majority of parents were female (93.8%), and more girls (59.5%) participated than boys (40.5%). Parents and children were predominantly white British, which was representative of the local community (ONS, 2014). A higher proportion of parents reported not being eligible for free school meals (84.4%). Moreover, a higher proportion of parents reported being employed or self-employed (full-time/ part-time) (62.5%), than unemployed (34.4%), and one parent did not provide employment information. Demographic information pertaining to children and parents is provided in Table 5.2.

Table 5.2. Children's and parents' demographic profiles for Study 3

Variable	Children (N = 37)	Parents (N = 32)
Age [years (range)]	9.9 (9-11)	38.3 (23-50)
Gender		
Female	22 (59.5%)	30 (93.8%)
Male	15 (40.5%)	2 (6.3%)
Ethnicity		
White British	36 (97.3%)	32 (100%)
Other Ethnic Group	1 (2.7%)	-
Eligibility for FSM		
Yes	-	5 (15.6%)
No	-	27 (84.4%)
Employment Status		
Employed	-	20 (62.5%)
Unemployed	-	11 (34.4%)

All four participating schools were located in predominantly white British areas (>88% white British), inhabited by a similar percentage of white British citizens than the proportion across whole of the North West of England (87.1% white British), but higher than England overall (79.8% white British). Three of the schools (Schools 1, 2 and 4) had a higher proportion of the populace claiming working age benefits than the population across the whole of the North West of England (19%).

However, all of the schools had a greater percentage of the residents in the community claiming working age benefits, than the whole of England overall (15%). Three of the schools (Schools 1, 2 and 4) had higher proportions of pupils eligible for free school meals than primary schools in the UK overall (14.5%), with Schools 1 and 4 having over half of pupils eligible for FSM. All of the schools were located within the bottom half of neighbourhoods in the UK, ranked on indicators of deprivation, such as income, employment, health, education, crime and living environment, with Schools 1 and 4 being located in the lowest 5% of neighbourhoods (Indices of Deprivation, 2015). Information pertaining to school characteristics and school area demographics are provided in Table 5.3.

Table 5.3. School characteristics and school area demographics for Study 3

School demographics ^a				School and local area demographics ^b		
School	Pupils on role (N)	School type	% Pupils entitled to FSM	% All people of working age claiming a key benefit	% White British	Indices of deprivation: total deprivation ^c (Rank: 1 - 32,844)
1	458	Academy Sponsor Led	52.9	34	94.0	957
2	233	Academy Sponsor Led	22.8	24	94.9	3433
3	399	Voluntary Aided School	8.3	17	96.3	10346
4	427	Community School	54.5	55	88.0	18

(a) Information taken from: < <http://www.education.gov.uk/>>

(b) Information by ward taken from: <http://www.neighbourhood.statistics.gov.uk>

(c) All 32,844 neighbourhoods in England have been ranked on a range of deprivation topics including income, employment, health, education, crime and living environment, with the most deprived neighbourhood in England having a rank of 1, as of 2015.

In the sample of 37 children and 32 parents; five children and five parents were recruited from School 1, seven children and six parents were recruited from School 2, 12 children and 13 parents were recruited from School 3, and 13 children and eight parents were recruited from School 4. Information pertaining to the number of children and parents recruited from each school is provided in Table 5.4.

Table 5.4. Number and percentage of children and parents by school for Study 3

School	Children (N/ %)	Parents (N/ %)
1	5 (13.5%)	5 (15.6%)
2	7 (18.9%)	6 (18.8%)
3	12 (32.4%)	13 (40.6%)
4	13 (35.1%)	8 (25%)

5.4.2. Children’s and Parents’ Breakfast Food Intake at Home and Attitudes towards Breakfast

The central aims of this study were to explore the breakfast foods consumed by children and parents in a shared family environment and potential interactions with attitudes towards breakfast, and hence foods consumed outside the home by children and parents were excluded from this part of the analysis. Moreover, parents have little control over the foods consumed by children at school, and thus the breakfast foods consumed by children at school were also excluded. Therefore, following the exclusion of four children and five parents who did not consume breakfast foods at home, a sub-sample of children (n = 33) and parents (n = 27) who consumed breakfast foods at home was identified for further analyses.

The breakfast foods consumed at home by children and parents were categorised into healthy and unhealthy groups, in accordance with the literature (British Nutrition Foundation, 2016; Public Health England, 2017). Figure 5.1 shows the number of healthy and unhealthy items consumed by parents and children at home over two days of reporting. Wilcoxon signed-rank tests were conducted to compare the differences between the number of healthy and unhealthy breakfast food items consumed by children and parents. Results showed that there was a significant difference between the scores relating to healthy and unhealthy foods consumed by

children at home ($Z = -4.773$, $p < 0.001$); with children consuming significantly more healthy breakfast foods compared to unhealthy foods. Likewise, results for parents also showed that there was a significant difference between the scores relating to healthy and unhealthy foods consumed at home ($Z = -4.398$, $p < 0.001$); with parents consuming significantly more healthy foods healthy breakfast foods at home than unhealthy breakfast foods at home.

Breakfast attitudes scores were determined for children and parents who consumed breakfast at home, and overall median attitude scores for children (Mdn = 4.00; R: 2.46 - 5.00) and parents (Mdn = 3.69; R: 2.46 - 5.00) were identified. As scores above 3.00 signify a more positive attitude towards breakfast, median scores indicated that generally attitudes towards breakfast for children and parents who consumed breakfast at home were positive. In the sample of children and parents who consumed breakfast foods at home, only three children and three parents had average attitudes scores less than 3.00.

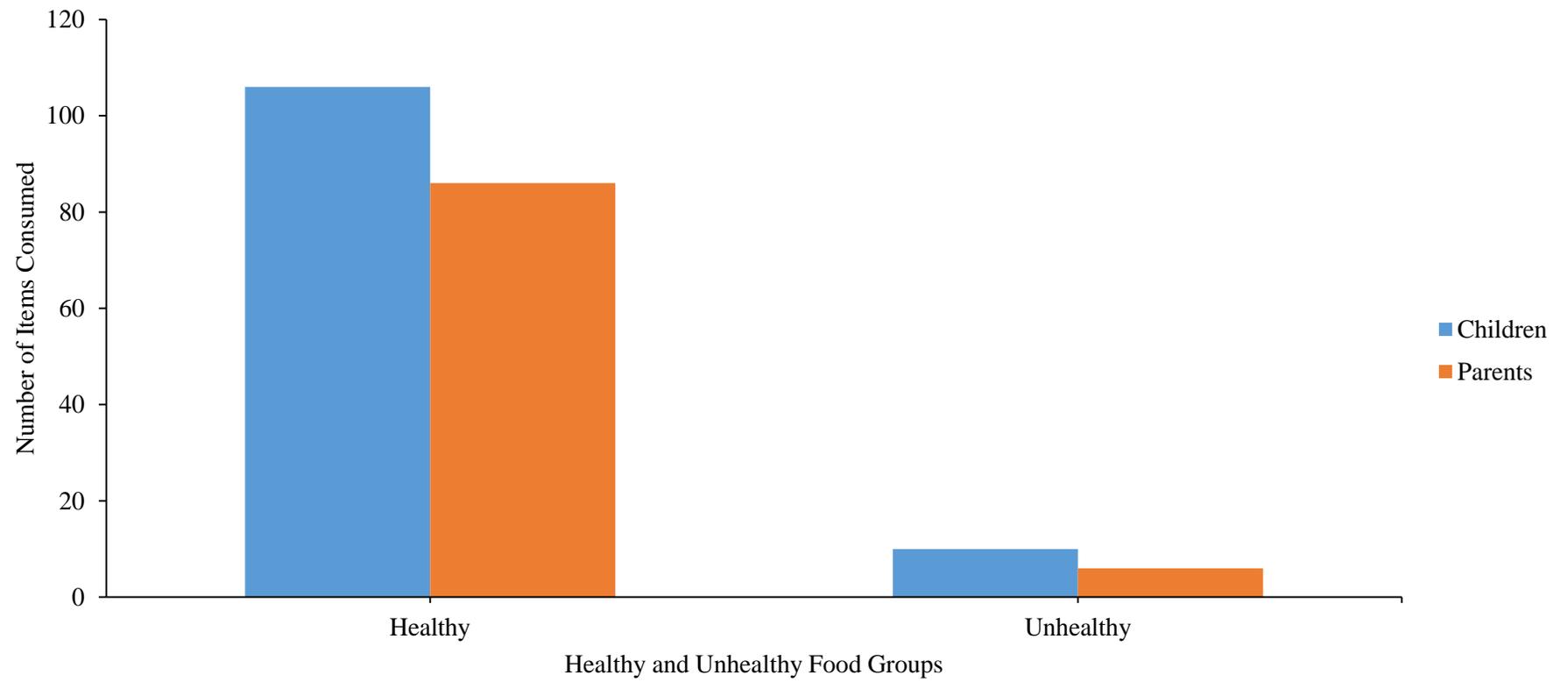


Figure 5.1. Number of breakfast items consumed by parents from each breakfast food group at home and outside the home, for Study 3

A series of correlations were undertaken to explore potential relationships between children's and parents' consumption of healthy and unhealthy foods at home and their attitudes towards breakfast utilising Spearman Rank-Order Correlation Coefficient tests. For children, results showed that there were no significant correlations between the numbers of healthy and unhealthy foods consumed at home and their attitudes towards breakfast. However, for parents there was a significant positive correlation ($r_s = 0.689$; $p < 0.0001$) between the number of healthy foods consumed for breakfast and their attitudes towards breakfast, but no significant correlation between the number unhealthy foods consumed at home and parental attitudes. Correlation results are presented in Table 5.5.

Table 5.5. Correlations conducted on healthy/ unhealthy foods home and attitudes towards breakfast, for children and parents in Study 3

	Children's Attitudes	Parents' Attitudes
	<i>r_s value, p-value^a</i>	
Healthy Breakfast Foods at Home	$r_s = 0.114$; $p = 0.528$	$r_s = 0.689$; $p < 0.0001$
Unhealthy Breakfast Foods at Home	$r_s = -0.012$; $p = 0.947$	$r_s = 0.040$; $p = 0.842$

(a) *p*-value for Spearman's Rank Order Correlation Coefficient for correlations between breakfast food intake and attitudes toward breakfast

Furthermore, in order to examine potential relationships between children and parents, a matched sub-sample of children ($n = 24$) and their respective parents ($n = 23$) who consumed breakfast at home was identified. A series of correlations were undertaken utilising Spearman Rank Order Correlation Coefficient tests, in order to investigate potential associations between children and parents breakfast food intake at home and their attitudes towards breakfast. However, the results showed no significant relationships between the number of healthy foods consumed by children and parents at home ($r_s = -.000$; $p = 1.000$), nor the numbers of unhealthy foods consumed by children and parents at home ($r_s = -.250$; $p = 0.803$). In addition, there were no significant correlations between parents' attitudes towards breakfast and children's consumption of healthy foods at home ($r_s = -1.851$; $p = .064$), nor

parents' attitudes towards breakfast and children's consumption of unhealthy foods at home ($r_s = 0.386$; $p = 0.057$).

5.4.3. Children's and Parents' Breakfast Consumption Behaviours

Data on breakfast consumption behaviours, including the frequency of breakfast consumption, and the location where breakfast was consumed, were collected for all children ($N = 37$) and parents ($N = 32$) who took part in the study. The frequency of breakfast consumption was determined as consumed on both days of reporting (two days), consumed on one day, or not consumed at all on both days of reporting (0 days). Regarding children, 90% of the sample ($n = 33$) reported consuming breakfast foods on both days of reporting. Out of the remaining four children, two reported consuming breakfast foods on just one day, and two reported they did not consume any breakfast foods on both days of reporting. Similar to children, a large percentage of parents (78%) reported they consumed breakfast foods on both days. Six parents reported consuming breakfast foods on just one day and one parent reported they did not consume any breakfast foods at all. Information pertaining to children's and parents' frequency of breakfast consumption is provided in Table 5.6.

Table 5.6. Breakfast consumption frequency for total number and percentage of children in Study 3

Frequency of Breakfast Consumption (no. of days)	Children	Parents
2	33 (90%)	25 (78%)
1	2 (5%)	6 (19%)
0	2 (5%)	1 (3%)

Frequency of breakfast consumption by location was also determined for all children and parents who took part in the study. For children, locations included at home, on the way to school and at school. Almost 80% of children (78%) reported they consumed breakfast foods at home on both days of reporting. Four children reported they consumed breakfast at home on one day, and four reported they did not consume breakfast foods at home on both days. Regarding breakfast foods consumed on the way to school, the majority of children (89%) reported they did not consume any foods on the way to school on both days of reporting. One child reported

consuming breakfast foods on the way to school on one day, and three children reported consuming foods on the way to school on two days. Concerning breakfast at school, almost half of children (48%) reported they did not consume breakfast foods at school on both days of reporting. Eleven children reported they consumed breakfast foods at school on one day, and eight children reported they consumed breakfast foods at school on two days. Overall, more children reported consuming breakfast at home on at least one day of reporting (n = 33), than the number of children who reported consuming breakfast at school on at least one day of reporting (n = 19). Out of the four children who did not consume food at home on both days of reporting, two children skipped breakfast entirely on both days of reporting, one reported consuming breakfast at school on both days, and one reported consuming breakfast at school on one day of reporting. Table 5.7 shows information pertaining to the frequency of children's breakfast consumption by location.

Table 5.7. Frequency of breakfast consumption by location for children in Study 3

Number of Days	Breakfast Location		
	Home (n/ %)	Way to School (n/ %)	At School (n/ %)
2	29 (78%)	3 (8%)	8 (22%)
1	4 (11%)	1 (3%)	11 (30%)
0	4 (11%)	33 (89%)	18 (48%)

For all children, the frequency of double-breakfasting (consuming breakfast at home and school on the same day), over the two days of reporting was also calculated. Sixty percent of all children (n = 22) reported they did not consume a double-breakfast on both days of reporting. However, 40% of children reported consuming a double-breakfast on at least one day of reporting, with nine children consuming a double-breakfast on one day, and six consuming a double-breakfast on two days. Information pertaining to the frequency of double-breakfasting amongst children is provided in Table 5.8.

Table 5.8. Double-breakfast frequency for children in Study 3

Number of Days	Total Number and Percentage of Children
2	6 (16%)
1	9 (24%)
0	22 (60%)

For parents, breakfast locations included at home and outside the home. Just over 60% of all parents reported consuming breakfast foods at home on both days of reporting. Seven parents reported consuming breakfast foods at home on one day, and five parents reported they did not consume any breakfast foods at home at all. Regarding foods consumed by parents outside the home, 44% of parents reported they did not consume foods outside the home on both days of reporting. Nine parents reported consuming breakfast foods outside the home on one day, and nine parents reported consuming breakfast foods outside the home on both days of reporting. Similar to children, overall more parents reported consuming breakfast foods at home on at least one day of reporting ($n = 27$), than outside the home on at least one day ($n = 18$). Table 5.9 provides information pertaining to parents' frequency of breakfast consumption by location.

Table 5.9. Frequency of breakfast consumption by location for parents in Study 3

Number of Days	Breakfast Location	
	Home (n/ %)	Outside the Home (n/ %)
2	20 (63%)	9 (28%)
1	7 (22%)	9 (28%)
0	5 (16%)	14 (44%)

5.4.4. Children's and Parents' Breakfast Food Intake

The foods consumed by all children and parents were categorised into key food groups. For children, this included seven food groups. The foods consumed by children are presented in Figure 5.2 by location. At home, the most frequently consumed foods by children were milks and yoghurts, followed by ready to eat cereals, and then savoury breads. Other, less frequent food consumed at home

included sweetened breads, fruits, vegetables and sweets. The number of foods consumed on the way to school by children was relatively small in comparison to foods consumed at other locations. Foods consumed on the way to school consisted of items from the breads, ready to eat cereals, fruits, milks and yoghurts, and sweets food groups. In accordance with the foods served at school breakfast, at school the most frequently consumed foods were from the sweetened breads food group, followed by fruits, then milks and yoghurts. Children reported consuming more fruits at school over the two days of reporting than at school.

Regarding parents, breakfast foods consumed were organised into eight groups. The foods consumed by parents are presented in Figure 5.3 by location. At home, the most frequently consumed foods by parents were savoury breads, followed by ready to eat cereals and milks. Other less frequent, breakfast foods consumed in the home by parents were from the fruits, vegetables, meats and eggs, and sweets food groups. Outside the home, the most frequently consumed foods by parents were fruits. Other foods consumed outside the home by parents included items from the savoury breads, ready to eat cereals, meats and eggs, milks and yoghurts, sweets, and savoury snacks groups. Finally, breakfast foods from the meats and eggs, and savoury snacks groups were reported by parents but not by children. Additionally, children reported consuming sweetened breads for breakfast, but parents did not report consuming any items from the sweetened breads groups.

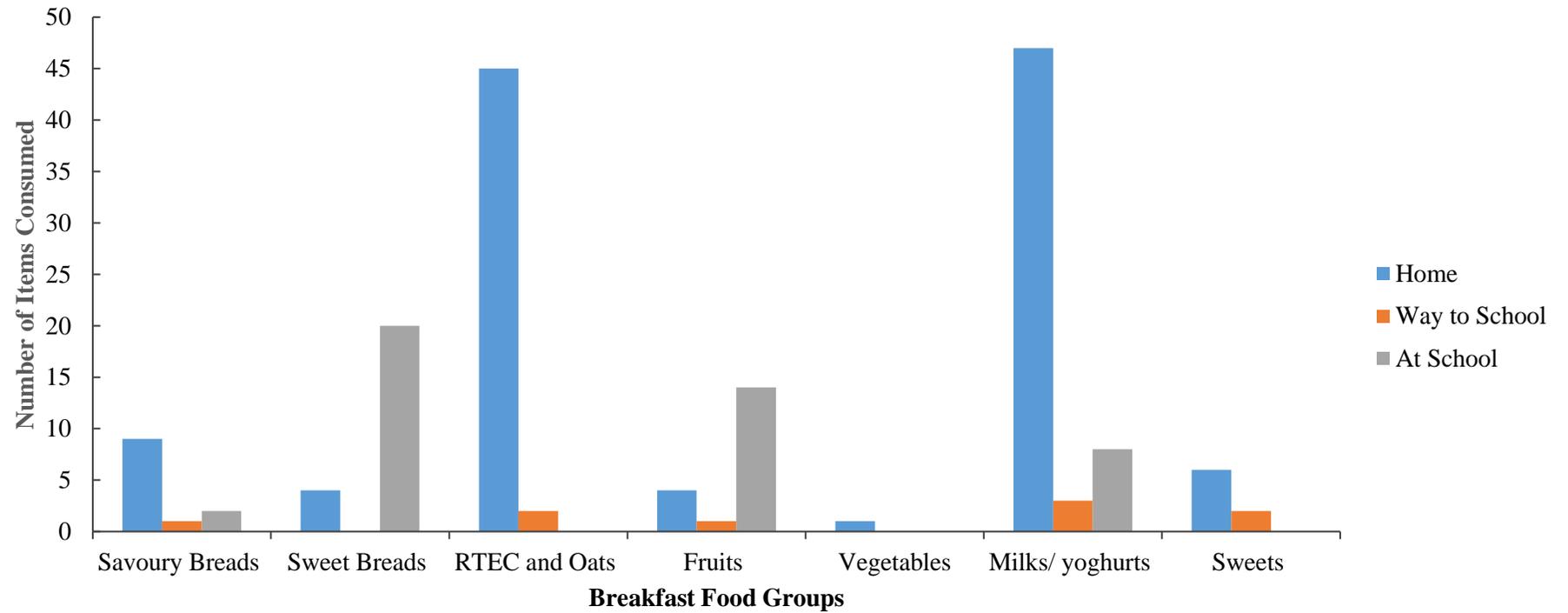


Figure 5.2. Number of breakfast items consumed by children from each breakfast food group at home, on the way to school, and at school breakfast, for Study 3

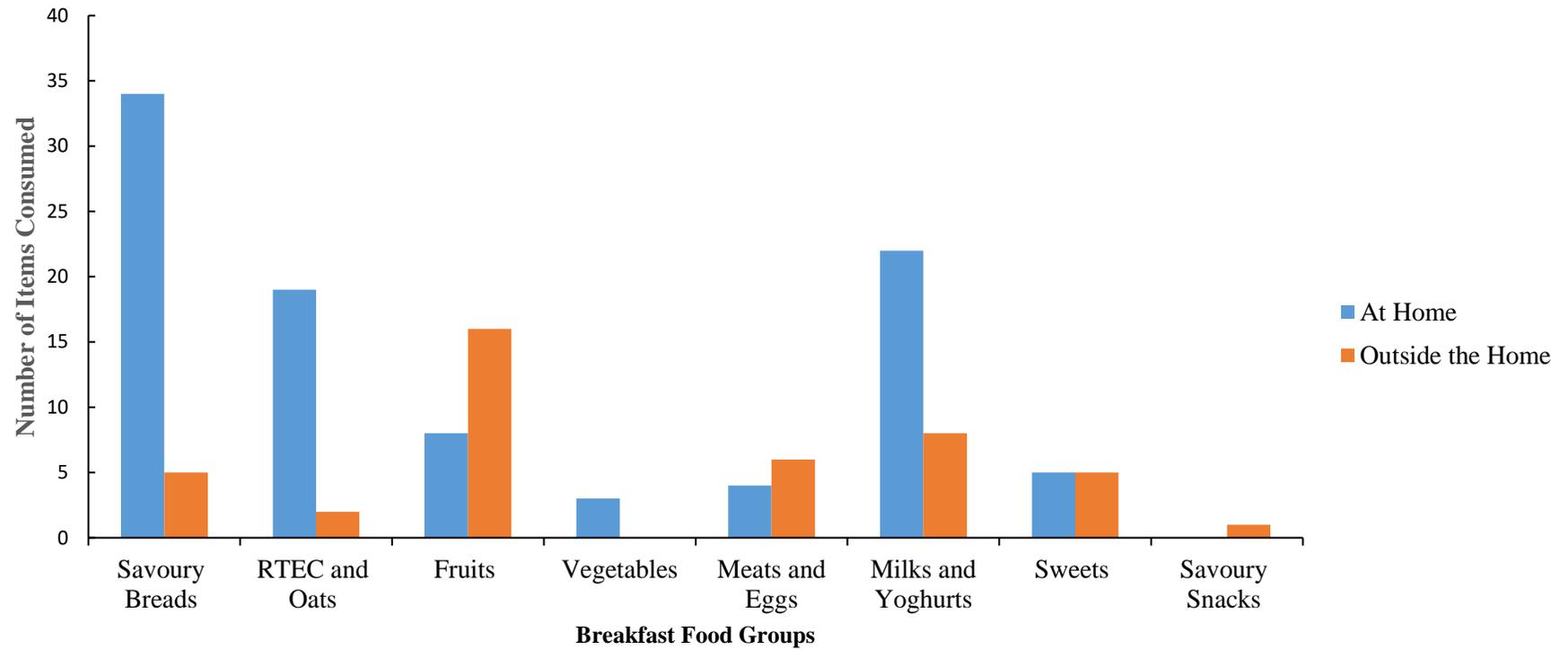


Figure 5.3. Number of breakfast items consumed by parents from each breakfast food group at home and outside the home, for Study 3

5.5. Discussion

One of the primary aims of this study was to explore potential correlations between the breakfast foods consumed at home by parents and children and their attitudes towards breakfast. Firstly, results showed that children and parents consumed a significantly greater number of healthy than unhealthy foods at home, and overall attitudes towards breakfast were positive amongst children and parents who consumed breakfast at home. A significant positive correlation was identified between the number of healthy breakfast foods consumed at home by parents and parental attitudes towards breakfast. However, no significant relationships were identified between children's consumption of healthy foods at home and their attitudes towards breakfast, nor children's and parents' consumption of unhealthy foods and their attitudes towards breakfast. Furthermore, an examination of potential relationships between children and their respective parents in a matched sub-sample sample, also found no significant associations between children's and parents' attitudes towards breakfast, or between parents' attitudes and children's consumption of healthy/ unhealthy foods at home for breakfast. The secondary aims of this study were to examine children's and parents' breakfast behaviours, including the locations where breakfast foods were consumed, breakfast skipping, and double-breakfasting for children, and breakfast food intake at different locations. Results provided a thorough description of breakfast consumption behaviours and food intake across the school morning in a sample of children attending UK primary schools with a UFSB in operation, and respective parents.

Regarding the locations where foods were consumed, results showed that both children and parents consumed breakfast more frequently at home, than outside the home, with children consuming breakfast at home more frequently than at school. This finding supports prior research in the in the UK and USA that has reported children consumed breakfast at home more frequently than school in the presence of school breakfast programmes (Jenkins et al., 2015; Sweeney & Horishita, 2005). In addition, in the current study a substantial number of children consumed breakfast at both home and school on the same day, with 40% reporting they consumed a double-breakfast on at least 1 day of reporting. Comparatively, research concerned with the UK's Welsh Assembly Government's UFSB reported that 12% of children who consumed breakfast, consumed breakfast at home and

school on the same day (Jenkins et al., 2015). Moreover, USA based research has reported that participation in school breakfast programmes actually increases the likelihood of consuming a double-breakfast (Bernstein et al., 2004). Therefore, given the frequency of double-breakfast consumption in the current study, and the comparative research findings, further investigations into the effects of double-breakfast consumption on children's dietary and nutritional intakes were examined further in Study 4.

Regarding the foods consumed for breakfast, results from this study showed that ready to eat breakfast cereals, savoury breads and milks were the most frequently consumed foods at home by children and parents. Likewise, previous research has shown that ready to eat cereals and breads are popular breakfast foods amongst UK children (Hoyland et al., 2012) and adults (Gibson & Gunn, 2011). With regards to breakfast foods consumed outside the home, for children foods were consumed on the way to school infrequently, and in accordance with the foods served as part of the UFSB, sweetened breads were the most frequently consumed foods at school by children, followed by fruits, and milks and yoghurts. Interestingly, results from this study showed that more fruits were consumed by children and parents outside the home, and specifically more fruits were consumed by children at school. Comparatively, whilst research into the USDA School Breakfast Programme reported that children who participated in school breakfast were more likely to consume sweetened breads and pastries, they were also less likely to consume fresh fruit, compared their peers who did not participate (Condon, Crepinsek, & Fox, 2009). Fruits are good sources of vitamins, minerals and fibre, and according to the Government's Eatwell Guide, at least five portions of fruit and vegetables should be consumed daily (Public Health England, 2016a). Correspondingly, research has demonstrated the importance of availability and accessibility of healthier foods for children (Patrick & Nicklas, 2005), and a study with school children reported that fruit and vegetable intake was higher when foods were not only available, but also in accessible locations and prepared for consumption (Baranowski, Cullen, & Baranowski, 1999). Therefore, it could be suggested that more fruits were consumed by children at school in this study due to increased availability and convenience.

In the UK, there are School Food Standards that apply to foods served in schools other than lunch (Department for Education, 2015). Concerning breads, no direct advice is provided on the provision of sweetened bread items, although bread with no added fat or oil, fruit breads and malt loaf are recommended as options, and wholegrain varieties are advocated as healthier options. Schools are also advised to check food labelling on pre-packaged foods and guidance is provided on interpreting food labels for fats, saturated fats, sugar and salt content. Pre-packaged sweetened bread products, in particular Scotch pancakes and waffles, may contain higher levels of fats and/ or sugars, thus perhaps caution should be taken in serving these items to children every day at school breakfast. The World Health Organisation and UK Government have recommended that the consumption of free sugars, which include monosaccharides and disaccharides added to foods, and sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates, should be reduced in the general population (Scientific Advisory Committee on Nutrition, 2015; World Health Organisation, 2015). Therefore, serving savoury breads and breakfast cereals at school breakfast, especially wholegrain and low salt/ sugar varieties, may be preferable to pre-packaged sweetened bread items, from a nutritional perspective. However, in the current study school breakfast was served in the classroom and often merged into the formal start of the school day. Thus, it is acknowledged that serving cereals with milk and toasted breads is perhaps more logistically challenging, requiring more resources and staffing, and consequently may be more complex and costly to deliver.

The food items consumed at home by children and parents in this study were dichotomised into healthy and unhealthy groups, according to the UK literature (British Nutrition Foundation, 2016; Public Health England, 2017). Results showed that children and parents consumed a far greater number of healthy food items for breakfast at home, than unhealthy food items. This may indicate that breakfast provides an opportunity for the consumption of nutrient rich foods, as previous research has linked breakfast consumption with more healthier dietary intakes (Nicklas, O'Neil, & Berenson, 1998; Rampersaud et al., 2005). Whilst, in this study, children who consumed breakfast at home consumed more healthy items; in instances where children do not consume breakfast at home or consume unhealthy items at home or on the way to school, school breakfast provides an opportunity for

increasing children's intakes of essential nutrients. Subsequently, potential relationships were investigated between children's and parents' consumption of healthy and unhealthy foods at home and their attitudes towards breakfast. However, whereas results showed that there was a significant positive relationship between the number of healthy foods consumed by parents and their attitudes towards breakfast, no similar relationship was identified between the number of healthy foods consumed by children and their attitudes towards breakfast. In addition, no significant associations were identified between the number of unhealthy food items consumed by children and parents at home, and their attitudes towards breakfast. By contrast, previous research concerned with the Wales' UFSB programme reported significant associations between children's attitudes towards breakfast and intakes of healthy and unhealthy breakfast foods (Murphy et al., 2011; Tapper et al., 2008). However, the sample sizes in the Wales' studies were much larger, and a limitation of the current study was a small sample size.

According to the literature, the foods that children are routinely exposed to in the home shape their preferences and consumption, and food availability in the home is considered to have a strong influence on children's food choices (Patrick & Nicklas, 2005). This study investigated potential relationships between children and parents' breakfast food intake at home, and parents' attitudes towards breakfast and children's breakfast food intake at home. As research suggests parental dietary attitudes and behavioural modelling influences children's dietary attitudes and behaviours (Patrick & Nicklas, 2005; Wardle, 1995), it was anticipated that there may be similar relationships evident between parents and children in this study. A series of correlations were undertaken to examine for associations between children's intakes of healthy/ unhealthy food and parents' intakes of healthy/ unhealthy breakfast foods at home, and between parents' attitudes towards breakfast and children's intakes of healthy/ unhealthy breakfast food items at home. However, the results from these analyses were not significant. By contrast, previous research has reported associations between parental eating habits and both healthy and unhealthy dietary behaviours and food intake in children and adolescents (Brown & Ogden, 2004; Gibson, Wardle, & Watts, 1998; Oliveria et al., 1992; Orlet Fisher et al., 2002; Pearson et al., 2009; van der Horst et al., 2006), and between children's and parents dietary attitudes and eating behaviours (Birch, Zimmerman, & Hind,

1980; Brown & Ogden, 2004). However, although it is deemed that parents shape children's dietary attitudes and behaviours, research also indicates that peers also influence dietary behaviours in children, in particularly older children and adolescents (Birch, 1980; Contento, Michela, & Goldberg, 1988; Dennison & Shepherd, 1995; Patrick & Nicklas, 2005). As the children who participated in the present study were older primary school children, who also had the choice of a free breakfast meal at school, it could be speculated that these factors may have impacted on the extent of parental influence on children's food intakes at home and the apparent absence of relationships between children and parents in this study.

Whilst the current study provided an original contribution to the literature, extending on research into children's breakfast behaviours and attitudes towards breakfast and examining these factors in both children and parents, the study is not without limitations. Issues were encountered during recruitment including a lack of parental response and high attrition rates. Consequently, in the present study, the final sample was relatively small and participants were recruited from four schools within one town in the North West of England, UK, and therefore caution should be taken in generalising the results to wider populations. However, conducting research in hard to reach populations for research is often challenging (Mirick, 2016). Past research has shown that recruitment rates of parents for research tend to be low, in particular for low socioeconomic status parents and those from more disadvantaged areas (Heinrichs, Bertram, Kuschel, & Hahlweg, 2005). The percentage of eligibility for free school meals amongst parents who participated in this study was 15.6%, whilst the percentage for Blackpool overall is 25.1% (Department for Education, 2016). Thus indicating that the parents who participated in this study may have been those from higher socioeconomic families, and not necessarily representative of the overall population. Future research into school breakfast provision may therefore benefit from targeting parents from lower socioeconomic backgrounds by considering alternative methods of recruitment in order to involve those less likely to participate. Suggested strategies include the provision of recruitment materials that meet the needs of participants; presence in the community and face-to-face contact to develop trust and rapport; and reducing barriers to participation for low income families by providing travel costs, child-care, flexible timings and convenient locations (Schnirer & Stack-Cutler, 2012).

Furthermore, the measure of breakfast food intake utilised in this study, namely the Day in the Life Questionnaire (DITLQ), was designed to provide data on the intake basic food groups consumed, i.e. cereal, toast, milk etc. Therefore, limited detail was provided on the types and brands of foods, portions and quantities, and additives such as sugar and fat/ sweet spreads. Whilst the process for categorising foods as healthy and unhealthy in the present study followed methods utilised in previous research using the DITLQ (Murphy et al., 2011; Tapper et al., 2008), this lack of detail meant that dichotomising foods into healthy and unhealthy food groups for comparison with attitudes was problematic. In particular when categorising foods such as cereals and breads, which depending on the type and brand may differ substantially in the amount of sugar, fats and salt they contain. In light of these issues, and issues with parental recruitment, it was decided to focus the subsequent study on children's breakfast behaviours and breakfast food intakes. Therefore, bespoke food diaries were developed for use with children in Study 4, which provided the aforementioned additional detail on foods consumed and allowed for a more in-depth analysis of foods and beverages, and energy and nutritional intakes. Nevertheless, despite these limitations, the measure utilised in the current study was useful as it provided a large amount of dietary data from children and parents, whilst providing schools, children and parents with some flexibility in completion of the research tasks, as it was not necessary for them to allocate time for a researcher to attend. This data provided an interesting and valuable illustration of children's and parents' breakfast behaviours and food intake across the morning at different locations. However, whilst evidence emerged from the present study of an association between parents' attitudes towards breakfast and their food intake at home, the study did not provide evidence of relationships between children's attitudes towards breakfast and their food intake at home, and between parents' attitudes/ breakfast food intakes at home and children's breakfast food intake at home. Though, whilst previous research has shown associations between children's breakfast food intake and their attitudes towards breakfast, and between parents' and children's dietary attitudes and behaviours, research also shows that children's dietary behaviours are influenced by a complex range of characteristics relating to social and physical environments (Patrick & Nicklas, 2005).

CHAPTER 6: A Cross-Sectional Study of Breakfast Behaviours, Food, Energy and Macronutrient Intakes, amongst U.K. Primary School Children, within a Deprived Community, served by a UFSB scheme

6.1. Introduction

Children and adolescents have greater nutritional requirements to sustain increased activity, growth and development (Harrop & Palmer, 2002). From approximately age seven there is a sharp increase in requirements for energy and protein, which continues to increase through adolescence, with boys tending to have slightly higher energy requirements than girls (British Nutrition Foundation, 2016b). It is posited that the breakfast meal makes an important contribution to children's diets and nutritional intakes. Various studies with children and adolescents have shown that breakfast consumers have higher intakes of micronutrients and are more likely to meet recommended nutritional intakes, when compared to breakfast skippers (Nicklas, Reger, Myers, & O'Neil, 2000; Rampersaud et al., 2005). In comparison, breakfast skipping has been associated with dietary inadequacy, and research has shown that children and adolescents who skip breakfast do not tend to compensate for this nutritional deficit at other meals throughout the day (Nicklas et al., 2000; Rampersaud et al., 2005). For example, a USA based study, with low income African-American children (N = 1151), found that a significantly greater proportion of children who skipped breakfast did not meet nutritional requirements across a range of nutrients, compared to those who consumed breakfast (Sampson, Dixit, Meyers, & Houser, 1995). Data were collected via a 4-day eating behaviour survey and a single 24-hour dietary recall, and were converted into macronutrients and micronutrients of interest using nutritional software. Nutritional adequacy was defined as > 80% of recommended daily allowance. Results showed that between 12-26% of children attended school without having consumed any breakfast. Children who skipped breakfast failed to achieve nutritional adequacy in almost every nutrient assessed, compared to children who consumed breakfast were more likely to achieve nutritional adequacy across a range of nutrients.

Further studies have assessed the nutritional content of breakfast consumed, in the presence of school breakfast; examining the differences between breakfast consumed at home and school, and total intakes. For example, a recent large scale study, investigated the nutritional intake of children attending 111 primary schools in

Wales, UK, who were randomly assigned to a school breakfast intervention condition (Welsh Assembly Government's primary school breakfast initiative) or a control condition (implementation of the intervention was delayed) (Jenkins, Benton, Tapper, Murphy, & Moore, 2015). It was reported that there were minimal differences in the nutritional content of breakfasts consumed at home versus school. However, in the intervention condition 12% of children who consumed breakfast ate breakfast at home and school (double-breakfast). In addition, for those children who consumed breakfast at school, 49% also consumed breakfast at home. Nevertheless, whilst average energy intake levels were higher for those children who consumed two breakfasts, the analysis showed that the difference in energy intakes between those who consumed a double-breakfast, and those who only ate one breakfast did not reach significance. However, the number of children only consuming breakfast at school in this study was negligible, and thus firm conclusions regarding comparisons between school and home breakfast consumption could not be inferred.

Comparably, results from a large scale study, examining the dietary effects of the USDA universal free school breakfast programme on elementary school students, indicated that children attending UFSB schools were more likely to consume breakfast at both home and at school (Crepinsek et al., 2006). Whilst overall children who consumed two breakfasts had higher energy intakes at breakfast than those who only consumed one breakfast, there were no such differences in daily intakes of energy.

On a smaller scale, a UK based study undertaken in a primary school and special school with breakfast clubs, in a highly deprived area in the North East of England, explored the impact of school breakfast on nutritional intakes on children from lower socioeconomic backgrounds (Simpson, Wattis, Crow, & Summerbell, 2003). Data were obtained using a one day dietary recalls from 145 pupils from both schools, with 107 recruited from the primary school and 38 recruited from the special school. Data were analysed according to whether an individual's nutritional intake of vitamin C and D, protein, calcium, iron and zinc were above or below Reference Nutrient Intakes (RNI), which are age and gender specific reference values used in the UK to estimate whether an individual is consuming an adequate amount of a particular nutrient. Results showed that a greater proportion of children attending breakfast club had nutritional intakes above the RNI for each nutrient

examined. It was suggested the findings indicated that school breakfast clubs may have a positive impact on dietary intake by supplementing the nutritional requirements of those who attend, especially those children eligible for school meals. However, the findings were limited to two schools within one highly socioeconomically deprived area. Additionally, the results were based on data from one day of reporting and thus may not represent habitual dietary intake. By contrast, findings from a further UK based study, comparing energy and nutritional intakes of school breakfast club attendees and non-attendees, indicated that school breakfast club attendance was not associated with superior nutritional intake or improvements in diet (Belderson et al., 2003). Results from this study showed that children who attended breakfast clubs had higher intakes of fat, saturated fat and sodium than non-attendees.

Aiming towards a consensus regarding the dietary effects of school breakfast is difficult due to the variability in the foods provided, delivery models, and populations targeted. It is proposed that school breakfast has positive effects when diet is poor, but may have less of an impact when children are already adequately nourished (Jenkins et al., 2015). However, it is considered that even when the dietary effect of school breakfast is minimal, health inequalities may still be reduced amongst a small population of undernourished children. Additionally, research has shown increasing trends of obesity amongst children and adolescents, and positive associations have been suggested between low socioeconomic status and deprivation, and obesity, with children from higher income households having lower odds of becoming obese, compared to their peers from low income households (Skelton, Cook, Auinger, Klein, & Barlow, 2009; Stamatakis, Primatesta, Chinn, Rona, & Falaschetti, 2005). It is thus necessary that school breakfast provision, in particular free and universally free school breakfast, should be considered in the context of both its ability to enhance nutritional intake, and also its potential to contribute to obesity by promoting overeating and 'double breakfasting'. To date there have been no published studies that have examined the impact of double-breakfasting frequency on dietary outcomes over an extended period of an entire week (7 days).

6.2. Study Aims

The present study therefore aimed to extend on research examining the impact of school breakfast on dietary outcomes, through a more in-depth analysis of

breakfast consumption amongst children, differentiating between breakfast locations, school week and weekend, and frequency of double-breakfasting. This study investigated breakfast consumption behaviours, morning food and beverage consumption, and energy and macronutrient intake, amongst children aged 9-11 attending primary schools with an established UFSB scheme in operation. Dietary intake was assessed across a consecutive full school week and weekend, and at different locations. The aims of this study were as follows:

- To investigate children's breakfast behaviours, and food and beverage intake, across the morning at home, on the way to school, and at school
- To examine children's energy and macronutrient intake across the morning at home and at school, and during the school week and weekend, amongst children attending schools with a USFB in operation
- To assess for any potential differences in macronutrient intake between rare, frequent, and occasional double-breakfast consumers over the school week and weekend
- To compare energy and macronutrient intakes, with UK estimated required energy and macronutrient intakes for children

6.3. Method

6.3.1. Participants

Children were recruited from three primary schools participating in the UFSB programme. Participants were aged 9-11 years, corresponding to UK primary school Year 6, Key Stage 2. Of the 143 children recruited to take part in this study, 30 returned incomplete or partially completed surveys so were excluded from further analyses, and one parent opted their child out. The final sample consisted of 112 participants. Ethical approval was gained from the Faculty of Health and Life Sciences at Northumbria University, Newcastle Upon Tyne, UK. Schools were made fully aware of the procedures and requirements for the study, and permission via consent was gained via the school head (Appendix Q). Subsequently, research information and opt-out consent forms were sent home to parents/ carers of Year 6 children attending each school (Appendix Q). Research documentation included contact information for the research team to answer any questions about the research. Parents/ carers were informed that if they were happy for their child to participate in the study they did not need to respond to the research team or return the opt-out

consent form, and consent via a process of assent was assumed. An opt out procedure was considered appropriate because children were not required to participate in tasks that greatly differed from their usual classroom activities, and therefore school head teachers acted as *in loco parentis*, unless parents opted their child out. It has been suggested that opt-out consent is a valid and reliable for of consent when children are required to undertake tasks that are similar to normal classroom activity (Rose & Asher, 1999). Children were provided with research information sheets, which included age appropriate written information on the study and the requirements of participants, and consent (Appendix Q). Moreover, on the first day of testing, prior to data collection, children also received a presentation to confirm their understanding of the research. Information contained in the research information sheet was reiterated, including a description of the research, the purpose and aims, procedures, requirements of children, and the right to decline or withdraw from the research at any stage without having to provide a reason. Children were also provided with the opportunities to ask questions and gain clarification to ensure they had a full understanding of what the research entailed. Schools were provided with £25.00 for their participation, and children were provided with a sticker as a token of appreciation.

6.3.2. Materials

6.3.2.1. Demographic Measures

Demographic information on children's age, gender and ethnicity were gathered via a self-report questionnaire, which was incorporated into child consent forms (Appendix Q). For ethnicity, categories were dichotomised into White British, Asian/ Asian British, Black/ Black British, Mixed/ Other, and later merged into two categories, namely: white British and other ethnic groups. Due to utilising opt-out consent in this study, it was not possible to gain individual measures of socioeconomic status from parents. Therefore, deprivation levels could only be obtained at school community levels.

6.3.2.2. Breakfast Food Diaries and Accompanying Resources

Bespoke seven day Breakfast Food Diaries (BFDs) were developed with the aim of collecting data for seven days on children's food and beverage consumption across the morning at home, on the way to school and at school, during the school week and at any location during weekend days. The BFDs were developed in

conjunction with advice from specialist colleagues within Public Health England, and those carrying out research for the UK, National Diet and Nutrition Survey (NDNS). Measures previously used to gather population level dietary data from UK children as part of the NDNS were utilised in the design of BFDs (Bates et al., 2008; Lennox et al., 2008). Moreover, resources contained in the Young Person's Food Atlas (Foster & Adamson, 2012) were utilised to facilitate the estimation of food and beverage quantities. In addition to the BFDs, accompanying resources were developed including a Toolkit to assist children in estimating portion sizes, and a training PowerPoint to aid completion of the BFDs. The development of the BFDs and accompanying resources is discussed in detail in the Thesis Methodology in Chapter 2. (Examples of the BFDs and accompanying Toolkit are provided in Appendix R)

6.3.2.3. School Breakfast Catering Questionnaire

In addition to the BFDs, data were gathered on school breakfast delivery within each school using school breakfast catering questionnaires and diaries. The aims of the catering questionnaires and diaries were to capture information on the school breakfast delivery models in each school, including the food and beverage items served, and the timings, staffing, and locations of school breakfast. The purpose of gathering this additional data was to facilitate a more accurate estimate of the foods and beverages served to children at school, and to gain information on the school breakfast model applied in each of the three schools. (Examples of the school breakfast catering questionnaire are provided in Appendix S)

6.3.2.4. Observational Schedule

A further observational tool was developed to aid researcher observations of the school breakfast environment on the first two days of data collection. The schedule provided prompts for the researcher to record the locations and timings of school breakfast, the number of children eating and in attendance when school breakfast was served, the delivery and serving models used in each school, and the types, and the brands and portion sizes of the food and beverages served. The purpose of the observation schedules was to provide further information on the nutritional composition of food and drinks served at school breakfast, via photographs of food items, and the collection of packaging displaying nutritional information. (Examples of the observation schedules are provided in Appendix T)

6.3.3. Procedures

6.3.3.1. Breakfast Food Diary Procedures

All children participating in the study completed the BFDs for seven consecutive days, commencing on a Monday. Diary completion commenced after lunch from Monday through to Friday, with children retrospectively reporting their food and beverage consumption at home, on the way to school, and at school on the morning of the day of reporting. For weekend days, children completed them retrospectively the following Monday. In all three schools, the BFDs were completed during term time and all schools were tested within a consecutive four-week period during November and December 2015. The BFDs required children to recall all the food and beverage items consumed across the morning before lunch. On the morning of the first day of reporting children and school staff were provided with training, in order to provide them with the appropriate knowledge for correctly completing the BFDs and utilising the accompanying toolkit. A PowerPoint presentation was developed specifically to assist with the delivery of this training and was left with school staff as a resource for completing the BFDs (Appendix U). Children were instructed to document all food and drink consumed from waking that day until lunch-time at all three locations. Instructions were provided to report the type of food and drink consumed, brand name (where appropriate), preparation and cooking method, and the amount eaten. Children were shown how to estimate portion sizes using household measures (i.e. spoons, cups, and bowls) and natural unit size (e.g. slices of bread). Following the training, children and school staff were able to ask questions and clarify their understanding with the researcher. The researcher remained at each school for the first two days of data collection. On the first day, children completed the BFDs with the assistance of the researcher and school staff. Whereas on the second day of reporting the researcher took a secondary role, whilst school staff facilitated children's completion of the BFDs and the researcher was able to oversee the process and answer any queries. The researcher's presence in the first two days of data collection allowed for opportunities to check for compliance, clarify ambiguous items, respond to queries and facilitate food portion estimates. It was deemed that by the third day of reporting school staff and children had acquired the necessary skills and knowledge to accurately complete the BFDs. Contact details were left with schools in the case of any issues. Following completion, the BFDs

were collected from each school for analysis. Subsequent to data collection, children were provided with written debrief following their participation. (See Appendix V)

6.3.3.2. School Breakfast Caterer Questionnaire Procedures

A member of school staff, with responsibility for school breakfast, completed a school breakfast catering questionnaire over the course of the first five days of data collection. School caterers were provided with training prior to completing the questionnaire and were provided with the opportunity to ask questions and clarify understanding with a researcher face-to-face on the first two days of data collection. Following this, school caterers were provided with contact details for the researcher in case of any questions and issues afterwards. Staff members were instructed to document all the foods and beverages served for school breakfast each day, including the types of food, brand name and preparation. Corresponding with child participants, staff members were advised to report on portion sizes by using measures (i.e. spoons, cups, and bowls), natural unit size (e.g. slices of bread), and number of items/ pieces. Caterer questionnaires were collected from the school alongside the BFDs.

6.3.3.3. Observational Procedures

The researcher was able to observe the school breakfast environment for the first two days of data collection in each of the three schools. The researcher utilised the observational schedule to gather data on school breakfast delivery models and foods and beverages served. These observations and collection of additional materials, along with the information provided in catering questionnaires, assisted with the estimation of food and beverage quantities and nutritional data, during the analysis of children BFDs.

6.3.4. Data Analysis

All data gathered from children's BFDs were entered into Microdiet nutritional analysis software (version 4.1, 2016; University of Salford, UK), which uses the McCance and Widdowson's, Composition of Foods Integrated Dataset 2015 (UK 2015 CoFIDS, 7th Edn.) to calculate energy and macronutrient content. In order to provide accurate measures of the nutritional content of the reported foods and beverages in the BFDs, the Young Person's Food Atlas for primary school children (Foster & Adamson, 2012) was utilised to provide age appropriate estimates of portion sizes and amounts. In addition, further information from school breakfast

catering diaries, researcher observations, and manufacturers' packaging, was also utilised to improve the accuracy of estimated portion weights and nutritional intake. A database was created in Microdiet, containing dietary totals (energy and macronutrients) and listing each food item consumed, for each child. Energy is expressed in kilocalories (Kcal), and macronutrients are expressed in grams (g) and percentage of food energy. Following this, two databases were created in IBM SPSS Statistics (version 23). The first database contained all the foods and beverages consumed by each participant for five days (Monday to Friday) at home, on the way to school, and at school, and at any locations on two weekend days (Saturday and Sunday). All food and beverage items were assigned to one of 24 groups. The second database, containing energy and macronutrient intakes data for foods and beverages consumed at home and at school. Foods and beverages were consumed on the way to school infrequently, and were excluded from the further analysis of energy and macronutrients, as the key interests in the latter part of this study were foods consumed at home and school.

Statistical analyses were performed using IBM SPSS Statistics (version 23), and the alpha level was set at $p < 0.05$. Descriptive analysis of breakfast eating patterns included frequency, food and beverage type, energy, and macronutrient content. Food and beverage type are presented as mean daily average intakes for weekly total (entire 7 days), total school week (5 days), school week home (5 days), school week way to school (5 days), school week at school (5 days), and weekend (2 days).). As energy and macronutrient data were not normally distributed, energy and macronutrient content are presented as median daily average intakes for weekly total (entire 7 days), total school week (5 days), school week home (5 days), school week at school (5 days), and weekend (2 days). Wilcoxon signed-rank tests were utilised to assess for differences in daily average energy and macronutrient intakes between home verses school during the school week, and between total school week (home and school) verses weekend. Participants were then grouped according to frequency of double-breakfasting, i.e. consumption at both home and school on the same day, across the school week. Frequency of double-breakfasting was defined as rare (0-1 weekdays), occasional (2-3) or frequent (4-5). Likewise, as the data were not normally distributed and groups were unequal in size, Wilcoxon signed-rank tests were utilised to assess for differences between median daily average energy and

macronutrient intakes between the total school week versus the weekend, for participants who consumed a double-breakfast rarely, occasionally and frequently. Furthermore, to assess whether differences between energy and macronutrients were significant according to double-breakfasting frequency groups (rarely, occasionally and frequently), Kruskal-Wallis H tests were utilised.

Finally, to determine whether average daily energy and macronutrient intake reported by children in this study were below, within or in excess of UK Dietary Reference Values (DRVs) of energy and macronutrient intakes for children, median daily average energy and macronutrient intakes were compared with UK DRVs for children. In the UK, DRVs for energy and nutrients for particular groups of the population are based on advice from the Committee on Medical Aspects of Food and Nutrition Policy (Ashwell, 1991). However, recently the Scientific Advisory Committee on Nutrition (SACN) superseded COMA, undertaking a review of UK recommendations and estimates, and have published new guidelines on carbohydrates, including sugars and fibre (Scientific Advisory Committee on Nutrition, 2015). UK DRVs for energy and macronutrient for male and female children were obtained from the literature (British Nutrition Foundation, 2016; Public Health England, 2016b; Scientific Advisory Committee on Nutrition, 2015) and ranges were created encompassing the age group of children in this study. Though, it should be noted that the age ranges provided for some macronutrients in the literature, namely total carbohydrate, protein, total fats and saturated fats, are higher than the age range of participants in this study and include required intakes up to age 14. Guidance assumes that breakfast should contribute to 20% of daily energy and nutrient intake (British Nutrition Foundation, 2016c; Caroline Walker Trust, 2010). Therefore, the DRV ranges for children are shown as ranges for breakfast intake based on the 20% recommendation, in order to provide more relevant comparisons to the results in this study. Currently, there are no UK guidelines for total sugars, as this macronutrient category covers all sugars, including those added to foods and those naturally present in the cellular structure foods such as milk and fruits (Scientific Advisory Committee on Nutrition, 2015). New consumption guidelines relate to 'free-sugars', which encompasses sugars that have been added to foods and not those naturally present. It was not possible to compare the consumption of free-sugars in this study with UK guidelines, as the adoption of the

term ‘free-sugars’ to describe sugars added to food was a recent change in 2015, initiated by the SACN review, and therefore the dietary software utilised did not support this breakdown of sugars at the time the data were analysed. Median daily average energy and macronutrient intakes for all children, and children who consumed a double-breakfast occasionally and frequently, during the school week, were compared with recent UK energy and macronutrient DRVs, proportional to the recommended 20% intake for breakfast. Median daily average energy and macronutrient intakes from this study were dichotomised according to gender, in order to make more accurate comparisons with UK guidelines, which are also provided according to age and gender.

6.4. Results

6.4.1. Participant and School Demographics

The sample consisted of 112 participants aged 9-11 years (mean age \pm SD: 10.2 ± 0.46). There were more females in the sample than males, with percentage of females being 56% ($n = 63$) and the percentage of males being 44% ($n = 49$). The sample was not ethnically diverse, with the majority of participants identifying as white British (78%), and fewer participants of other ethnic backgrounds (22%). However, the percentage of white British as an ethnic group within the overall Local Authority was also high at 94% (UK Census Data, 2011). Participants’ demographic characteristics are presented in Table 6.1.

Table 6.1. Children’s demographic profiles for Study 4

Variable	Children (N = 112)
Age [mean years (range)]	10.2 (9-11)
Gender [n (%)]	
Female	63 (56%)
Male	49 (44%)
Ethnicity	
White British	87 (78%)
Other Ethnic Group	25 (22%)

Participant demographics by school are presented in Table 6.2. School 3 was a three form entry school and therefore more children were eligible for participation,

hence the increased number of children (60% of overall sample) participating from School 3. Schools 1 and 2 were smaller one form entry schools and thereby a smaller number of children were eligible for participation. In all schools, more females participated than males, however, this may represent the gender numbers in school classes, as opposed females being more likely to participate in the study. In Schools 1 and 3, the percentages of white British ethnicity children who participated in the study were representative of local communities and the town. However, in School 2 a greater number of children identified as other ethnic groups (64%), compared to the number of children who identified as white British (36%).

Table 6.2. Children’s demographic profiles by school for Study 4

Variable	School 1	School 2	School 3
Number of Children [n (%)]	22 (20%)	22 (20%)	68 (60%)
Age [mean years (range)]	10.2 (10-11)	10.2 (10-11)	10.3 (9-11)
Gender [n (%)]			
Female	15 (68%)	12 (55%)	36 (53%)
Male	7 (32%)	10 (45%)	32 (47%)
Ethnicity			
White British	18 (82%)	8 (36%)	61 (90%)
Other Ethnic Group	4 (18%)	14 (64%)	7 (10%)

All three of the participating schools were located in predominantly white British area (>89% white British), inhabited by a higher percentage of white British citizens than the proportion across whole of the North West of England and England overall. However, Schools 1 and 3 were located in areas with a greater proportion of white British inhabitants. Two of the schools (Schools 1 and 3) had a higher proportion of the populace claiming working age benefits than the population across the whole of the North West of England (19%). However, all three of the schools had a greater percentage of the residents in the community claiming working age benefits, than the whole of England overall (15%). School 3 had a greater proportion of students eligible for free school meals (FSM). All of the schools were located in communities within the bottom half of neighbourhoods ranked on indicators of deprivation, such as income, employment, health, education, crime and living

environment with the area in which School 3 was located being the most deprived (Indices of Deprivation, 2015). School demographics are provided in Table 6.3.

At the time the data were collected in December 2015, all 3 schools were participating in the UFSB scheme. All participating schools provided a similar school breakfast model, with breakfast served just before or at the very start of the school day in the classroom, and waste was collected from classrooms at approximately 11:30am each day. Items served largely consisted of handheld sweetened bread items such as brioche, malt loaf, waffles and Scotch pancakes, fruit served as whole pieces and prepared in bags, yoghurt drinks, milk and water, with toasted bread occasionally offered. Information pertaining to school breakfast provision in each school is presented in Table 6.4.

Table 6.3. School characteristics and school area demographics for Study 4

School demographics ^a			School and local area demographics ^b			
School	Pupils on role (N)	School type	% Pupils entitled to FSM	% All people of working age claiming a key benefit	% White British	Indices of deprivation: total deprivation ^c (Rank: 1 - 32,844)
1	200	Voluntary Aided School	17	21	96.4	9270
2	206	Voluntary Aided School	10.2	17	89.4	8302
3	674	Academy Converter	31.5	29	93.3	3561

(a) Information taken from: <http://www.education.gov.uk/edubase/home.xhtml>

(b) Information by ward taken from: <http://www.neighbourhood.statistics.gov.uk>

(c) All 32,844 neighbourhoods in England have been ranked on a range of deprivation topics including income, employment, health, education, crime and living environment, with the most deprived neighbourhood in England having a rank of 1, as of 2015

Table 6.4. UFSB models within each school for Study 4

School	Times	Location	Delivery Model	Food and Beverages	Activities	Staffing
1	8:45am- 11:30am	Classroom	Breakfast box ^a	Fruits ^b Breads ^c Beverages ^d	Reading, homework, then normal classwork.	Class teacher, teaching assistant
2	8:55am- 11:30am	Classroom	Breakfast box ^a	Fruits ^e Breads ^c Beverages ^d	Normal classwork.	Class teacher, teaching assistant
3	8:55am- 11:30am	Classroom	Breakfast box ^a	Fruits ^b Breads ^c Beverages ^d	Normal classwork.	Class teacher, teaching assistant

(a) Breakfast box containing a combination of items served in each classroom

(b) Fruits: apples, bananas, pears, oranges

(c) Breads: Soreen malt loaf (standard and banana flavour), brioche rolls, waffles, Scotch pancakes, toasted bread.

(d) Beverages: bottled water, yoghurt drinks, milk

6.4.2. Breakfast Skipping and Consumption Frequencies

Breakfast skipping was defined as consumed no breakfast foods at any location across the morning, i.e. home, on the way to school and at school. Breakfast skipping frequencies over the entire week (7 days), total school week (5 days) for breakfast at home and school, and weekend (2 days), are presented in Table 6.5. Over the entire seven day recording period, only one (0.89%) participant skipped breakfast every day. On school days, only three (2.68%) participants skipped breakfast on all five days of the school week, and for weekend days eight (7.14%) participants skipped breakfast on both days. Overall, the mean frequency of breakfast skipping over the entire 7 days was 1.32 (± 1.78). Therefore, 50% of participants consumed breakfast every day during the seven-day reporting period, and almost 60 % consumed breakfast every school day of the reporting period. Almost three quarters of participants (72.32%) consumed breakfast both weekend days.

Table 6.5. Breakfast skipping frequency for total week, school week and weekend for Study 4

Breakfast Skipping Frequency (no. of days)	Total Week (7 days)		School Week (5 days school and home)		Weekend (2 days)	
	N	%	N	%	N	%
0	56	50.00	66	58.93	81	72.32
1	18	16.07	14	12.50	23	20.54
2	14	12.50	13	11.61	8	7.14
3	10	8.93	11	9.82	-	-
4	5	4.46	5	4.46	-	-
5	3	2.68	3	2.68	-	-
6	5	4.46	-	-	-	-
7	1	0.89	-	-	-	-

Breakfast consumption frequencies at home, way to school, and at school, are presented in Table 6.6. Almost half of the participants (44.64%) reported consuming breakfast at home on all five school days, but only 8.04% of participants reported consuming breakfast at school every day, and no participants reported consuming

breakfast on the way to school every day. Conversely, 8.04% participants reported they never ate breakfast at home over the full five school days, 39.29% of participants reported they never ate breakfast at school over the five school days, and 87.50% reported they never ate breakfast on the way to school. Concerning the nine children who reported that they did not consume breakfast at home during the school week (5 days), two children reported that they consumed breakfast at school on all five days, one child reported they consumed breakfast at school on three days, three children reported they consumed breakfast at school on two days, and finally three reported they did not consume breakfast at school at all. Additionally, the three children who did not consume breakfast at home and school, also did not consume breakfast on the way to school, and therefore skipped breakfast entirely during the full school week.

Table 6.6. Breakfast consumption frequency for school week home, way to school and at school for Study 4

Frequency of Breakfast Intake	Home		Way to school		At school	
	N	%	N	%	N	%
0	9	8.04	98	87.50	44	39.29
1	13	11.61	10	8.93	23	20.54
2	18	16.07	3	2.68	20	17.86
3	13	11.61	0	-	12	10.71
4	9	8.04	1	0.89	4	3.57
5	50	44.64	0	-	9	8.04

6.4.3. Food and Beverage Intakes

Foods and beverages consumed for entire week (7 days), school week (home, way to school and at school), school week home, school week way to school, school week school, and weekend totals are presented in Table 6.7. For all breakfast foods and drinks consumed over the entire week, ready to eat cereals with milk were the most frequently consumed foods, followed closely by savoury breads. Sweetened bread items were also a frequently consumed breakfast food over the entire week. Added sugar and sweet spreads, and fat spreads and oils, were the most frequently consumed accompaniments consumed by children for breakfast over the entire week.

Foods such as biscuits, breakfast biscuits and bars, cakes, pastries and sweet buns, chocolates and sugar confectionary, and savoury snacks and crisps were consumed less frequently over the entire week. Fruits were consumed more frequently than vegetables over the full week. The most frequently consumed beverages were fruit juice drinks, including fresh, concentrated and squash fruit drinks, followed by milk, water, tea and coffee. Soft (carbonated) drinks were the least frequently consumed during the whole week.

With respect to breakfast consumed at home and school over the five school days, the most commonly consumed breakfast foods at home were ready to eat cereals served with milk, followed by savoury breads. In contrast, at school the most frequently consumed items were sweetened breads including broche, scotch pancakes, waffles and fruit breads such as malt loaf; whereas at home children reported consuming sweetened breads less frequently than at school. Interestingly, children reported consuming more fruits and yoghurt items at school, than home, during the school week. Added sugar, sweet spreads, fat spreads and oils were frequently consumed accompaniments at home, but they were consumed infrequently at school with toasted bread. Fruit juice based drinks were reported as the most frequently consumed beverage at home, followed by milk, tea and coffee, and water. Soft drinks were the least frequent beverage consumed at home. Whereas at school the most commonly consumed beverage was water, followed by milk. Items consumed for breakfast at home, that were not reported at school, included ready to eat cereals, porridge, other cereals (rice), meats, eggs, vegetables, baked beans and cheese. Additionally, food items consumed for breakfast at home infrequently included biscuits, breakfast bars/ biscuits; cakes, pastries and sweet buns; chocolates and sugar confectionary; and savoury snacks and crisps, none of which were served at school.

The descriptive analysis showed that foods and beverages were consumed on the way to school infrequently, by only 14 out of 112 children. For those children who consumed breakfast on the way to school, the most common food items consumed were biscuits, breakfast biscuits and cereal bars. In addition, children reported consuming savoury breads on the way to school, which predominantly consisted of toasted bread with fat spreads, and one child reported consuming a sweet bread item on the way to school. Other food items consumed on the way to

school included meat snacks, fruits including smoothies, and chocolate and sweet confectionary. Beverages children reported consuming on the way to school included water, fruit juices, soft drinks and milk.

During weekends, the most commonly consumed breakfast foods were savoury breads, which mainly consisted of toasted breads with fat and sweet spreads, followed by ready to eat cereals with milk. Furthermore, on weekend days children reported consuming more meat and egg items in two weekend days than during the full five school week-days. Other reported food items consumed for breakfast over the weekend included fruits, porridge, yoghurts, cheese, other cereals (rice), vegetables including baked beans, and potato products (hash browns). Food items reported as being consumed less frequently at on weekend days, included biscuits, and breakfast biscuits and bars, chocolates and sugar confectionary, and savoury snacks and crisps. The most frequently consumed beverage consumed over the weekend was fruit juice and squash, followed by milk, and tea and coffee. Notably, children reported consuming more soft/ carbonated drinks over the weekend in two days, than at any location (home, way to school and at school) over the entire five school days. The least frequently consumed beverage during the weekend was water.

Table 6.7. Mean number of foods and beverages consumed for total 7 days, total school week, school week home, school week school and weekend, for Study 4

Food and Beverage Groups	Weekly Total (7 days)	School Week Total (5 days)	School Week Home (5 days)	School Week Way to School (5 days)	School Week School (5 days)	Weekend Total (2 days)
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
Breads savoury	2.06 (0.23)	1.31 (0.19)	1.16 (0.42)	0.06 (0.09)	0.09 (0.05)	0.75 (0.49)
Breads Sweet	1.46 (0.22)	1.44 (0.24)	0.21 (0.19)	0.01 (0.01)	1.22 (0.49)	0.03 (0.11)
RTEC	2.10 (0.19)	1.52 (0.15)	1.52 (0.46)	-	-	0.59 (0.45)
Oats and porridge	0.21 (0.07)	0.13 (0.05)	0.13 (0.16)	-	-	0.09 (0.20)
Other Cereals	0.17 (0.06)	0.13 (0.05)	0.13 (0.16)	-	-	0.04 (0.14)
Biscuits and bars	0.20 (0.07)	0.17 (0.06)	0.09 (0.08)	0.08 (0.11)	-	0.03 (0.11)
Cakes and Pastries	0.06 (0.03)	0.04 (0.03)	0.04 (0.08)	-	-	0.02 (0.06)
Meats	0.57 (0.12)	0.25 (0.08)	0.22 (0.20)	0.03 (0.04)	-	0.32 (0.42)
Eggs	0.22 (0.07)	0.08 (0.04)	0.08 (0.12)	-	-	0.14 (0.26)
Fat spreads	1.40 (0.20)	0.96 (0.17)	0.83 (0.37)	0.04 (0.07)	0.09 (0.05)	0.44 (0.41)
Fruits	0.76 (0.20)	0.64 (0.19)	0.20 (0.20)	0.05 (0.07)	0.40 (0.28)	0.12 (0.24)
Veg.	0.10 (0.05)	0.05 (0.03)	0.05 (0.10)	-	-	0.04 (0.17)
Potato Products	0.01 (0.09)	-	-	-	-	0.01 (0.09)
Milk	1.06 (0.20)	0.86 (0.19)	0.61 (0.32)	0.01 (0.01)	0.24 (0.22)	0.21 (0.30)
Milk on cereal	2.27 (0.19)	1.63 (0.16)	1.63 (0.47)	-	-	0.64 (0.46)

Table 6.7. (Continued) Mean number of foods and beverages consumed for total 7 days, total school week, school week home, school week school and weekend, for Study 4

Food and Beverage Groups	Weekly Total (7 days)	School Week Total (5 days)	School Week Home (5 days)	School Week Way to School (5 days)	School Week School (5 days)	Weekend Total (2 days)
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
Yoghurt	0.31 (0.11)	0.26 (0.10)	0.06 (0.10)	-	0.20 (0.19)	0.05 (0.15)
Cheese	0.14 (0.06)	0.09 (0.04)	0.09 (0.13)	-	-	0.05 (0.16)
Savoury snacks	0.03 (0.02)	0.02 (0.01)	0.02 (0.03)	-	-	0.01 (0.04)
Chocolate/ sweets	0.06 (0.04)	0.04 (0.02)	0.03 (0.04)	0.01 (0.01)	-	0.03 (0.14)
Sugar/ spreads	1.60 (0.19)	1.17 (0.16)	1.11 (0.45)	-	0.01 (0.01)	0.48 (0.41)
Tea and coffee	0.67 (0.12)	0.5 (0.09)	0.5 (0.29)	-	-	0.17 (0.27)
Fruit juices	1.46 (0.18)	1.03 (0.15)	0.99 (0.40)	0.04 (0.05)	-	0.44 (0.41)
Soft drinks	0.27 (0.08)	0.09 (0.05)	0.06 (0.10)	0.04 (0.05)	-	0.17 (0.28)
Water	1.04 (0.21)	0.89 (0.20)	0.29 (0.22)	0.04 (0.07)	0.56 (0.31)	0.15 (0.26)

6.4.4. Energy and Macronutrient Intakes

In order to compare energy and macronutrient intakes (total and percentage of food energy) for the entire week, entire school week (home and school), school week home, school week school, and weekends, median daily intake of energy and macronutrient are reported in Table 6.8. As the data were not normally distributed, non-parametric analyses were conducted on energy and macronutrient intakes, and hence median scores and ranges are reported. The median daily average energy intake for all breakfast meals consumed over the entire seven days was 211.96 Kcals. Median daily average macronutrient intakes for the entire week were 32.85g total carbohydrate, 17.28g total sugars, 1.05g AOAC Fibre, 6.36g protein, 6.23g total fat and 2.55g total saturated fats. For all breakfast meals consumed over the entire 7 days, the majority of the energy consumed was from total carbohydrate. The median daily average percentage of energy consumed from total carbohydrate for the entire 7 days was 60.80%, of which 32.50% of energy was consumed from total sugars.

Regarding consumption for the entire school week (5 days), including home and school, the median daily energy intake for all breakfast meals consumed was 199.55 Kcals. Median daily average macronutrient intakes for the entire school week (home and school) were 33.2g total carbohydrate, 16.73g total sugars, 0.97g AOAC Fibre, 5.92g protein, 5.76g total fat and 2.35g total saturated fats. Comparable with intakes over the entire 7 days, for all breakfast meals consumed during the school week at home and school, the majority of the energy consumed was from total carbohydrate. The median daily average percentage of energy consumed from total carbohydrate at all breakfast meals during the school week was 61.50%, of which 35.37% of energy was consumed from total sugars.

Concerning breakfast consumption over the school week for breakfast at home, the median daily average energy intake for all breakfast meals consumed over the entire school week at home only was 158.10 Kcals. Median daily average macronutrient intakes for the entire school week for breakfast consumed at home were 26.16g total carbohydrate, 13.62g total sugars, 0.71g AOAC Fibre, 4.96g protein, 4.46g total fat, and 1.95g total saturated fats. Likewise, for all breakfast meals during the school week at home, the majority of the energy consumed was from total carbohydrate. The median daily average percentage of energy consumed

from total carbohydrate at all breakfast meals at home was 60.21%, of which 33.07% of energy was consumed from total sugars.

With respect to breakfast consumption over the school week at school, the median daily average energy intake for all breakfast meals consumed over the entire school week at school only was 22.00 Kcals. Median daily average macronutrient intakes for the entire school week for breakfast consumed at school were 4.05g total carbohydrate, 1.78g total sugars, 0.17g AOAC Fibre, 0.61g protein, 0.53g total fat and 0.07g total saturated fats. Once again, for all breakfast meals during the school week at school, the majority of the energy consumed was from total carbohydrate. The median daily average percentage of energy consumed from total carbohydrate at all breakfast meals at school was 52.18%, of which 25.61% of energy was consumed from sugars.

Finally, regarding weekends, the median daily average energy intake for all breakfast meals consumed over the weekend was 204.55 Kcals. Median daily average macronutrient intakes for breakfast meals consumed over the entire weekend were 29.22g total carbohydrate, 13.67g total sugars, 0.79g AOAC Fibre, 6.60g protein, 5.94g total fat and 2.35g total saturated fats. For all breakfast meals during the school week at school, the majority of the energy consumed was from total carbohydrate. Likewise, the median daily percentage of energy consumed from total carbohydrate at all breakfast meals at school was 57.95%, of which 27.47% of energy was consumed from sugars.

Table 6.8 also presents the results of the Wilcoxon signed-rank tests, which assessed for differences between daily average energy and macronutrient intakes between school week verses weekend, and home verses school. In comparisons between average daily energy and macronutrient intakes during the school week and weekend, results showed a significant differences between daily average intakes of total sugars ($Z = -2.035, p < 0.05$) and fibre ($Z = -2.104, p < 0.05$). Median average daily intakes of total sugars and fibre were higher during the school week compared to the weekend. Moreover, results showed a significant difference between daily average percentage of food energy consumed from total carbohydrates ($Z = -2.645, p < 0.05$) and total sugars ($Z = -2.569, p < 0.05$), between the school week and weekend. Median daily average percentages of food energy consumed from total

carbohydrates and total sugars were higher during the school week, compared to the weekend.

Results showed significant differences between daily average energy intakes and all macronutrient intakes examined in this study, for breakfast consumed at home versus breakfast consumed at school: (Kcal: $Z = -7.985$, $p < 0.001$; total carbohydrates: $Z = -7.638$, $p < 0.001$; total sugars: $Z = -7.206$, $p < 0.001$; fibre: $Z = -5.904$, $p < 0.001$; protein: $Z = -7.863$, $p < 0.001$; total fats: $Z = -8.224$, $p < 0.001$; and saturated fats: $Z = -8.491$, $p < 0.001$). For energy and all macronutrients, median daily average intakes during the school week were higher for breakfast consumed at home, than breakfast consumed at school. Moreover, results showed significant differences between the percentage of energy consumed from all macronutrients during the school week at home and the school week at school (total carbohydrates: $Z = -3.566$, $p < 0.001$; total sugars: $Z = -3.082$, $p < 0.005$; protein: $Z = -4.520$, $p < 0.001$; total fats: $Z = -5.668$, $p < 0.001$; and saturated fats: $Z = -6.812$, $p < 0.001$). Median daily average percentages of energy consumed for macronutrients were higher during the school week at home compared to the school week at school.

Table 6.8. Median daily average energy and macronutrient intakes, and percentage of food energy consumed from macronutrients, for total 7 days, total school week, school week home, school week school and weekend, for Study 4

Energy and Macronutrients	Total week (7 days)	SW (5 days)	SW Home (5 days)	SW School (5 days)	Weekend (2 days)	SW vs Weekend	Home vs School
	Mdn (R)	Mdn (R)	Mdn (R)	Mdn (R)	Mdn (R)	Z value, <i>p</i>-value^a	
Energy (Kcal)	211.96 (11.78 - 513.73)	199.55 (0 - 556.81)	158.10 (0 - 478.62)	22.00 (0 - 231.30)	204.55 (0 - 651.32)	$Z = -0.206, p > 0.05$	$Z = -7.985, p < 0.001$
Total carbohydrates (g)	32.85 (2.25 - 85.96)	33.27 (0 - 107.03)	26.16 (0 - 79.22)	4.05 (0 - 50.67)	29.22 (0 - 122.84)	$Z = -1.904, p > 0.05$	$Z = -7.638, p < 0.001$
% of food energy	60.80 (27.27 - 99.11)	61.50 (0 - 99.11)	60.21 (0 - 99.11)	52.18 (0 - 93.98)	57.95 (0 - 99.11)	$Z = -2.645, p < 0.05$	$Z = -3.566, p < 0.001$
Total sugars (g)	17.28 (0.20 - 57.81)	16.73 (0 - 68.65)	13.62 (0 - 44.37)	1.78 (0 - 30.90)	13.67 (0 - 111.84)	$Z = -2.035, p < 0.05$	$Z = -7.206, p < 0.001$
% of food energy	32.50 (4.74 - 99.11)	35.37 (0 - 99.11)	33.07 (0 - 99.11)	25.61 (0 - 86.81)	27.47 (0 - 99.11)	$Z = -2.569, p < 0.05$	$Z = -3.082, p < 0.005$
AOAC Fibre (g)^b	1.05 (0 - 3.16)	0.97 (0 - 4.04)	0.71 (0 - 3.54)	0.17 (0 - 2.56)	0.79 (0 - 4.77)	$Z = -2.104, p < 0.05$	$Z = -5.904, p < 0.001$

(a) *p*-value for Wilcoxon signed-rank tests comparing energy (Kcal) and macronutrient intake (intake in grams and percentage of food energy) from total school week (home and school) versus weekend breakfast meals

(b) The Codex and European Food Safety Authority dietary fibre definitions are chemically defined using AOAC (Association for Official Analytical Chemists) method (Scientific Advisory Committee on Nutrition, 2015)

Table 6.8. (Continued) Median daily average energy and macronutrient intakes, and percentage of food energy consumed from macronutrients, for total 7 days, total school week, school week home, school week school and weekend, for Study 4

Energy and Macronutrients	Total week (7 days)	School Week (SW) (5 days)	SW Home (5 days)	SW School (5 days)	Weekend (2 days)	SW vs Weekend	Home vs School
	Mdn (R)	Mdn (R)	Mdn (R)	Mdn (R)	Mdn (R)	Z value, p-value^a	
Protein (g)	6.36 (0 - 22.32)	5.92 (0 - 24.51)	4.96 (0 - 23.60)	0.61 (0 - 6.70)	6.60 (0 - 31.51)	$Z = -0.642, p > 0.05$	$Z = -7.863, p < 0.001$
% of food energy	12.87 (0 - 25.01)	12.31 (0 - 32.58)	12.78 (0 - 31.22)	7.02 (0 - 30.43)	13.22 (0 - 32.94)	$Z = -0.881, p > 0.05$	$Z = -4.520, p < 0.001$
Total Fats (g)	6.23 (0 - 25.49)	5.76 (0 - 23.31)	4.46 (0 - 19.22)	0.53 (0 - 6.47)	5.94 (0 - 36.53)	$Z = -0.934, p > 0.05$	$Z = -8.224, p < 0.001$
% of food energy	28.02 (0 - 56.17)	26.42 (0 - 55.96)	26.35 (0 - 63.96)	8.82 (0 - 51.43)	26.42 (0 - 78.70)	$Z = -0.760, p > 0.05$	$Z = -5.668, p < 0.001$
Saturated Fats (g)	2.55 (0 - 10.78)	2.35 (0 - 11.91)	1.95 (0 - 11.53)	0.07 (0 - 2.01)	2.35 (0 - 14.23)	$Z = -0.967, p > 0.05$	$Z = -8.491, p < 0.001$
% of food energy	11.79 (0 - 30.23)	10.88 (0 - 27.99)	11.54 (0 - 35.12)	2.12 (0 - 32.71)	11.16 (0 - 38.97)	$Z = -0.631, p > 0.05$	$Z = -6.812, p < 0.001$

(a) *p*-value for Wilcoxon signed-rank tests comparing energy (Kcal) and macronutrient intake (intake in grams and percentage of food energy) from total school week (home and school) verses weekend breakfast meals, and for school week home verses school week school

6.4.5. Double-breakfasting Frequency, and Energy and Macronutrient Intake

Table 6.9 presents frequency of double-breakfasting over the school week. Double-breakfasting is a term that is utilised to describe the consumption of breakfast at home and at school on the same day. Six participants (5.36%) reported they consumed breakfast at home and school on all of the five school days, and just over half of participants (50.89%) reported never double-breakfasting over the full five school days. However, almost half of children reported they consumed a double-breakfast on at least one day of reporting.

Table 6.9. Frequency of double-breakfasting during the school week for Study 4

Frequency of Double Breakfast Intake (Home and School)	School Week	
	N	%
0	57	50.89
1	21	18.75
2	14	12.50
3	11	9.82
4	3	2.68
5	6	5.36

Participants were classified into three double-breakfasting consumption categories based on school-day frequency. Table 6.10 provides the percentage of participants who rarely (0-1 occasions), occasionally (2-3 occasions), and frequently (4-5 occasions) consumed breakfast at both home and school. Over two thirds of participants (69.64%) rarely consumed a double-breakfast. Twenty-two percent of participants (22.32%) occasionally consumed a double-breakfast, and only 8.04% participants frequently consumed a double breakfast.

Table 6.10. Number and percentage of children who frequently, occasionally or rarely consumed a double-breakfast, in Study 4

Double-Breakfasting	Double-Breakfasting Frequency per week	N	%
Rarely	0-1	78	69.64
Occasionally	2-3	25	22.32
Frequently	4-5	9	8.04

The subsequent analysis focused on energy and macronutrient intakes for these three double-breakfasting groups. Median daily average energy and macronutrient intakes (g) for the total school week (home and school) and for the weekend were identified for children who consumed a double-breakfast rarely, occasionally and frequently. Comparisons were made within these groups, between the total school week, when school breakfast was available to children, and the weekend, when school breakfast was not available. Table 6.11 presents the median daily average energy and macronutrient intakes for the total school week (home and school) and the weekend, for children who consumed a double breakfast rarely, occasionally and frequently.

Regarding energy consumption, median daily average energy intakes for children who rarely consumed a double-breakfast were 161.77 Kcal for the entire school week and 204.06 Kcal for the weekend. The median daily energy average intakes for children who occasionally consumed a double-breakfast were 277.75 Kcal for the total school week and 200.45 Kcal for the weekend. Finally, for children who frequently consumed a double-breakfast the median daily average energy intakes were 416.78 Kcal for the school week and 236.01 for weekends.

For macronutrient intakes, the median daily average intakes of carbohydrates for children who rarely consumed a double-breakfast were 26.70g during the school week and 27.07g for weekends. For children who occasionally consumed a double-breakfast, the median daily carbohydrate intakes were 46.94g for the school week and 30.00g for the weekend. For children who consumed a double-breakfast frequently, the median daily intakes of carbohydrates were 52.89g for the school week and 32.78g for the weekend.

With respect to total sugars the median daily average intakes for children who rarely consumed a double-breakfast was 14.67g for the school week and 13.80g

for the weekend. For children who occasionally consumed a double-breakfast, the median daily average intakes for total sugars were 24.30g for the total school week and 14.97g for the weekend. For children who frequently consumed a double-breakfast, the median daily average intakes were 24.63g for the school week and 10.07g for weekends.

Regarding fibre, for children who rarely consumed a double-breakfast, the median daily average intakes were 0.76g for the total school week and 0.78g for the weekend. For children who occasionally consumed a double-breakfast, the median daily average intakes of fibre were 1.40g for the school week and 0.98g for the weekend. The median daily average intakes of fibre intake for children who frequently consumed a double-breakfast were 2.36g for the school week and 0.72g for the weekend.

Concerning protein, the median daily average intakes for children who rarely consumed a double-breakfast was 4.80g for the total school week and 6.39g for the weekend. For children who consumed a double-breakfast occasionally the median daily average intakes of protein were 8.56g for the school week and 7.23g for the weekend. For children who consumed a double-breakfast frequently the median daily average intakes of protein were 12.74g for the school week and 7.41g for the weekend.

Finally, regarding fats, for total fats, the median daily average intakes for children who rarely consumed a double-breakfast was 4.49g for the total school week and 5.94g for the weekend. For children who consumed a double-breakfast occasionally the median daily average intakes of total fats were 7.45g for the school week and 5.03g for the weekend. For children who consumed a double-breakfast frequently the median daily average intakes of total fats were 8.44g for the school week and 8.31g for the weekend. With respect to saturated fats, for children who rarely consumed a double-breakfast, median daily average intakes were 1.93g for the total school week and 2.27g for the weekend. For children who consumed a double-breakfast occasionally, the median daily average intakes of saturated fats were 3.23g for the total school week and 2.40g for the weekend. For children who frequently consumed a double-breakfast, the median daily average intakes of saturated fats were 2.68g for the school week and 3.48g for the weekend.

Additionally, Table 6.11 also presents results from Wilcoxon signed-rank test for comparison of daily energy (Kcal) and macronutrient (g) intakes between school week (home and school) versus weekend, for children who consumed a double breakfast rarely, occasionally and frequently. With regards to children who rarely consumed a double-breakfast, results showed significant differences between average daily intakes of protein during the total school week, compared to the weekend ($Z = -2.115, p < 0.05$). Median daily average intakes protein were higher during the weekend compared to the school week, for children who rarely consumed a double-breakfast.

Concerning children who consumed a double-breakfast occasionally results showed a significant difference between daily average intakes of total carbohydrates, total sugars and fibre between the school week and weekend (total carbohydrates: $Z = -3.135, p < 0.005$; total sugars: $Z = -3.108, p < 0.005$; and fibre: $Z = -3.014, p < 0.005$). Median daily average intakes of total carbohydrates, total sugars and fibre were higher during the school week compared to the weekend for children who occasionally consumed a double-breakfast.

Finally, regarding children who frequently consumed a double-breakfast, results showed significant differences between daily average intakes of energy, total carbohydrates and total sugars between the school week and weekend (energy: $Z = -2.310, p < 0.05$; total carbohydrates: $Z = -2.666, p < 0.05$; and total sugars: $Z = -2.547, p < 0.05$). Likewise, median average daily intakes of energy, total carbohydrates and total sugars were higher during the school week compared to the weekend for children who frequently consumed a double-breakfast.

Table 6.11. School week (SW) and weekend (WE) median daily average energy and macronutrient intakes, according to frequency of double-breakfasting, for Study 4

Energy/ Macronutrients	Rarely Double-Breakfasts (0-1 days)			Occasionally Double-Breakfasts (2-3 days)		
	SW	WE	SW vs WE	SW	WE	SW vs WE
	Mdn (R) Daily Average		Z value, <i>p</i> -value ^a			Z value, <i>p</i> -value ^a
Energy (Kcal)	161.77 (0 - 478.62)	204.06 (0 - 651.32)	<i>Z</i> = -1.744, <i>p</i> > 0.05	277.75 (138.23 - 505.34)	200.45 (77.75-432.98)	<i>Z</i> = -1.924, <i>p</i> > 0.05
Total carbohydrates (g)	26.70 (0 - 79.22)	27.07 (0 - 122.84)	<i>Z</i> = -.595, <i>p</i> > 0.05	46.94 (17.95 - 80.27)	30.00 (0.84 - 65.32)	<i>Z</i> = -3.135, <i>p</i> < 0.005
Total sugars (g)	14.67 (0 - 44.88)	13.80 (0 - 111.84)	<i>Z</i> = -.228, <i>p</i> > 0.05	24.30 (2.89 - 54.29)	14.97 (0.84 - 44.56)	<i>Z</i> = -3.108, <i>p</i> < 0.005
AOAC Fibre (g)	0.76 (0 - 3.54)	0.78 (0 - 4.29)	<i>Z</i> = .000, <i>p</i> > 0.05	1.40 (0.35 - 3.63)	0.98 (0.12 - 2.86)	<i>Z</i> = -3.014, <i>p</i> < 0.005
Protein (g)	4.80 (0 - 21.11)	6.39 (0 - 31.51)	<i>Z</i> = -2.115, <i>p</i> < 0.05	8.56 (3.21 - 24.51)	7.23 (1.45 - 18.75)	<i>Z</i> = -1.332, <i>p</i> > 0.05
Total Fats (g)	4.49 (0 - 19.22)	5.94 (0 - 36.53)	<i>Z</i> = -1.721, <i>p</i> > 0.05	7.45 (1.57 - 16.50)	5.03 (1.70 - 28.74)	<i>Z</i> = -0.256, <i>p</i> > 0.05
Saturated Fats (g)	1.93 (0 - 11.53)	2.27 (0 -12.28)	<i>Z</i> = -1.629, <i>p</i> > 0.05	3.23 (0.55 - 7.35)	2.40 (0.93- 14.23)	<i>Z</i> = -0.067, <i>p</i> > 0.05

(a) *p*-value for Wilcoxon signed-rank tests comparing energy (Kcal) and macronutrient intake (intake n grams and percentage of food energy) from total school week (home and school) versus weekend breakfast meals

Table 6.11. (Continued) School week (SW) and weekend (WE) median daily average energy and macronutrient intakes, according to frequency of double-breakfasting, for Study 4

Energy & Macronutrients	Frequently Double-Breakfasts (4-5 days)		
	SW	WE	SW vs WE
	Mdn (R) Daily Average		Z value, <i>p</i> -value ^a
Energy (Kcal)	416.78 (257.70 - 556.81)	236.01 (124.90 - 588.74)	<i>Z</i> = -2.310, <i>p</i> < 0.05
Total carbohydrates (g)	52.89 (36.43 - 107.03)	32.78 (11.29 - 57.17)	<i>Z</i> = -2.666, <i>p</i> < 0.05
Total sugars (g)	24.63 (20.69 - 68.65)	10.07 (0.87 - 30.90)	<i>Z</i> = -2.547, <i>p</i> < 0.05
AOAC Fibre (g)	2.36 (0.60 - 4.04)	0.72 (0.20 - 4.77)	<i>Z</i> = -1.362, <i>p</i> > 0.05
Protein (g)	12.74 (6.72 - 20.41)	7.41 (1.98 - 24.16)	<i>Z</i> = -1.244, <i>p</i> > 0.05
Total Fats (g)	8.44 (2.96 - 23.31)	8.31 (0.78 - 30.95)	<i>Z</i> = -1.362, <i>p</i> > 0.05
Saturated Fats (g)	2.68 (2.11 - 11.91)	3.48 (0.28 - 8.64)	<i>Z</i> = -1.423, <i>p</i> > 0.05

(a) *p*-value for Wilcoxon signed-rank tests comparing energy (Kcal) and macronutrient intake (intake in grams and percentage of food energy) from total school week (home and school) versus weekend breakfast meals

Table 6.12. presents results from Kruskal-Wallis H tests, which were undertaken to examine the differences in energy (Kcal) and macronutrients between the three double breakfasting groups (rarely occasionally and frequently). Results showed that the differences between double breakfasting groups were significant for energy and all macronutrients examined (energy: $H(2) = 27.571$, $p < 0.0001$; total carbohydrates: $H(2) = 24.947$, $p < 0.0001$; total sugars: $H(2) = 15.236$, $p < 0.0005$; fibre: $H(2) = 22.676$, $p < 0.000$; protein: $H(2) = 23.838$, $p < 0.0001$; total fats: $H(2) = 15.925$, $p < 0.0005$; and saturated fats: $H(2) = 14.354$, $p < 0.001$).

Post hoc tests were undertaken between pairs of groups ('rarely and occasionally', 'rarely and frequently', and 'occasionally and frequently') to identify where the differences between groups were significant. Results showed that the differences between double-breakfasting groups 'rarely and occasionally' were significant for energy and all macronutrients examined (energy: $H(2) = 15.391$, $p < 0.0001$; total carbohydrates: $H(2) = 14.675$, $p < 0.0001$; total sugars: $H(2) = 8.499$, $p < 0.005$; fibre: $H(2) = 14.471$, $p < 0.0001$; protein: $H(2) = 13.211$, $p < 0.0005$; total fats: $H(2) = 10.688$, $p < 0.005$; and saturated fats: $H(2) = 9.539$, $p < 0.005$). Mean rank scores were significantly higher in the 'occasionally' double-breakfasting group, compared to the 'rarely' double-breakfasting group, for energy and all macronutrients examined.

Likewise, results from post hoc comparisons between double-breakfasting groups 'rarely and frequently' also showed that differences were significant for energy and all macronutrients (energy: $H(2) = 15.448$, $p < 0.0001$; total carbohydrates: $H(2) = 13.539$, $p < 0.0005$; total sugars: $H(2) = 9.063$, $p < 0.005$; fibre: $H(2) = 11.520$, $p < 0.005$; protein: $H(2) = 13.539$, $p < 0.0005$; total fats: $H(2) = 7.501$, $p < 0.05$; and saturated fats $H(2) = 7.013$, $p < 0.05$). Mean rank scores were significantly higher in the 'frequently' double-breakfasting group, compared to the 'rarely' double-breakfasting group for energy and all macronutrients examined.

By contrast, results from post hoc comparisons between double-breakfasting groups 'occasionally and frequently' were mixed, and only differences in groups for energy and protein were significant (energy: $H(2) = 5.215$, $p < 0.05$; and protein: $H(2) = 4.201$, $p < 0.05$). Mean rank scores for energy and protein were significantly higher in the 'frequently' double breakfasting group, compared to the 'occasional' for energy and protein.

Table 6.12. Results from Kruskal-Wallis H tests comparing mean ranks for energy (Kcal) and macronutrients (g), according to double-breakfasting (DB) frequencies (rarely, occasionally and frequently), for Study 4

Energy and Macronutrients	DB Frequency	Mean Ranks	Double- Breakfasting Group Comparisons	Post Hoc Comparisons	Post Hoc Comparisons	Post Hoc Comparisons
				Rarely & Occasionally DB	Rarely & Frequently DB	Occasionally & Frequently DB
				H value, <i>p</i> -value ^a		
Energy (Kcal)	Rarely	46.35	$H(2) = 27.571,$ $p < 0.0001$	$H(2) = 15.391,$ $p < 0.0001$	$H(2) = 15.448,$ $p < 0.0001$	$H(2) = 5.215,$ $p < 0.05$
	Occasionally	74.56				
	Frequently	94.33				
Total Carbohydrates (g)	Rarely	46.73	$H(2) = 24.947,$ $p < 0.0001$	$H(2) = 14.675,$ $p < 0.0001$	$H(2) = 13.539,$ $p < 0.0005$	$H(2) = 3.295,$ $p > 0.05$
	Occasionally	74.56				
	Frequently	91.00				
Total Sugars (g)	Rarely	48.87	$H(2) = 15.236,$ $p < 0.0005$	$H(2) = 8.499,$ $p < 0.005$	$H(2) = 9.063,$ $p < 0.005$	$H(2) = 1.152,$ $p > 0.05$
	Occasionally	70.56				
	Frequently	83.56				
AOAC Fibre (g)	Rarely	47.04	$H(2) = 22.676,$ $p < 0.0001$	$H(2) = 14.471,$ $p < 0.0001$	$H(2) = 11.520,$ $p < 0.005$	$H(2) = 1.326,$ $p > 0.05$
	Occasionally	75.10				
	Frequently	86.83				

(a) *p*-value for Kruskal-Wallis H tests comparing differences between intakes of energy and macronutrients by double-breakfasting frequency groups

Table 6.12. (Continued) Results from Kruskal-Wallis H tests comparing mean ranks for energy (Kcal) and macronutrients (g), according to double-breakfasting (DB) frequencies (rarely, occasionally and frequently), for Study 4

Energy and Macronutrients	DB Frequency	Mean Ranks	Double-Breakfasting	PH Comparisons	PH Comparisons	PH Comparisons
			Group Comparisons	Rarely & Occasionally DB	Rarely & Frequently DB	Occasionally & Frequently DB
			<i>H value, p-value^a</i>			
Protein (g)	Rarely	47.06	$H(2) = 23.838,$ $p < 0.0001$	$H(2) = 13.211,$ $p < 0.0005$	$H(2) = 13.539,$ $p < 0.0005$	$H(2) = 4.201,$ $p < 0.05$
	Occasionally	73.30				
	Frequently	91.67				
Total Fats (g)	Rarely	48.53	$H(2) = 15.925,$ $p < 0.0005$	$H(2) = 10.688,$ $p < 0.005$	$H(2) = 7.501,$ $p < 0.05$	$H(2) = .915,$ $p > 0.05$
	Occasionally	72.52				
	Frequently	81.06				
Saturated Fats (g)	Rarely	48.92	$H(2) = 14.354,$ $p < 0.001$	$H(2) = 9.539,$ $p < 0.005$	$H(2) = 7.013,$ $p < 0.05$	$H(2) = .366,$ $p > 0.05$
	Occasionally	71.94				
	Frequently	79.33				

(a) *p*-value for Kruskal-Wallis H tests comparing differences between intakes of energy and macronutrients by double-breakfasting frequency groups

6.4.6. Comparison of Energy (Kcal) and Macronutrient Intakes with UK Dietary Reference Values (DRVs)

Finally, as results from the study indicated that intakes of energy and macronutrients increased with frequency of double-breakfast consumption, median daily average energy and macronutrient intakes in this study were compared against UK DRVs for children. Table 6.13 presents UK DRVs for energy and macronutrients for children, and median daily average intakes of energy and macronutrients for all children for the total school week (home and school), and for children who consumed a double-breakfast occasionally and frequently. DRVs are presented as total daily values and as a percentage of 20% to represent breakfast reference values. Moreover, as DRVs are provided for male and female children, median daily average intakes for energy and macronutrients for the current study were determined for males and females, in order to provide more accurate comparisons.

Regarding energy, for all males, median average daily intakes of energy were below 20% of the DRV for energy, irrespective of double breakfast frequency. For females, median average daily intakes were below 20% of the DRV for energy, for the total school week and for those who consumed a double breakfast occasionally. However, for the small number of females ($n = 5$) who consumed a double breakfast frequently the median average daily intake was in excess of 20% of the DRV for energy.

Comparisons with macronutrient intakes included total carbohydrates, fibre, protein, total fats and saturated fats. Regarding total carbohydrates, for males median daily average intakes of carbohydrates were below 20% of the DRV for total carbohydrates, irrespective of double-breakfast frequency. For females, median daily average intakes of energy were below 20% of the DRV for total carbohydrates, for the total school week. For females who consumed a double breakfast occasionally, median daily average intakes fell within the DRV range for total carbohydrates. However, for the five females who consumed a double breakfast frequently median daily average intakes exceeded 20% of the DRV for total carbohydrates. It should be noted that DRVs for total carbohydrates should be interpreted as 'at least' the estimated required intake.

Regarding fibre, median daily average intakes for males and females, irrespective of double-breakfast frequency were below 20% of the DRV for fibre. Specifically, median daily average intakes for both males and females were < 50% of the DRV for fibre, irrespective of double-breakfasting frequency, with the exception of five females who consumed a double breakfast frequently, whose intakes of fibre were still especially low compared to the DRV.

Concerning protein, for males median daily average intakes of protein for the total school week fell below 20% of the DRV for protein, and for males who consumed a double breakfast occasionally, median daily average intakes fell within 20% of the DRV for protein. However, for the small number of males ($n = 4$) who consumed a double breakfast frequently, the median daily average intake of protein exceeded 20% of the DRV for protein. For females, median daily average intakes of protein for the total school week fell within 20% of the DRV for protein, but for females who consumed a double-breakfast occasionally and frequently median daily average intakes for protein exceeded 20% of the DRV.

With respect to fats, for total fats, median daily average intakes for both males and females fell below 20% of the DRV for total fats, irrespective of double-breakfasting frequency. Finally, for saturated fats, median daily average intakes for both males and females for the total school week and those who consumed a double-breakfast occasionally, and females who consumed a double breakfast frequently median daily average intakes, fell below 20% of the DRV for saturated fats. For males who consumed a double breakfast frequently, median daily average intakes of saturated fats fell within 20% of the DRV for saturated fats.

Table 6.13. Comparisons of median daily average energy and macronutrient intakes during the school week for all children, and children who consumed a double-breakfast occasionally and frequently, for Study 4

Energy / Macronutrient	Gender	UK Estimated Requirements Range	Breakfast Requirements Range (20%)^d	Average Daily Breakfast Intake Total SW in this Study: Mdn (R)		Average Daily Intake Occasional Double- Breakfast in this Study: Mdn (R)		Average Daily Intake Frequent Double- Breakfast in this Study: Mdn (R)	
Kcal^a	Male	1840 - 2127 Kcal (Age 9-11)	368 - 425.4 Kcal	162.83 Kcal (0 - 478.62)		273.18 Kcal (156.60 - 318.15)		345.76 Kcal (257.70 - 469.64)	
Kcal^a	Female	1721 - 2032 Kcal (Age 9-11)	344.2 - 406.4 Kcal	219.73 Kcal (30.60 - 556.81)		299.99 Kcal (138.23 - 505.34)		472.95 Kcal (286.31 - 556.81)	
Total Carbohydrates^b	Male	242 - 333 g (Age 7-14)	48.4 - 66.6 g	28.65g (0 - 70.54)		42.95g (30.31 - 55.93)		40.72 g (36.43 - 65.16)	
Total Carbohydrates^b	Female	227 - 267 g (Age 7-14)	45.4 - 53.4g	35.24g (6.96 - 107.03)		47.66g (17.95 - 80.27)		58.69 g (50.33 - 107.03)	
AOAC Fibre^c	Male/ Female	20 - 25g (Age 5-11)	4 - 5 g	Males 0.70g (0-3.63)	Females 1.21g (0-4.04)	Males 1.81g (0.80-3.63)	Females 1.32g (0.35-3.60)	Males 1.49 g (0.60-2.36)	Females 2.94g (1.97-4.04)

(a) Dietary Reference Values from British Nutrition Foundation (2016b)

(b) Dietary Reference Values from Public Health England (2016b)

(c) Dietary Reference Values from Scientific Advisory Committee on Nutrition (2015)

(d) British Nutrition Foundation (2015b) & Caroline Walker Trust (2010) recommend breakfast should comprise 20% of DRVs

Table 6.13. (Continued) UK DRVs for children, presented as ranges for daily and breakfast intake requirements (20% of daily); and daily average energy and macronutrient intakes during the school week for all children, and children who consumed a double-breakfast (DB) occasionally and frequently

Energy / Macronutrient	Gender	UK Estimated Requirements Range	Breakfast Requirements Range (20%)^d	Average Daily Breakfast Intake Total SW in this Study: Mdn (R)	Average Daily Intake Occasional DB in this Study: Mdn (R)	Average Daily Intake Frequent DB in this Study: Mdn (R)
Protein^b	Male	28.3 - 42.1 g (Age 7-14)	5.66 - 8.42 g	5.00g (0 - 20.41)	7.26g (4.00 - 12.60)	14.32g (8.50 - 20.41)
Protein^b	Female	28.3 - 41.2 g (Age 7-14)	5.66 - 8.24 g	6.58g (0.36 - 24.51)	10.16g (3.21 - 24.51)	12.74g (6.72 - 14.84)
Total Fats^b	Male	71- 97 g (Age 7-14)	14.2 - 19.4 g	4.48g (0 - 21.81)	6.60g (1.57 - 12.33)	12.54 g (2.96 - 21.81)
Total Fats^b	Female	66 -78 g (Age 7-14)	13.2 - 15.6 g	6.23g (0.24 - 23.31)	8.86g (4.49 - 16.50)	7.87g (5.61 - 23.31)
Saturated Fats^b	Male	22 - 31 g (Age 7-14)	4.4 - 6.2 g	2.11g (0 - 11.91)	3.23g (0.55 - 5.30)	4.42g (2.11 - 11.91)
Saturated Fats^b	Female	21 - 24 g (Age 7-14)	4.2 - 4.8 g	2.44g (0.06 - 10.26)	3.59g (1.10 - 7.35)	2.68 g (2.29 - 9.53)

(a) Dietary Reference Values from British Nutrition Foundation (2016b)

(b) Dietary Reference Values from Public Health England (2016b)

(c) Dietary Reference Values from Scientific Advisory Committee on Nutrition (2015)

(d) British Nutrition Foundation (2015b) & Caroline Walker Trust (2010) recommend breakfast should comprise 20% of DRVs

6.5. Discussion

This study examined breakfast consumption behaviours, food and beverage intakes, and energy and macronutrient breakfast intake, amongst children aged 9-11 attending three schools located within a highly deprived area and participating in a UFSB scheme. The study extended on previous research into the dietary outcomes associated with school breakfast (Belderson et al., 2003; Bhattacharya, Currie, & Haider, 2006; Crepinsek et al., 2006; Jenkins, Benton, Tapper, Murphy, & Moore, 2015; Murphy et al., 2011; Simpson et al., 2003). The findings from the current study provide an original contribution to the literature, because the focus on double-breakfasting frequency is novel, and data were obtained from children over an extended period of 7 days, which enabled school week and weekend comparisons. Firstly, the study examined the foods and beverages consumed across the morning by children at home, on the way to school, and at school, extending on the findings from Study 3 of this thesis and providing a more detailed description of children's food and beverage consumption. Secondly, the study expanded further on the findings from Study 3, and examined energy and macronutrient intake across the morning for children over the entire week, entire school week, school week home, school week school and the weekend. For daily average energy and macronutrient intakes, comparisons were made between the school week and weekend, and the school week home and school week school. Moreover, daily average energy and macronutrient intakes were examined for children who consumed a double-breakfast (breakfast at home and school) rarely (0-1) days, occasionally (2-3 days), and frequently (3-4 days). Comparisons were made based on double-breakfasting frequency, between the total school week and weekend, for daily average energy and macronutrient intakes. The purpose of these comparisons was to compare daily average intakes during the school week when school breakfast was available and the weekend when school breakfast was not available. Moreover, differences in energy and macronutrient average daily intakes, between double-breakfasting groups (rarely, occasionally and frequently) were also examined. Finally, as results indicated that intakes of energy and macronutrients increased with the frequency of double-breakfasting, daily average intakes for all children during the school week, and for children who consumed a double-breakfast occasionally and frequently, were compared with UK DRVs for energy and macronutrients for children.

Concerning breakfast consumption patterns, 50% of children skipped breakfast between 1 to 7 days, and just over 40% skipped breakfast between 1 to 5 days during the school week. However, only a small minority skipped breakfast every day during the entire week (0.8%) and during the whole school week (2.7%). Research shows that breakfast skipping is a prevalent behaviour amongst children and adolescents, which increases with age and female gender (Deshmukh-Taskar et al., 2010; Rampersaud et al., 2005). However, whilst UFSB may be considered as a strategy for reducing breakfast skipping amongst children, research has suggested that school breakfast programmes may not reduce rates of skipping, and instead children may substitute breakfast at home with breakfast at school (Crepinsek et al., 2006; Murphy et al., 2011). Common motives for skipping breakfast may include a lack of time in the morning, lack of morning appetite, lack of food, rushed morning routines and preferring to spend extra time sleeping (Affinita et al., 2013; Mullan, Wong, Kothe, & Maccann, 2013). Whilst UFSB may facilitate breakfast consumption in most of these situations, it could be suggested that it is less effective in the case of 'lack of appetite', and perhaps where foods provided do not meet children's preferences.

The results from the present study showed that a far greater number of children consumed breakfast every school day at home, than the number of children that consumed breakfast every school day at school. Less than 10% of participants reported that they never consumed breakfast at home during the school week, whilst almost 40% reported they never consumed breakfast at school during the school week. Previous research examining dietary outcomes in the context of the Wales' UFSB Initiative also reported that a far larger proportion of children consumed breakfast at home compared to school (Jenkins et al., 2015). Likewise, a USA based study examining the breakfast habits of older children and adolescents attending schools with a free breakfast in operation reported that 48% consumed breakfast at home, compared to only 14% who consumed breakfast at school (Sweeney & Horishita, 2005). In addition, a large-scale study examining participation in the USA School Breakfast Programme (SBP) reported that amongst students attending schools offering the SBP the rate of participation was only 19% (Gleason, 1995). Therefore, according to the findings from the current study and the aforementioned research findings, a larger percentage of children appear to be consuming breakfast

at home, and thus participation in school breakfast appears to be relatively low in comparison. In light of this, the effectiveness and costs of universal school breakfast schemes in populations where rates of consumption of breakfast at home are high requires further investigation.

Concerning the foods consumed by children, findings from the current study showed that ready to eat cereals served with milk were the most frequently consumed food at home, whereas in accordance with the foods served as part of the USFB, the most frequently consumed food at school were sweetened breads including brioche, scotch pancakes, waffles, and fruit breads. Previous research has shown that ready to eat cereals are frequently consumed amongst UK and USA children and adolescents for breakfast (Hallström et al., 2012; Hoyland, McWilliams, Duff, & Walton, 2012; Macdiarmid et al., 2009; Rampersaud et al., 2005). A review of studies examining the effects of consumption of ready to eat cereals on macronutrient and micronutrient intake reported higher whole-day intakes of carbohydrates, sugars and fibre, and lower whole-day intakes of fat, in addition to enhanced micronutrient intake, and a greater likelihood of meeting micronutrient intake recommendations, amongst ready to eat cereal consumers (Rampersaud et al., 2005). Moreover, the consumption of milk with cereal is considered to increase calcium intakes (Gibson, 2003). In addition, it has been suggested that that consumption of ready to eat cereals may be associated with lower BMIs (Albertson et al., 2003), although findings are mixed with no association with BMI also reported (Gibson, 2003). However, there is currently a lack of research examining the consumption sweetened bread products for breakfast, and the effects on dietary intakes and adiposity outcomes for children and adolescents. Given that these items are considered to be practical school breakfast foods, being handheld, and requiring minimal resources in preparation and cleaning-up afterwards, further research is required to determine the impacts of consumption of these foods on dietary intakes and adiposity outcomes. Finally, concerning foods and beverages consumed for breakfast in this study, consumption of more 'unhealthy' breakfast items such as biscuits, cakes, pastries, chocolates, confectionary, savoury snacks and carbonated drinks was infrequent. These findings reflect previous findings with a sample of UK children aged 5-17, which showed a low proportion of children consumed confectionary and savoury snacks for breakfast (Macdiarmid et al., 2009).

Concerning energy and macronutrient intakes, results from the present study showed that median daily average intakes of energy and all macronutrients examined were higher for breakfast consumed at home compared to breakfast consumed at school, which was not surprising given that more children consumed breakfast at home than at school. These findings contrast with Jenkins et al.'s, 2015 findings, which reported that, whilst greater amounts of carbohydrates were consumed at school, in most cases the macronutrient composition did not differ between school and home. In comparisons between energy and macronutrient intake during the school week and weekend, median daily average intakes of total sugars and fibre, and median percentages of energy consumed from total carbohydrates and total sugars, were higher during the school week compared to the weekend. It could be suggested that this is due to the availability of school breakfast foods such as sweetened bread items and fruits during the school week, which may have increased intakes of carbohydrates, sugars and fibre. Findings from previous research into week day and weekend dietary intakes are mixed, and studies have reported increased intakes of fats at weekends (Haines, Hama, Guilkey, & Popkin, 2003), and also no difference between daily intakes of energy, fats, saturated fats, and non-milk extrinsic sugars between week-days and weekend days (Macdiarmid et al., 2009). However, it should be noted that comparisons between research findings into dietary intakes in the presence of school breakfast is difficult because intakes will invariably differ depending on the foods available as part of different school breakfast programmes and clubs.

Regarding energy and macronutrient intake, according to double-breakfasting frequency, findings in the present study showed a graded effect. Results also showed higher daily average intakes of energy and some macronutrients at breakfast during the school week compared to the weekend, with increased frequency of double-breakfast consumption. For example, for children who rarely consumed a double-breakfast, the median daily average intake for protein was significantly lower during the school week compared to the weekend, but no other significant differences were observed. Whereas, for children who consumed a double-breakfast occasionally, median daily average intakes of total carbohydrates, total sugars and fibre were significantly higher during the school week compared to the weekend. Furthermore, for children who consumed a double-breakfast frequently, median daily average

intakes of energy, total carbohydrates and total sugars were significantly higher during the school week, compared to the weekend. In addition, results comparing the differences in energy and macronutrient intakes according to rare, occasional and frequent double-breakfast consumption, showed that energy and macronutrient intakes were significantly higher in occasional and frequent double-breakfasting groups, compared to the rare double-breakfast group. Previous research into the Wales' UFSB Initiative reported that whilst on average energy intakes were higher amongst children who consumed a double-breakfast, the difference was not significant (Jenkins et al., 2015). However, USA based research has indicated that children attending schools with a UFSB in operation were more likely to consume a breakfast at both home and school, compared to children attending schools with a traditional means tested programme (Crepinsek et al., 2006). Therefore, as the likelihood of consuming a double-breakfast appears to be increased through the provision of a UFSB, the present study provides valuable knowledge about the effects of double-breakfasting frequency on energy and macronutrient intake at breakfast, over a full school week. As findings in this study showed that energy and macronutrients increased with double-breakfast frequency, further research would be interesting into the impacts of double-breakfast consumption on full-day energy and macronutrient intakes. Moreover, research into the longer-term impacts of double-breakfast consumption on adiposity outcomes for children is also required.

Finally, this study compared median daily average intakes of energy and macronutrient intakes for all children during the school week, and for children who consumed a double-breakfast occasionally and frequently with UK DRVs. Findings showed that median daily average energy intakes for males and females were below 20% of UK DRVs, irrespective of double-breakfasting frequency; with the exception of five females who consumed a double-breakfast frequently, whose median daily average intake of energy exceeded 20% of the DRV for energy. Likewise, for total carbohydrates, median daily average intakes for males and females were below 20% of the DRV for carbohydrates, irrespective of double-breakfasting frequency; again, with the exception of five females whose median intake of total carbohydrates exceeded 20% of the DRV. Nevertheless, DRVs for total carbohydrates should be interpreted as 'at-least' the estimated required intake (Public Health England, 2016b). For fibre, median daily average intakes for both males and females in this

study were much lower than 20% of the DRV, irrespective of double-breakfasting frequency. With the exception of five females who consumed a double breakfast frequently, whose median daily average intakes were still lower than the DRV for fibre, median daily average intakes for all other males and females were <50% of the DRV for fibre irrespective of double-breakfasting frequency. Concerning protein, median daily average intakes for all males for the total school week fell below 20% of the DRV for protein. By contrast, for all females for the total school week and for males who consumed a double-breakfast occasionally, median daily average intakes of protein fell within 20% the DRV, and for females who consumed a double breakfast occasionally and males and females who consumed a double breakfast frequently, median daily average intakes of protein exceeded 20% of the DRV for protein. However, high overall protein intakes may have been associated with the frequent consumption of meats with rice for breakfast by children from other ethnic groups in this study, in particularly children from School 2, which had a higher proportion of children from other ethnic groups participating in the study. Finally, concerning fats, median daily average intakes of fats and saturated fats for all males and females for the total school week, males and females who consumed a double breakfast occasionally, and females who consumed a double breakfast frequently, fell below 20% of the DRV. Only the median daily average intake of saturated fats for males who consumed a double breakfast frequently fell within 20% of the DRV for saturated fats.

The comparisons of daily average intakes of energy and macronutrients in this study with UK DRVs shows that daily average intakes of energy and some macronutrients were lower than 20% of the DRVs for children, even in the presence of a UFSB scheme and in some cases occasional and frequent consumption of a double-breakfast. Only a minority of female children (n = 5), who consumed a double-breakfast frequently, exceeded 20% of the DRVs for energy and total carbohydrates, and a minority of male and female children (n = 9) who consumed a double breakfast frequently, exceeded 20% of the DRV for protein. As breakfast consumption is considered to make a significant contribution to children's daily nutritional intake (Nicklas, Bao, Webber, & Berenson, 1993), inadequate intakes of energy and nutrients at breakfast are a matter of concern that should be considered when implementing interventions that aim to change children's breakfast

consumption behaviours. Comparably, previous research concerned with the Welsh Assembly Government's universal free school breakfast initiative, examining dietary intake amongst children aged 9-11, reported that 29% of children consumed a breakfast meal that was less than 100Kcal (Jenkins et al., 2015). Research suggests that consuming a small breakfast may have detrimental effects on learning. Findings from a study with primary school children reported that those children who consumed a small breakfast spent significantly less time on-task with their school work than their peers who consumed larger breakfasts; although this effect was reversed by the consumption of a mid-morning snack (Benton & Jarvis, 2007). Therefore, it could be suggested that in some cases, such as the consumption of a small breakfast at home (< 20% of DRV), an additional school breakfast may improve nutritional intake and potentially improve learning outcomes. However, this is speculative and further research is required to determine the impacts double-breakfasting on dietary intakes and educational outcomes. Further research is required into whether children are consuming adequate energy and nutrients, according to DRVs, for breakfast, even in the presence of school breakfast provision.

This study provided an original contribution to the research into the dietary effects of school breakfast, through a novel focus on double-breakfasting frequency and the collection of dietary intake over an entire week, but it is not without limitations. As the UFSB scheme was established in schools for almost two years at the time of the study, pre and post intervention measures were not possible, and therefore actual changes in terms of dietary intake as a consequence of the school breakfast intervention could not be determined. Moreover, whilst the study showed that overall median daily average intakes of energy were lower than UK DRVs, in all but a minority of children who frequently consumed a double-breakfast, these low intakes may be as a result of underreporting or recall error. It was acknowledged in the design stages of this study that self-report measures of dietary intake may pose a risk of underreporting (Garaulet et al., 2000; Livingstone et al., 2004; Macdiarmid & Blundell, 1998; Maffeis et al., 1994; Thompson & Subar, 2001). Whilst it was essential for the food diaries utilised in this study to be relatively straight-forward to complete and administer, and applicable for use with large numbers of children in classroom settings, measures were taken to reduce the risks of misreporting. This included the use of household measures in the absence of the time-consuming and

burdensome process of weighing foods, the provision of training for children and staff, and additional resources in the form of a toolkit to facilitate the estimation of portion sizes. In future, misreporting and non/ partial/ incorrectly completed food diaries may be reduced, by gaining feedback on the content and structure of the breakfast food diary from teachers and other school staff already working with children participating in the research. Moreover, limitations such as risks of underreporting may be minimised through the use of weighed food diaries and/ or the collection of biomarkers, alongside self-report food diary measures.

CHAPTER 7: General Discussion

7.1. Summary of Objectives

The overarching aim of the current thesis was to undertake a holistic mixed methods investigation of a council-wide UFSB scheme and identify social and health-behaviour outcomes at individual, family, school, and wider community levels. A review of the literature in Chapter 1 highlighted that the outcomes associated with breakfast consumption and school breakfast provision are numerous; quantitative results are mixed and the body of qualitative research is limited. In consideration of these factors, the research commenced with two exploratory qualitative studies in order to identify issues for further investigation and ground the research within the context in which the UFSB scheme operated. Studies 1 and 2 aimed to investigate the views and experiences of stakeholders, in order to gain a consensus on perceptions of the scheme, and identify the prevalent issues and concerns. Study 1 considered the short and long-term impacts of the scheme from the perspectives of senior level stakeholders, including executives and elected members from the Local Authority and Public Health, and senior school staff. The principle research questions in Study 1 focused on the issues in the implementation and delivery of the UFSB scheme and the perceived outcomes at individual, family, school, community and Local Authority levels. Study 2 expanded on the findings from Study 1 by exploring the views of further stakeholders affected by the UFSB scheme including children, parents/ carers and school staff. The objective of Study 2 was to gain knowledge on the subjective perceptions and cultural beliefs associated with breakfast within a highly deprived town served by a UFSB scheme. The key research questions for Study 2 focused on the views, beliefs and attitudes towards breakfast and the UFSB scheme, and breakfast behaviours.

The overarching aims of Studies 3 and 4 were to probe further into key themes raised during the aforementioned exploratory phase of the research. The primary aims of Study 3 were to investigate children's and parents' attitudes towards breakfast, breakfast behaviours and food intake across the school morning. A further aim of Study 3 was to provide an illustration of children's and parents breakfast behaviours and food intake across the morning at different locations, including home, on the way to school and at school for children, and home and outside the home for parents. Finally, Study 4 aimed to expand on findings from Study 3, and

probe further into key themes raised in Studies 1 and 2, by gaining a more in-depth and detailed knowledge on children's breakfast behaviours, food and nutritional intake, across the school week and weekend. Study 4 aimed to explore children's breakfast behaviours, including the locations where children consume foods across the morning, and behaviours such as breakfast skipping and double-breakfasting. Key objectives were to examine food and beverage intakes, and energy and macronutrient intakes, across the morning. A further objective of Study 4 was to further investigate the recurrent theme of double-breakfasting, and examine the effects of double-breakfast consumption on energy and macronutrient intakes.

7.2. Summary of the Findings

The results from the four studies presented within the current thesis provide an original contribution to the research literature on UFSB programmes in the UK, through investigating issues beyond those that have already been explored in prior research. In addition, the findings provide a point of reference for policy makers, researchers and providers, on the issues associated with the implementation and delivery of UFSB schemes, and the potential benefits and disadvantages. Studies 1 and 2 provide a unique qualitative contribution to the literature with findings from a wide range of stakeholders involved in or affected by the UFSB scheme. The studies provided descriptions of the processes and issues associated the implementation and delivery of a UFSB scheme, and long and short term outcomes associated with the scheme. In addition to providing a context to the UFSB scheme, and highlighting prevalent breakfast behaviours and the multiple internal and external influences of breakfast behaviour. However, whilst these qualitative studies highlighted a range of apparent benefits and positive outcomes associated with the UFSB scheme at individual, family, school, community and Local Authority levels, it also became evident that there were a number of concerns regarding double-breakfasting, and the provision of pre-packaged sweetened bread items. The findings from Studies 1 and 2 have been published in academic journal *Frontiers in Public Health* (Harvey-Golding, Donkin, Blackledge, & Defeyter, 2015; Harvey-Golding, Donkin, & Defeyter, 2016).

Studies 3 and 4 objectively probed further into breakfast behaviours and intakes of foods across the morning. Study 3 extended on previous research into children's breakfast behaviours, breakfast food intake and attitudes towards

breakfast, and provided an original contribution to the literature by examining these factors in children and parents. Study 3 examined the foods consumed in the home, and found that far more healthy foods were consumed in the home on a school morning by both children and parents. Potential relationships between the consumption of healthy and unhealthy foods at home by children and parents and attitudes towards breakfast were investigated. Findings from the analyses showed a significant positive association between parents' consumption of healthy breakfast food items and their attitudes towards breakfast, but no other significant associations were found. In addition, Study 3 also provided clarification on the themes raised in the qualitative stage of the research by providing a description of children's and parents breakfast behaviours, including the locations where foods are consumed across the school morning, in addition to the prevalence of breakfast skipping and double-breakfasting. Findings from Study 3 showed that both children and parents consumed breakfast at home more frequently than outside the home, including on the way to school and at school for children and outside the home for parents.

Concerning breakfast behaviours, the results from Study 3 showed that breakfast skipping was prevalent amongst 10% of children and 22% of parents on at least 1 day out of the two days of reporting. Concerning double-breakfasting amongst children, the study found that 40% of children reported that they consumed breakfast at home and school on at least 1 school day out of two days of reporting. The results from Study 3 also showed what foods are consumed by children and parents at different locations, showing that ready to eat breakfast cereals and savoury breads were the most commonly consumed foods at home on a school morning.

Interestingly, more fruits were consumed outside the home for parents and at school for children. Predictably, at school the most frequently consumed foods for children were sweetened bread products, in accordance with what children are served at school breakfast.

Finally, Study 4 extended on findings from Study 3 in order to gain more in-depth and detailed knowledge on children's breakfast behaviours and food and beverage intakes across the morning across a full school week and weekend (7 days). In addition, as Study 3 highlighted that a substantial proportion of children were consuming a double breakfast, Study 4 aimed to gain knowledge on the effects of consuming breakfast at both home and school had on children's energy and

macronutrient intakes. Findings provided a more detailed illustration of children's breakfast behaviours, and food and beverage intakes, in addition to macronutrient intakes. Concerning breakfast behaviours, like Study 3, the findings from Study 4 showed that breakfast was consumed at home more frequently than at school, and breakfast was consumed on the way to school infrequently, by children. Regarding breakfast skipping, results showed that 50% of children reported they skipped breakfast on at least 1 day out of the 7 days of reporting. However, over half of breakfast skippers only reported missing breakfast on 1 or 2 days, and only 2% of breakfast skippers reported skipping breakfast on all 7 days of reporting. An analysis of the foods and beverages consumed by children also provided results comparable with Study 3, with ready to eat breakfast cereals and savoury breads being the most commonly consumed food at home, and sweetened breads being the most commonly consumed food at school. Likewise, fruit was consumed more frequently at school than at home, comparable with the findings of Study 3. In addition, the findings from Study 4 provided information on beverages consumed by children across the morning with fruit juices being the most frequently consumed beverage at home, and water and milks being the most frequently consumed beverage at school. The more detailed data gathered for Study 4 allowed for an analysis of energy and macronutrient intakes by children across the morning at home and school. Findings showed that higher intakes of energy and macronutrients were evident at home, compared to at school, which was not surprising considering that more children consumed breakfast at home than at school. Further analyses of the effects of double-breakfast consumption on energy and macronutrient intakes in Study 4 showed that the differences in energy and all macronutrient intakes were significantly higher between rare and occasional double-breakfasting, and rare and frequent double-breakfasting groups, indicating that energy and macronutrient intakes increased with the frequency of double-breakfasting. A comparison between average intakes during the school week compared to the weekend showed that energy and some macronutrients were significantly higher during the school week, compared to the weekend, for children who consumed a double-breakfast occasionally and frequently. However, when average daily intakes of energy and macronutrients were compared with UK DRVs, findings indicated that a large proportion of children were consuming < 20% of the DRVs for energy and some macronutrients, which is the

percentage recommended for breakfast. Furthermore, average intakes of fibre in Study 4, irrespective of double-breakfasting frequency, were especially low in comparison with the DRV for children.

7.3. Further Discussion on Studies 1 and 2

The findings from Studies 1 and 2 highlighted issues in the implementation and initial delivery of the UFSB scheme. It was considered that issues experienced by schools in the initial stages of delivery, such as problems with storage and additional staffing, might have been avoidable if schools were consulted and involved in the planning processes, prior to the announcement and implementation of the UFSB scheme. In addition, it was considered that there had been a lack of communication with parents prior to the implementation. A stigma towards using the UFSB scheme existed amongst parents, due to the perception that it was provided for children who were arriving to school hungry and the inference that parents were not providing children with breakfast. These issues were thought to contribute to parents continuing to provide breakfast at home and therefore levels of double-breakfast consumption. There was a prevalent belief that breakfast at home was superior to breakfast at school and that breakfast should be eaten with the family, with some parents resolute that the scheme would not stop them from providing breakfast at home. However, it was also acknowledged that breakfast in the home, and especially eating breakfast with the family [around the table], was often difficult on school mornings, as time was often limited for various reasons. It was considered that parents' views towards the UFSB scheme may have been improved through a better communication strategy between the LA and schools that included parents. Correspondingly, it has been suggested that school interventions that aim to improve children's health behaviours are considered to be more effective when a good communication strategy exists that involves and engages parents (Centers for Disease Control and Prevention, 2012).

Despite the issues encountered in the initial implementation of the UFSB scheme, it was considered that the scheme conferred numerous benefits to children, schools, families and the wider community. Prior to the implementation of the UFSB scheme, it was claimed by school staff, head teachers and the local authority that children were arriving to school hungry, having not consumed breakfast, and individual schools and staff were feeding children on an ad-hoc basis using their own

resources. It was perceived amongst stakeholders that children arriving to school hungry had detrimental effects on learning, due the effects of hunger on the individual child, and because staff time was being utilised feeding hungry children, as opposed to facilitating learning. It was considered that the UFSB scheme alleviated these issues for schools by providing the necessary resources to feed children easily. Moreover, it was considered that by alleviating hunger the UFSB scheme had the capacity to improve nutritional, cognitive and behavioural outcomes, and potentially cumulate in longer-term impacts on health and educational outcomes. Additionally, it was perceived that the provision of a universally free breakfast meal was an incentive to children and parents that may improve attendance and punctuality. However, the Literature Review in Chapter 1 of this thesis showed that the effects of school breakfast on cognitive performance, behaviour in school and wider educational outcomes are unclear, and findings from previous research are mixed with positive effects often only observed within deprived and/ or undernourished sub-groups (Adolphus et al., 2016; Bernstein et al., 2004; Bro et al., 1996; Chandler et al., 1995; Chang et al., 1996; Kleinman et al., 2002; Mhurchu et al., 2013; Murphy, Pagano, et al., 1998; O’Neil et al., 2014; Richter et al., 1997; Shemilt, Mugford, et al., 2004). Moreover, whilst school breakfast has been advocated for improving health and nutrition amongst children (Bhattacharya, Currie, & Haider, 2006; Kleinman et al., 2002; Murphy et al., 2011), concerns have also been raised regarding the potential to increase snacking and double-breakfasting, which may contribute to obesity (Belderson et al., 2003; Gordon, Devaney, & Burghardt, 1995). Similarly, findings from Studies 1 and 2 also highlighted concerns about potential detrimental effects of the UFSB scheme, such as double-breakfasting and consumption of high fat and sugar sweetened bread items and the impact on obesity levels.

As well as feeding hungry children, it was also considered that the provision of a breakfast meal to children at school provided families with a small level of financial assistance, which was deemed especially helpful to those families on low incomes, and for those not eligible for free school meals. The town in which the UFSB scheme operates is one of the most deprived local authorities in the UK (Public Health England, 2015), and therefore it was perceived the school breakfast scheme acknowledged that a large proportion of families may be experiencing

poverty and food insecurity. According to the literature, it is contended that in food insecure circumstances the most commonly missed meal is breakfast (Potamites, & Gordon, 2010; Rampersaud, 2008). Moreover, it has been claimed that the UK's poorest are becoming increasingly unable to maintain a healthy diet, and it is envisaged that these trends will continue to rise as pressures on household incomes increase, with ongoing recession, austerity and welfare sanctions (Diss & Jarvie, 2016; Gordon et al., 2013; Macinnes et al., 2014). Whilst research has indicated that universal free school breakfast schemes may provide assistance to families at risk from food insecurity (Harrop & Palmer, 2002), it is contended that they may not be sufficient to alleviate food insecurity amongst those families already experiencing high levels of deprivation (Bartfeld & Ahn, 2011). Furthermore, there is also the issue that school based breakfast schemes do not provide a breakfast meal during weekends and school holidays. A review of UK food aid claimed that providing sufficient food during school holidays was becoming increasingly difficult for families on low incomes, and reported that food bank usage spiked during school holidays (Lambie-Mumford, et al., 2014). Studies 1 and 2 of this thesis also highlighted a need for food provision during the school holidays, as concerns were raised by stakeholders about the levels of deprivation in the town and the extra costs associated with feeding children during the school holidays.

In addition, Studies 1 and 2 also highlighted that the UFSB scheme was perceived to alleviate rushed morning routines for families through the provision of a breakfast meal to children. A variety of factors were considered to contribute to rushed mornings including work/ educational commitments, household and family responsibilities, and families with very young and/ or multiple children. Previous research has also cited rushed mornings as a contributing factor to children not receiving breakfast at home in the mornings (Harrop & Palmer, 2002), and a key reason for children and adolescents skipping breakfast (Bruening, Larson, Story, Neumark-Sztainer, & Hannan, 2011; Reddan, Wahlstrom, & Reicks, 1997; Wahba, Mekawy, Ahmed, & Mohsen, 2006). The perception that the UFSB scheme alleviated rushed mornings for families, lends support to qualitative findings from an evaluation of the UFSB scheme during the pilot stage, which also reported that the scheme was perceived improve rushed mornings and provide a calmer start to the school day (Graham et al., 2014). Further research has also suggested that school

breakfast provision alleviates morning routines, especially for parents with employment and/ or caring responsibilities, and where children have long journeys to school (Harrop & Palmer, 2002).

7.4. Further Discussion on Studies 3 and 4

Key concerns raised in Studies 1 and 2, regarding consumption of sweetened bread items at school breakfast and double-breakfasting, were explored in more depth in Studies 3 and 4. Both studies examined children's breakfast food intake at home, on the way to school and at school [Study 3 also examined parents' food intake], and predictably, both studies showed that the most frequently consumed food items at school were sweetened bread items. Likewise, previous research into the USDA's school breakfast programme reported that children who participated in school breakfast were more likely to consume sweetened bread items and pastries for breakfast, than their peers who did not participate (Condon et al., 2009). Whilst the consumption of ready to eat breakfast cereals have been researched extensively (Rampersaud et al., 2005), there is currently an absence of research examining the consumption of pre-packaged handheld items such as sweetened breads. However, research has suggested that carbohydrate rich-high fibre breakfasts were associated with increased satiety and feelings of alertness, and decreased food intake across the morning, when compared with carbohydrate rich-low fibre breakfasts (Holt et al., 1999). In addition, high fibre foods are considered to reduce risks of obesity and chronic disease (Slavin & Green, 2007). Interestingly, Studies 3 and 4 did show that fruits were consumed more frequently by children at school than at home, and whilst whole fruits contain high amounts fibre (Public Health England, 2016a), comparisons with DRVs indicated that fibre intakes were especially low amongst children in Study 4.

Both Studies 3 and 4 showed that double-breakfast consumption was prevalent amongst participating children attending schools with a UFSB in operation. Likewise, a study with UK school children attending primary schools with a UFSB in operation, reported that 49% of children who consumed breakfast at school had also consumed breakfast at home (Jenkins et al, 2015), and a USA based study reported that participation in the USDA's School Breakfast Programme increased the likelihood of consuming a double-breakfast (Bernstein et al., 2004). However, whilst the UK study found no significant differences in total energy

consumed between children who consumed one breakfast and those who consumed two breakfasts (Jenkins et al, 2015); the USA study reported that those who consumed an additional breakfast had higher intakes of energy both at breakfast and over 24 hours (Bernstein et al., 2004). With the aim of exploring the issue of double-breakfasting further, an analysis of energy and macronutrients was undertaken in Study 4. Whilst predictably the findings implied that average intakes of energy and macronutrients increased with the frequency of double-breakfast consumption, the indication that children may be consuming < 20% of some DRVs, irrespective of occasional double breakfast consumption, were surprising. The suggestion that children may not be consuming adequate nutritional intakes at breakfast in the presence of a UFSB scheme requires further consideration. Interestingly, recent USA based research investigating the impact of double-breakfast consumption on obesity amongst pre-school children, reported lower odds of being overweight/ obese for those who consumed two breakfasts compared to those who consumed one, although results were only significant within a Hispanic sub-group of children (Bruening, Afuso, & Mason, 2016). Therefore, further research into the effects of double-breakfast consumption on BMI and obesity is required. The use of breakfast food diaries across a period of days could be extended to include measures of body weight and BMI; thus allowing the examination of potential relationships between double breakfast consumption, food and nutritional intakes, and adiposity outcomes.

7.5. Methodological Considerations

Whilst this thesis offers an original and insightful contribution to the research into school breakfast schemes, it is not without limitations. It was not possible to collect data pre-intervention data as the research commenced one and a half years after the UFSB scheme was established. Moreover, findings from this thesis are restricted to a highly deprived town in the North West of England, and not necessarily representative of the UK population. In addition, the majority of children recruited were aged 9-11, as the self-report measures utilised in Studies 3 and 4 required a certain level of cognitive ability. Therefore, caution should be taken in generalising the results to other school breakfast club/ schemes populations, and younger children and adolescents.

Further limitations include issues encountered with the recruitment of schools, school staff, parents and children. Although, this is typical for this type of

research, as schools are notoriously busy and gaining parental consent relies on the actions of a number of intermediaries. Moreover, research in deprived communities is known to be difficult and considerable effort is required in gaining access to, engaging with and retaining participants within socially disadvantaged communities (Bonevski et al., 2014). A number of measures were undertaken in order to develop working relationships with the Local Authority and schools for this thesis research. Time was spent within schools and communities, in addition to attending meetings with the Local Authority and Public Health. Distance relationships were also maintained with the Local Authority, Public Health and schools through emails, telephone, letters and skype. In total, 15 out of 33 schools participating in the UFSB scheme participated in the research for this thesis, and three further schools withdrew from the research due to a lack of parental response. However, all 33 schools were provided with multiple opportunities to participate in the research, via emails and follow-up telephone calls.

In addition, in Studies 2 and 3 the majority of parents/ carers who participated in the research were female. Whilst there is a wealth of literature exploring parental views, research has predominantly presented mothers' perspectives and experiences, and there is a lack of research presenting the views of fathers, especially fathers from low socioeconomic and ethnic minority groups (Doyle, Weller, Daniel, Mayfield, & Goldston, 2016; Macfadyen, Swallow, Santacroce, & Lambert, 2011). It is recognised that fathers may be more difficult to recruit than mothers, and recruitment strategies that do not target fathers typically result in primarily maternal involvement (Macfadyen et al., 2011). Moreover, mothers may also serve as gatekeepers to the family. It is suggested that in order to increase participation from fathers in research it is important to raise the awareness about the purpose and benefits of fathers participating (Doyle et al., 2016). Other strategies include the use of different types of recruitment including mail, telephone and face-to-face recruitment, flexible scheduling, culturally competent researchers and accessible research locations. Future research into school breakfast provision may benefit from adapting recruitment strategies to raise the participation of fathers.

Moreover, in Study 4, the percentage of white British as an ethnic group in the overall sample was lower at 78% than the percentage of white British within the overall population of Blackpool, which was 94% (UK Census Data 2011). Therefore,

there were a higher number of ethnic minorities in this sample than within the overall community population. This was largely due to the participants recruited from School 2, whereby 64% of children identified as other ethnic groups, compared to the number of children who identified as white British (36%). However, in the context of the overall population within England, which according to census data comprises of 80% white British inhabitants, the overall sample for Study 3 was representative of the wider national population in terms of ethnicity (UK Census Data 2011).

Furthermore, the overall mixed methods design of this thesis required multidisciplinary expertise, in balancing the adherence to rigor and quality of the research from both qualitative and quantitative perspectives. Mixed methods research encompasses the limitations of two research paradigms. Concerning qualitative research, there are increased risks of researcher bias, due to the researcher's involvement during data collection and when analysing qualitative data (Anderson, 2010). Qualitative data is voluminous and analysis is time consuming, requiring high levels of involvement from the researcher (Patton, 1991). In this thesis, limitations associated with researcher bias and dealing with voluminous data were minimised through the application of a systematic grounded theory approach (Walker, 2006). By contrast, quantitative research is critiqued for being decontextualized and reductionist, and failing to capture deeper meanings (Brannen, 2005). In this thesis, the use of a mixed methods methodology and an initial qualitative phase, allowed for more in-depth explorations of themes and issues grounded in the experience of stakeholders. A more in-depth discussion of the limitations concerning the research design and methods is provided in the Thesis Methodology, in Chapter 3.

7.6. Directions for Future Research

As findings from Study 4 indicated that a large proportion of children were consuming > 20% of DRVs for energy and some macronutrients for breakfast, further research is required into children's dietary intakes for breakfast with reference to DRVs. Moreover, the apparent low intakes of fibre by children in Study 4 require further investigation, and consideration by schools, public health and policy makers. Moreover, whilst this thesis provided an original contribution to the knowledge on the issue of double-breakfast consumption, further research is required

to assess the effects of double-breakfast consumption on whole day dietary intakes, the longer-term effects of double-breakfasting on body weight outcomes, and the effects of double-breakfast consumption across different such as deprived/ non-deprived groups. Furthermore, considering the prevalence of school breakfast clubs and the necessity to provide practical items that can be served in schools, with limited food preparation facilities and classrooms, further research is required to determine the types of foods that are being served in school breakfast settings, and the effects of these foods on the numerous outcomes associated with dietary intake.

In addition, Study 1 highlighted a number of issues for consideration in UFSB provision in special schools, including dietary and care plans, and perhaps longer travel times to school. Moreover, the UFSB was embedded within the inclusive ethos in special schools and incorporated into life skill learning opportunities. Currently there is an absence of research into the outcomes of school breakfast provision for children with special educational needs and/ or disabilities, and thus further research is required into school breakfast provision within special school contexts. Furthermore, there is a lack of research into the outcomes associated with school breakfast for younger children and adolescents, and therefore further research within these population groups is required.

7.7. Final Conclusion

This thesis provides an original contribution to the literature by providing a comprehensive body of knowledge concerned with the outcomes associated with school breakfast relating to the child, school, family and the wider community. The research was influenced by socioecological models of health behaviour, which facilitated the investigation of multiple perspectives, and the individual, social, environmental and macro factors associated with breakfast and the UFSB programme. Firstly, Study 1 provided a qualitative evaluation of the processes associated with the leadership, implementation and delivery, and explored issues that had not previously been explored within UK literature on school breakfast. Study 2 presented a unique qualitative model representing the behavioural contexts in which the UFSB scheme operated. Subsequently, Study 3 extended on research into children's attitudes towards breakfast, breakfast behaviours and attitudes towards breakfast, and provided an original contribution by examining children and parents. Finally, Study 4 provided a novel focus on double-breakfast frequency and the

effects on dietary intakes, and is the first study to collect dietary data from children, at different locations, and over a school week and weekend. The results from Studies 3 and 4 provided an original insight into prevalent concerns about the detrimental impacts of double breakfasting and/ or consumption of high fat and sugar food items at school breakfast.

Overall, the results from the current thesis present a unique and timely contribution to the literature on universal free school breakfast provision in the UK. In the last decade, there has been a huge focus on reinventing and improving school food, and initiatives such as the banning of vending machines in schools, the Jamie Oliver school lunch campaign, the School Food Plan (Dimbleby & Vincent, 2013) and universal free school meals for infants. Moreover, school breakfast provision has dramatically increased in the UK in recent years. Therefore, the findings from this thesis provide an important point of reference for future research, policy makers, local authorities and schools; particularly on the processes, implementation, delivery and communication strategies involved in large-scale school breakfast provision, and the associated dietary outcomes.

APPENDICES

Appendix Ai: Senior Stakeholder Invite Letter for Study 1

Invite Letter

Dear Senior Stakeholder,

In collaboration with Blackpool Public Health and Blackpool Council, Northumbria University are undertaking a research evaluation of Blackpool's Universal Free School Breakfast programme. We are interested in investigating senior stakeholders' views and attitudes towards the free school breakfast scheme. As a senior member of school staff/ Local Authority/ Public Health, you have been invited to participate in interviews with researchers from Northumbria University, where you will have the opportunity to share your views about the scheme.

Should you wish to participate in the research, you will be asked a series of questions about your views on the school breakfast scheme from council, community, school and individual level perspectives. You will also be invited to discuss the implementation and delivery of the breakfast programme, and any issues that may have arisen during these processes. Finally, you will also be asked about your opinions on the foreseeable future of the school breakfast scheme. The interviews are expected to take between 30 to 60 minutes.

You will find attached a copy of the research information and a consent form. For your further information, please read the information provided before signing and returning the consent form to us via email or post. We must have a signed consent form before the interviews can take place. Should you require any further information before reaching a decision, please contact me, the lead researcher, via email on: louise.harvey-golding@northumbria.ac.uk or the principle supervisor, Professor Greta Defeyter on greta.defeyter@northumbria.ac.uk.

I look forward to speaking to you should you wish to take part. Any assistance you can offer with our research will be greatly appreciated.

Yours faithfully,

Louise Harvey-Golding
PhD Researcher, Northumbria University

Appendix Aii: Senior Stakeholder Research Information for Study 1

Lead Researcher: Louise Harvey-Golding [louise.harvey-golding@northumbria.ac.uk]

What is this project all about? Researchers at Northumbria University are currently undertaking an evaluation into Blackpool's Universal Free School Breakfast Programme. As part of this evaluation we would like to find out about the views and attitudes among stakeholders towards the free school breakfast programme. You have been invited to take part in this project as you are a senior member of school staff/ Local Authority/ Public Health. As a senior stakeholder, we are therefore we are interested in your experience of the scheme and its impacts within the school, and on children, families, the wider community and the council.

What will I be asked to do? If you would like to participate in this research you will be asked to take part in a discussion with one of our researchers, where you will be asked questions about Blackpool's Universal Free School Breakfast Programme to identify your views of the scheme from council, community, school and individual perspectives.

You will not be expected to answer any questions that you do not feel comfortable answering and if you are asked a question, which you do not want to answer, this is fine. In addition, if you agree to take part but change your mind, you are free to stop the discussion at any time.

All discussions will be recorded and transcribed for research purposes. The findings from this research will be summarised to provide a general perspective of the views of key groups towards Blackpool's Universal Free School Breakfast Programme.

When will the discussions take place? An appropriate time will be organised with senior stakeholders who would like to take part in this research project. Your discussion with the researcher should take approximately 30 - 60 minutes, depending on how much you want to talk about these topics.

What will happen to the information I provide? The discussions will be recorded and transcribed afterwards. This information will be stored securely in accordance with the Data Protection Act 1998, and electronic information will be password protected. Your information will only be accessed by the researchers working on this project for the purpose of this project.

The research team has put into place a number of procedures to protect your confidentiality. You will be provided with a unique participant number that will be used to identify any information you provide. Your name or other personal details will be stored securely and kept separately from the information you provide during the discussions.

Will my answers remain confidential? Yes, your name will not appear on any of the data collected for this project. All participants will be identified according to a unique participant number only.

How will my information stored and used in the future? All information will be stored and destroyed in accordance with the Data Protection Act 1998. The information collected during the discussions will be summarised and will contribute to a PhD thesis, and may be used in future presentations and publications about the project but no personal information, such as names, will be disclosed.

Has this project received appropriate clearance? This project has been approved by the School of Health and Life Sciences Ethics Committee at Northumbria University.

How can I withdraw from the project? If for any reason you decide to withdraw your participation or your information from this project, please contact Louise Harvey-Golding on the email address provided, within one month of your taking part. After this date it might not be possible to withdraw your information because the results may have already been published. As all information is anonymised, your individual information will not be identifiable.

How can I find out more? For more information please contact Louise Harvey-Golding, the lead researcher, via email: louise.harvey-golding@northumbria.ac.uk or the principle supervisor, Prof. Greta Defeyter on greta.defeyter@northumbria.ac.uk.

Appendix Aiii: Senior Stakeholder Demographics and Consent Form for Study

1

Your Personal Details:		
Title:	Surname:	Forenames:
Age:	Date of Birth:	Gender: (circle the correct answer) Male Female
Ethnicity: Please tick the ethnic background that best describes you:		
White: <input type="checkbox"/> English/Welsh/Scottish/Northern Irish/British <input type="checkbox"/> Irish <input type="checkbox"/> Gypsy or Irish traveller		Asian/ Asian British: <input type="checkbox"/> Indian <input type="checkbox"/> Pakistani <input type="checkbox"/> Bangladeshi <input type="checkbox"/> Chinese
Mixed / multiple ethnic groups: <input type="checkbox"/> White and Black Caribbean <input type="checkbox"/> White and Black African <input type="checkbox"/> White and Asian		Black / African / Caribbean / Black British <input type="checkbox"/> African <input type="checkbox"/> Caribbean
<input type="checkbox"/> Any other background: (please write)		
Please confirm that you agree with the following sentences by signing below:		
I have read and fully understood all the information provided about the project.		
I understand that if I would like further information about the project I should contact Louise Harvey-Golding.		
I understand that I am free to withdraw my participation from the project at any time, without having to give a reason and without prejudice.		
I understand that my voice will be recorded during the interview and used in the research.		
I understand that information collected from the recordings might be used in presentations and publications, but the actual recordings will be stored securely and will only be accessed by the research team.		
I give my consent to participate in this research project.		
Signature of Participant:		Name:
Role:		Date:
Researcher's signature:		Date:

Appendix B: Senior Stakeholder Interview Schedule for Study 1

1. What is your role and how does this fit in with Blackpool's Universal Free School Breakfast Programme?
2. What are your views on the free school breakfast programme?
3. How does the scheme fit in with other past, present or forthcoming public health initiatives in Blackpool?
4. What do you believe to be the impacts of the free school breakfast scheme at a council level?
5. What do you consider the impacts of universal free school breakfast have been at a community level in Blackpool, i.e. in more and/ or less deprived communities?
6. How does the scheme fit in with initiatives and schemes at a community level, i.e. local food banks, children's centres, walking bus etc.?
7. What do you perceive the impacts of the free school breakfast have been at a school level?
8. Are you aware of any issues faced in the implantation, delivery and/ or sustainability of the free school breakfast scheme?
9. Are you aware of any issues with the school's implementation and delivery of the school breakfast programme?
10. What do you believe the impacts have been for parents/ carers and families?
11. How do you think the free school breakfast scheme benefits families?
12. Do you think there are any disadvantages of the breakfast scheme to parents/ carers and families?
13. Have there been any issues with parents/ carers and families in the implementation and delivery of the scheme, and if so how have these issues been resolved?
14. How are key aspects of the school breakfast scheme and/ or any changes communicated to parents/ carers?
15. What do you consider the impacts of the free school breakfast scheme have been on children?
16. How do you think the scheme benefits children?

17. Do you think there are any disadvantages of the school breakfast scheme that may affect children?
18. Are there any plans for changes the universal free school breakfast scheme?
19. How do you see the long term future of the school breakfast scheme?
20. Is there anything that you would like to see change, or done differently, with regard to the programme?

Appendix C: Senior Stakeholder Debrief

Participant Number:

Dear Senior Stakeholder,

I wish to take this opportunity to offer our appreciation for your participation in a research project in collaboration with Northumbria University, Blackpool Public Health and Blackpool Council, which is evaluating the social, educational and behavioural impacts of Blackpool's universal free school breakfast initiative. The purpose of the research was to investigate the views and attitudes of senior level stakeholders towards the school breakfast scheme. As a senior level stakeholder, your views and contribution were extremely important to this research.

All the information we collected during the interview will be stored in accordance with the Data Protection Act 1998 and will only be used for the purpose of this project. The findings of the research will be included in a PhD thesis and may be included in publications and presentations. Please rest assured, your name and personal information will remain confidential. Should you wish to withdraw your information from this project you can do so by emailing louise.harvey-golding@northumbria.ac.uk, within one month of taking part. After this date, it may not be possible to withdraw your individual information as the results may already have been published. If you have any concerns or complaints about the way in which this research has been conducted you can contact the Chair of the School Ethics Committee, Dr. Nick Neave via email nick.neave@northumbria.ac.uk.

The results from the research will be summarised and sent to you should you request a copy. You can request a summary of the research findings, should you wish, by completing the slip at the end of this letter. You will receive this summary upon completion of the project.

Thank you again for taking part in the research, your contribution was greatly appreciated.

Yours faithfully,

Louise Harvey-Golding, PhD Researcher, Northumbria University

I would like to receive a summary of the research findings from a research is examining the impact of Blackpool's Universal Free School Breakfast Programme
Name:..... Email address:.....



Appendix Di: Local Authority/ Public Health Senior Stakeholder Transcript

Example

Interviewer: *What's your role and how does this fit in with Blackpool's Universal Free School Breakfast Programme?*

Participant: *Well my role is XXXX within the XXX team and my remit includes leading XXX on the health agenda and on children's public health agenda. So I have a dual interest in the school breakfast scheme both from a children's public health and you know an opportunity for improving children's health, for reducing health inequality, and also from the point of view of establishing healthy eating habits for children as they go through their life and getting those habits established early, and also from a dental health point of view, because good eating habits can help enormously with improving oral health and they're all things that we've got particular problems here in Blackpool with. So I have a lot of hope for the scheme in that respect.*

Interviewer: *What are your particular views on the free school breakfast programme?*

Participant: *I have a number of things which I think are important features of the scheme. I think the biggest thing for me is the fact that it's universal and not a targeted scheme. I think the universality of it is a really important feature in terms of reducing inequalities in the town, not stigmatising it in any shape, way or form. It is a programme that is for everybody and everybody can benefit from it. I think that is really important. So that is a key part of the scheme for me. The other thing for me is making sure that it's a healthy breakfast and that the items within the menu are appropriate and they're not high fat, high sugar. They're providing children with a healthy balanced breakfast that fits in with the other meals that have at school during the school day.*

Interviewer: *How do you know or think that scheme fits in with other past, present and forthcoming public health initiatives in Blackpool?*

Participant: *That's a good question. We try to integrate it with other things that are going on in schools. What I'd really like to see going forward is a whole school approach to food, not just focusing on breakfast, but across the whole of school day, so that all the food that's handled across the school day is handled in a positive way, you know offering healthy choices. That would include for me, reducing any snacking during the day and working on improving the quality of packed lunches during the day. You recognise that there are some children that prefer to bring a packed lunch, but I think I would like to see the school food plan being more implemented more enthusiastically across the day.*

Interviewer: *So are there any initiatives at present that fit in with those factors that you've just discussed there?*

Participant: *There's things that are currently ongoing around schools in terms of the input from the school nurses and the oral health team provide input into the school day and we have provided them with information about the school breakfast programme. Other programmes that we've got on the way will include a food dudes programme for pre-school children and nursery school children, which is going to be rolled out in better start wards within the town and we're hoping that will roll out from September time. The other programme that we've got currently ongoing is the fit to go programme which is a physical activity programme but also includes some lifestyle information in there and some nutrition information in there. They talk about the 'eat well plate' for example. So that's a programme that's offered to year 4 pupils and includes... it happens over a number of weeks and there's a mixture of lessons and physical activity sessions where children get to try different kinds of*

sports, although they also learn about healthy eating and sleep hygiene and looking after themselves and keeping themselves well and healthy.

Interviewer: So the Food Dudes and the Fit to Go Programme, and they national programme or is this just something that you've implemented in Blackpool?

Participant: Fit to Go is a Blackpool specific initiative. It's an initiative that's developed as a partnership between Blackpool Football Club's community trust, who deliver the programme, but it's jointly funded between the football trust, the local authority and the CCG. The Food Dudes programme is an 'off the shelf' programme. It is operating in other areas across the country. It's a programme that's offered widely in Ireland than in England, but it is offered within a number of places within England.

Interviewer: Could you give me a little bit of information on the Food Dudes programme without us going off track too much?

Participant: The Food Dudes programme is about encouraging people to taste and try food and veg and to increase their fruit and veg consumption to five a day. The basic premise is repeatedly tasting food helps children develop the taste for food and so it maybe becomes normalised for them because they're doing it in a group setting. It hits two birds with one stone basically. There's also a family element to it as well towards the end of the programme where they talk widely about it with mums and dads about how they can incorporate and support the programme. So it isn't just something that happens to kids in nursery. I guess that's hope for me that we'll be able to do that with the free school breakfast programme cause I'd really like to see going forward some more dialogue with parents around what constitutes a healthy breakfast, what sort of breakfast their child's getting when they come into school. I think that would give parents more confidence in the breakfast being served and hopefully the parents who are a bit reluctant and aren't confident that they will be getting enough. If we could reassure those parents then I think that would reduce the likelihood of children having two breakfasts and also equally those parents who choose to continue to have a family breakfast at home, I think we want to try and accommodate that as well because for some people that's really important. I think what I'd like to do is try and use the opportunity to get some messages out there about a healthy breakfast, what a healthy breakfast looks like. So I think there is a real opportunity there to do more work on those two things.

Interviewer: So what do you believe the impacts of the free school breakfast to be at a council level?

Participant: I would hope that this has been a real positive thing for the council. Certainly when I've been out and about elsewhere and telling people about the scheme and talking about the scheme it's been received really well and I think we've been seen as ground breaking I suppose. You know we're quite at the forefront, in terms of doing this, there's nowhere else in the country offering anything quite like what we're doing. Other places have breakfast scheme but I don't think anywhere else has the universal scheme in the way that we have, and I think in some sense there's a little bit of jealousy almost. It's amazing to have. So actually from a whole council perspective it's certainly seen as a positive thing outside of Blackpool. I think within Blackpool after the initial teething troubles that we had, I think things have settled down and certainly we're getting positive feedback from parents and from the schools and the teachers. The scheme seems to be running really well. I think we've got more support more broadly across different political groups within the council which I'm pleased to have seen. I'm finding that really encouraging. So I think on the whole it's been a positive thing for the council. It's a good thing for the council. It's reflects well on the council because they're seen to be doing something like this.

Interviewer: So what do you think the impact's been of the free breakfast scheme at a community level in Blackpool, so for example in more or less deprived communities?

Participant: I think because the town is almost universally disadvantaged, the less deprived communities are still quite disadvantaged compared with other parts of the UK so I guess in some ways it's in a town that's universally disadvantaged. I certainly am not picking up any sense that there's any sort of stigma at all associated with it. As far as I understand it's been received really well by the community. Certainly what we hear back from the teachers and what we hear back from the staff within school is very positive. I think there's been some feedback from parents saying it actually makes things easier for them in the morning and it takes some of the pressure off the busy you know getting ready for school time and you know everybody is trying to get ready for the day and trying to get out of the house on time. Actually I think you know, I suppose that's more an individual families than on a community as a whole.

Interviewer: So what about in more deprived communities, what do you consider the impact has been on those communities? Because I know obviously looking at the index of deprivation there's some quite well you will know yourself there are some very deprived communities within Blackpool town, what do you think the impact has been on those deprived communities, on the most deprived communities?

Participant: Well I would hope that the impact is twofold. Firstly I would hope that there are children getting a nutritional balance breakfast that perhaps they wouldn't otherwise have had so hopefully those children are going to be getting a better start for their day and hopefully they will be more receptive to learning during the day. I would hope that also it is maybe saving parents a little bit of money, you know parents that would otherwise struggle, are still struggling, but you know hopefully it will just make things a little bit easier for them.

Interviewer: So sticking on the impact at a community level, how do you think the scheme fits in with other initiatives like local food banks, children's centres, I've noticed that there are quite a lot of children centres still in Blackpool, and things like the walking bus, how do you think it fits in with those type of schemes?

Participant: Well I think it fits quite well, certainly it does, the food poverty agenda is important in Blackpool and I think this is a way of maybe in a small way contributing to addressing that problem in a very non-stigmatising way because you know for somebody to reach the point where they are going to the food bank to ask for a food parcel, they are really in an extreme level of you know in an extremely difficult place. I can't imagine that as some think that anybody could do very easily at all and certainly the feedback that we get from the food bank is exactly that, you know people are really, are very much in a crisis situation when they go to the food bank. And I guess that's where the free school breakfasts is a little bit different and hopefully helpful in it is potentially addressing some of those or alleviating some of those food poverty issues in a very non-stigmatising way.

Interviewer: So what about at the children's Centres, because don't some of the children's Centres offer breakfast as well?

Participant: I think some of them do and some of them have their own catering and certainly I guess from a broader healthy eating agenda we have made, we've offered the children's Centres the opportunity to do the healthy catering award which is another thing we offer. We commission from within the public health team and all the children's centres have signed up to achieving that award, a good number if not all of them have certainly achieved the first stage for that award so I guess in that respect with the work that we have

done to improve the nutritional quality of the breakfasts since we have implemented it, we are moving towards a position where that on offer to those younger children is more consistent across town from the council run services, which I think is really really important because we need to lead by example. I am not familiar with the details of when and where each one is open though so I probably can't fully answer that.

Interviewer: *So what do you perceive the impacts to be at school level then?*

Participant: *Certainly teachers seem to be quite happy with it. I think they've very much, we were getting the stories like local stories of teachers giving children something from their own lunchbox because they hadn't had anything at all to eat that morning, so I think that I hope that's now not the case. I mean I think one or two teachers have suggested that the children do seem to be, do seem to be settled down to work and perhaps work more productively, and perhaps behave little bit better. I have been an observed breakfast being served in, it was actually quite nice atmosphere, the children sort of arrived very calmly, as they were getting ready they were picking something out of the trolley and off the trolley on their way to, through the door, they were sitting down and chatting quite quietly, it was all very calm actually and I think it's sort of frames the beginning of the day really for them.*

Interviewer: *Are you aware of any issues that the schools are council or any of the catering staff have experience in the implementation of the delivery of the scheme?*

Participant: *Yes. I think, well certainly the council, it wasn't sort of my team that was leading on it, obviously it was XXXX team but you know I can see the challenge that that team was set by the councillors, it was actually a really big task, they were asked to come up with this scheme very quickly and implemented very quickly and they did manage to do that, but unfortunately I think that meant that they didn't have time to do an awful lot of consultation or information giving with the schools in the run-up to the scheme being introduced. Having said that very quickly the teachers, once they saw it in operation, once embedded in the school very quickly they became very accepting and very supportive of it. I think once we got over the initial shock and it settled down it seemed to become quite well accepted. I think that at least from the public health and nutrition point of view we had a little bit of difficulty getting the menus to what we would perhaps like it to be. I think it has improved a lot from the beginnings and it's a challenge because the majority of schools serve the handheld breakfast rather than a canteen style service so there's always going to be some practical issues associated with that, you know you've got to go with something that is fairly easy to eat with your hands, that doesn't require a lot of clearing up afterwards, you're not able to serve porridge or hot food very easily or toast and so on, although some schools are managing to come up with quite creative ways of doing that, so I think you know the handheld one does offer a real challenge in getting a good variety of healthy items in there. I think we've got a good way there, I think this still a little bit of a way to go perhaps and I think there was a number of schools who weren't quite offering, well I guess in all schools it's probably delivered in a slightly different way and I suppose from my perspective it would be great to see it being delivered in a more consistent way across all of the schools so that we could be more assured that the programme was actually you know being delivered in the way that we wanted it to be delivered.*

Interviewer: *But then I suppose it's impacting within the school?*

Participant: *Yeah that's a difficult thing really, when they have to implement things very quickly, they just have to go with something that is good for that school and I think the next task may be to try and share the learning of you know, some schools of come up with some really clever and really interesting ways of doing things and getting things done and it might be a good opportunity to sort of share those across schools so we can maybe try and get*

them all up to it, up to a similar level. Certainly I, we also need to keep an eye on schools for the levels for which they are ordering because anecdotally I figure sometimes the children are taking things home or the are grazing from the trolleys during the day and that makes me feel it's not quite, while I think it's probably well-intentioned I don't doubt that it isn't well-intentioned, it does present, it wouldn't be what we would want from a nutritional or from an oral health point of view, we don't want children grazing through the day. Equally the council is under an enormous amount of financial pressure and will be in the coming years and I think we have a duty to make sure that we are running this program as tightly as and as efficiently as possible. So I think you know that there is some way to go in terms of that. I think the other teething problem is around information to parents and parents really getting a proper understanding of what the program is about because initially, I think because of the challenging timescales and implementation you just have to work on practicalities of getting 11,000 breakfasts a day out across every school. I think actually you know we do need to do that.

Interviewer: *So talking about being 11,000 breakfasts, that's a lot of breakfasts and you know the council coming under strain from government cuts and things like that to various councils, have there been any issues with the sustainability of the scheme?*

Participant: *Initially it was from the council, general council funds with a contribution from public health but it's now funded entirely from within the public health grant. Now the current year and for next year I think absolutely you know I don't think that's going to be a problem there. We are expecting in the coming few months a consultation on a formula for the new public health, the public health grant going forward so our allocation to the council from public health is likely to change and a recent consultation on the amount that we are going to be getting in the future for the commissioned public health services has indicated that we might see between 22% to 28% reduction on that budget so using a similar formula on our entire public health grant we could be looking at very significant cuts of very significant cut to our budget. What we don't know is what the timescales for bringing that formula in would be. Now it's a considerable amount of money, I would really like to hope that we could carry it off but I think you know we will obviously have to keep our eyes on that.*

Interviewer: *You've talked about this a little bit anyway so just to ask you specifically to make sure we haven't missed anything what do you think the impact of been for parents and carers and families?*

Participant: *I think there is potentially an easier time in the morning getting ready for school, it can be quite a time of pressure in terms of time getting ready so I think a smoother morning for parents and perhaps easier to get there on time, a little bit more money in parents pockets, saving parents a little of money and a healthy breakfast for the children and actually a breakfast for some children who might not have had one otherwise or someone who might have had something what we would consider to be very nutritionally inappropriate. So I think that are the three key things for me there. I think the other thing that I haven't really touched on is for the individual child. I guess the other thing I was going to say while I remembered it was about and I touched on earlier in terms of that settling in period and being the beginning of the school day for children and the children get the chance to sit and chat over food and having that social interaction over the food because I think you know certainly in my experience from the healthy weight agenda is we often talk about food in a negative way, food is responsible for us getting fat and all sorts of other things and actually there are lots of positive things, it is good for you, the nutrition, you're not only getting the nutritional balance but you're actually getting the interaction and that sort of sharing the breakfast together and the sort of conversations that you have over breakfast and also for children seen other children eat something that they might not have*

tried themselves so you get that sort of number of different benefits around children perhaps trying something that they wouldn't have tried and getting to like it and also having that social interaction.

Interviewer: *Do you think there are any disadvantages to parents, carers, families?*

Participant: *It's difficult not to sound judgemental but I suppose there may be a cultural norm around having, you ought to have a sense that you ought to have your breakfast around the table as a family and that you're somehow failing as a parent if you were not able to provide that for your child. I think we've had hints of maybe that here and there and some parents are really keen in still having their family meal at home around the breakfast table and I think that's absolutely fine, I think we obviously we want to try and support parents who want to do that to do that but recognising that there is a choice, the parents actually have a choice here they can do that or they might not want to do that every day, they might want to do that every day, there is an option there, there is another option for them.*

Interviewer: *Do you know of any issues with parents carers families in the implementation of the delivery, have there been any specific issues involving parents?*

Participant: *I'm not aware of any specific issues. I suppose just the general thing around confidence in the scheme and if parents aren't sure what their children might be getting when they get to school, they are more likely to give them something before they go just so they are reassured that they are having something.*

Interviewer: *How have those issues been resolved or how do you plan to resolve those issues?*

Participant: *I would like to see some communication with parents and I have had conversations with XXXX and XXXX around whether we can do some work with our comms team around that and I had a word with the comms people as well to say well actually I think this is the sort of thing that we need to do is share the results of your earlier work with them.*

Interviewer: *Do you know how the school breakfasts or changes in the school breakfasts or key aspects of the school breakfast, how are they currently communicated to the parents and/or carers?*

Participant: *It's via the schools in the schools have got the contact with the parents. I think some schools use email and even newsletters really well, some schools use websites as well. I would like to see a part of the comms campaign information on the council website but also information that we can provide the schools with them to put on their own websites or through their own newsletters. That's how I would see the campaign developing.*

Interviewer: *So a bit more consistency rather than just you know informing the school and then relying on the school to inform the parents?*

Participant: *The challenge we have with different schools is delivering it in different ways so it's not as easy as you might think to come up with a simple comms campaign which is in some ways partly one of the reasons why I would like to see some more consistency across schools and another reason I would like to see more consistency is that I think we can be more assured that it is delivering what we want it to deliver but also we can get the messages right. Otherwise we are relying on schools communicating their own messages to parents and you're right there might be opportunities for inconsistencies to rise there.*

Interviewer: You talked a little bit before about what you see the impacts to be on children but you focus on the immediate impacts round the sort of breakfast period, about it being calm and nice and the social impacts and getting their breakfast and things like that. What would you consider the wider impacts would be on children then?

Participant: I would hope there were two really, I would hope that children were trying things that they didn't try previously and foods and they had the opportunity to try different foods and to learn to you know learn about different foods what they can have the breakfast. I would like to see them getting healthy, establishing healthy eating habits, healthy breakfasting habits that hopefully then then take them through into later life. And it's interesting because we had some, I did ask XXXX about whether they seen any patterns, trends and I got the sense anecdotally that the results of a lot of work in recent years around improving the quality of school meals at primary school is starting to trickle through in terms of high school and children making what we might think as smart the choices which is really interesting and I don't know if there's anything more tangible to back that up, I'm not that familiar with the literature on that, but I would also, I am aware from the literature in the states that establishing those healthy eating habits and those habits for breakfast early on have been suggested that they might reduce obesity levels in the long-term.

Interviewer: So from what you have said it's more of a focus on improving diets and well-being in that respect?

Participant: We do talk a lot about obesity and I've always tried to talk about, not just talk about obesity when I talk about healthy weight but talk about healthy balanced nutritional diet because that then protects you and helps your body to develop that resilience from diseases and infections and so on and helps you live a healthier life so I've always tried to maintain that dual focus on that agenda.

Interviewer: Do you think there are any disadvantages to children then?

Participant: I suppose there is that potential for children to have two breakfasts and I think we have seen some evidence that that is happening to some extent and I think I would really hope that if we could do some work with families and with parents then improving confidence in the scheme might help to reduce the numbers of children that having two breakfasts.

Interviewer: You've talked a little bit about this but are there any current plans the changes to the universal free school breakfast scheme?

Participant: I'm not aware of any major plans, I know that XXX is now starting to have conversations with schools about the models that they are operating and trying to encourage them to develop a bit more of a consistent approach across the schools and I am really keen to see how XXX gets on with that. We are facing an election in a fortnight so actually it is quite difficult for me to say much more than that at the moment. It all depends on what happens next Thursday or Friday.

Interviewer: How do you see the long-term future of the school breakfast scheme?

Participant: I would like to hope that we, we've provided briefings to members and we've provided information about the scheme and how it's going and I would like to think that we would be able to see it in some shape or form going forward so if the current administration remain then I would be very hopeful for that there wouldn't be too many major changes to it, if the administration were to change then the opposition has indicated that they would keep

going in some form but not necessarily quite how it is at the moment but quite what it would look like I probably can't really say because I don't know.

Interviewer: *Is there anything that you would like to change or do differently with regards to the breakfast scheme?*

Participant: *The comms would be my big, one of my big things, I would really like to get the comms right with the parents, I think in order to do that, to be most effective at doing that I think we need the work with schools to try and move to a more consistent model across schools because I think that would not only not help provide a better basis for us to deliver a more effective comms campaign but it would also help us to provide some assurance that the programme was being delivered in all schools in the way that we think it's going to deliver the most benefit and in the most efficient way because we do have to be accountable for the money that we are spending at the end of the day. So they would be my big things.*

Appendix Dii: Senior School Staff Stakeholder Transcript Example

Interviewer: *What is your role and how would you say that that fits in with Blackpool's Universal Free School Breakfast Program?*

Participant: *The role is head-teacher and it's about organising implementation of the initiative within my school and making sure that it is most effective*

Interviewer: *Okay, So what are your actual views on the free school breakfast programme in Blackpool then?*

Participant: *I've only been at XXXX for two years and prior to that I worked in a school in Blackpool that had an incredibly high level of deprivation and it was absolutely fundamental for those children to get breakfast. Now I've come to school that is very very different in terms of deprivation levels the issue that I have in school is, I have got lots of professional parents who in the morning don't have time to give their children breakfast or I have parents who, their children come to school on their own because they've got other drop-offs, they might have younger children or older children or they are work and so I think provides a really really good service. Yeah*

Interviewer: *Excellent okay. How do you think the school, do you think the scheme actually fits in with anything past present that Blackpool has done with regards to children's health and general health in Blackpool?*

Participant: *I think it's looking at, I mean I have been to a few meetings with regards to the breakfast and setting up the breakfast initiative and it's looking at the nutritional value across the, because I know some schools have moved away from Blackpool catering and have gone to independent caterers, but I know Blackpool have done a lot of work on nutritional value of the food they eat across the day and the work that they are doing in conjunction with the hospital and looking at obesity and overweight and wait in standards, and I know that that's national but I think in Blackpool you know it is an issue.*

Interviewer: *What do you think the wider impacts of the scheme will be have been then, sort of like at a council level, so in Blackpool as a whole, what do you believe the impacts of been or will be?*

Participant: *I am hoping it will raise attainment. I think health, there are some health implications for it and I think there are certain social implications as well so I can kind of see health, education and social aspects of it. You know it is supporting some families and although I have got quite a few professional parents I've also got some parents who are just on, kind of the borderline, just slightly too much to be in receipt of pupil premium and all that and access to breakfast clubs and all things like that, but a breakfast for their child every day is saving a little bit of money for them which they can then spend in different ways, so for me supporting some of our parents who are almost that hidden layer. They are not highly deprived, they are not professional and their parents you know can't do it all, but it's just the ones that are on the borderline, that have just missed out.*

Interviewer: *Yeah okay. What, right obviously you know I do know looking at the indices of deprivation that Blackpool is you know significantly deprived with regards to you know financial inequality, health inequality pretty much across the board, but also within Blackpool you will know yourself because you mentioned you know you used to work in another school, there is also quite high levels of inequality within Blackpool itself so you have some extremely deprived communities and some may be less deprived you know, I*

wouldn't go as far as affluent but less deprived communities so do you think the free school breakfast scheme has different impacts within those different communities within Blackpool?

Participant: Yeah definitely and I'm certainly falling into the category where we are in one of the least deprived areas within Blackpool at it is benefiting our children because it does mean that you know where you've got to full-time working parents, they need to be at work you know, you can get the children into school but you know they are going to have a breakfast, it also supports those ones who are perhaps going to work and rushing to work and actually if they didn't have the breakfast at school, not that they couldn't afford it but it's benefiting them because it's providing for them and you know enabling them to spend some of the money that they might be spending on the breakfast elsewhere. Some of our parents here who would give their kids money to get breakfast on the way to school so you might get back crisps to bags of sweets, actually they are coming into school and getting something of some nutritional value. I don't always agree with the nutritional value of the breakfast but at least they are getting something so it kind of hits all those for me having seen it from both sides you know I've got some children who their last meal in school was the last meal that they had, that's not necessarily the case here at centuries is but but you know it is supporting parents most definitely.

Interviewer: Okay so obviously you have seen the impact of the breakfast scheme the two schools so what do you perceive the impacts are of the free school breakfast scheme at the school level? Do you think there's any benefits or disadvantages to the school?

Participant: I think in terms of benefits we know those, it's not costing us to provide for some of those children who haven't had breakfast for a whole host of reasons and that's been good and it also allows some of the children who you know they might not have anything for breakfast, they might not fancy breakfast first of but the way that we are running it, we are running it differently this year than we have for the past two years, it's giving them an opportunity at 10 o'clock when maybe they are a bit hungry, it's 2 1/2 hours to lunchtime and you know they've got a bread products or a piece of fruit or something that, they can have something as a snack

Interviewer: So the school that you work that, that you worked in previously you did mention that that was quite significantly deprived, what was the school doing beforehand, before the school breakfast was brought in if you did have children that were coming in hungry?

Participant: Providing, we had groups of children who we would either pay for them to join up breakfast club so we knew that they would have a breakfast or when they came to school whether that was they came to school at 9 o'clock or whether they came to school at 10 o'clock, we would be providing breakfast. So you having a member of staff who would get some toast and cereal and you know we have bought those supplies in for those children because they were starving, you know they were coming in really hungry, they couldn't focus they were all over the place and they were actually coming in and having that breakfast, they could then focus and it was also nice for them to have social time with another person

Interviewer: You have touched on this already but I'm going to ask specifically just in case it does not inspire anything additional, what do you perceive the impacts of been on parents, carers and families?

Participant: I think it's eased some of our families who perhaps aren't the best organised, it is also supported some of our families who are organised but there is no time in the morning because of the pressures of work. I think some of our parents who if breakfast doesn't matter to them it therefore doesn't matter for their children and I think financially some of our

parents it's a relief and it's a bonus because they are not having to think about providing a breakfast of children having something to eat.

Interviewer: Do you, do you think there are any disadvantages of the scheme to parents at all?

Participant: Well the only problem is for some of them is that there is the worry about them overeating so there is the worry that if the children have full breakfast at home and you know I know some of my children do sit down with the parents and have some breakfast but they've actually had the breakfast at home and then they come here and have it they actually have it as a snack and it's quite a long time so some of our children might have their breakfast at 7:30 but then it's five hours before they have their lunch you know and we are quite careful about what they do have because it's a piece of fruit, it might be yoghurt drink and it might be a small bread product. We don't do the cereal at all, we don't do cereal bars and of those kind of things so it's not massively overeating but there is that slight potential for them to have an additional snack that. But because, if they have the school lunches you know it's not massive.

Interviewer: So do you, do you do anything in particular, do you ask the children if they've had their breakfast at school or is there anything that you know like that that's done may be individually by teachers or do the school...?

Participant: Yeah I mean previously parents had to sign up and say that they wanted their children to have breakfast

Interviewer: Okay so it was like voluntary?

Participant: And they kind of opted into it and then the way that we were serving it there were so few children actually taking up the breakfast but then there were children who we felt during the morning were lacking concentration, they were hungry at break time and I didn't want to go down the route of providing a snack break time so we just decided to move the breakfast into the classroom where we could monitor what they were having so we would know that are most vulnerable would be having breakfast but also that there would be an option if they weren't having a breakfast they could have it at 10:30.

Interviewer: Okay okay, did you have any issues at all with any parents/ carers in either of the schools during the implementation of the initial delivery of the scheme?

Participant: I don't know about the initial here but since I've been here no and at the other school no not all.

Interviewer: Okay that's fine. How, at the previous school when the breakfast scheme was initially implemented, how was that communicated to parents, was it invite the council or did individual schools take responsibility for that?

Participant: Individual schools took responsibility but there was lots of press as well so as a school we put around just a kind of counteract any adverse press because there was lots of things but our parents were happy that we were giving them some food really

Interviewer: Yeah yeah so perhaps most importantly do you consider the impacts of the free school breakfast scheme are on children then?

Participant: Well one of the things we have been looking at and it, about healthy eating and providing a balanced menu throughout the day, I got my data through the summer and in my

school there is a much higher percentage of children who are overweight or obese, now is that because some of them weren't eating breakfast and so they were sluggish in the morning I don't know but I think by having a breakfast you know and start the day off right hopefully that could impact on that and it will take 12 months if not 24 months for those figures to kind of come through. I think in terms of we don't have hungry children who lose focus and attention because they are hungry you know I've got some very active children here and to go five hours without eating as an adult you would probably have a biscuit and a cup of tea, you know or a piece of fruit during the morning so you know it's offering them something small and, mid-morning

Interviewer: *So just going back to what you said there about the levels of obesity, so rather than what you know what some people may have commented about the school breakfast potentially contributing to obesity by things like having a double breakfast, do you actually perceive that would have the opposite effect and that it might actually reduce levels of obesity?*

Participant: *I think it actually got the potential to because what we, what we could be doing is if children don't have a breakfast then it could be filling up at lunchtime having the wrong kind of food, it might not get the metabolism I mean it's the thing is in it when you're healthy eating you need to have a breakfast to start your metabolism off. If we've got some children who haven't eaten since teatime the previous night you know is there metabolism functioning properly, are they having a drink of water you know the whole kind of thing because we don't offer fruit juice, we offer water and I know we offer water in school but when it comes in a bottle and they know it's fresh and we encouraging healthier habits by ensuring that you know they have small regular meals rather than you know one huge meal and they kind of fill up at lunchtime because they do have an option to go you know and get bread and extra things at lunchtime so they are sluggish in the afternoon. I don't know and I don't know what will actually be able to tell us that, maybe a reduction in the obesity rate school, I don't know.*

Interviewer: *Have you personally considered if there's any impact on lunch consumption then?*

Participant: *That's another hard one because we've just had a kitchen so our lunches of change quite significantly. We don't have masses of waste at lunch but then I don't know if that's because they're just cooking enough but it might be that that impacted on the are having, rather than just filling up at lunch being sluggish after lunch maybe they are having you know that small interim and you know that small snack and then you know a reasonable lunch and then keeping it more equal rather than nothing nothing big meal nothing nothing you know, that's possible. That's my thoughts on it anyway*

Interviewer: *Do you know whether there were any problems initially when it was implemented with the school, did the school encounter any difficulties or are any problems when it was initially implemented?*

Participant: *I think that at the other school it was gauging how much the children were going to have and looking at things like storage and making sure that health and hygiene was right because we did lots of things with fresh fruits so there was like fresh pineapple and fresh mango and that only has a certain lifespan keeping it in the fridge. The routine that we've got now here that we've just changed after the summer, it's working touch would, we've only been doing it for weeks but it's working really well because it's whole pieces of fruit and it's quite common you know, the breakfast isn't provided just for them to try all the range of fruit and vegetables because we have fruit and vegetables for key stage I where we*

get those opportunities so it's quite common fruit that we know they will eat and they will try.

Interviewer: So can you tell me a little bit about the food and breakfast model that you had previously and the one that you've got now and why you sort of made the decision to change that?

Participant: Yeah I mean we had, all the children came through the church hall and there were some breakfast products available for them and it was kind of laid out on a big long table and they could, they were really encouraged...take a bread products, you could take some toast but it was almost like eat as you go and often the children who were late were the ones who came in last and there might not have been toast there and they might think oh gosh I've got to go to class I'm going to be late and often they weren't actually, the ones who did it. Most were taking it up and there would be others who might sit down at the table and just want to graze you know on the whole various thing. So what we're actually doing now, is we've got the school is opening at the same time but we have got an open school so instead of them going for their breakfast and going out onto the playground, they come into school where there are activities to do and the breakfast box is available for them so they can come in, they can choose their own and it's always available for them, there is no pressure on them to eat it quickly. Some classes have worked out that it is better at break time they might have the bread when they come in and the fruit of break time splitting that up. And it's a more social feel and you know they can sit with their friends and they eat it and there's no real considerable mess in the classroom, they might you know a bit of a wipe up and stuff and then somebody clears the boxes away just before lunchtime and it's all gone and done by then.

Interviewer: Okay so do you think there's anything the council could have done differently, either before it was implemented, in the initial stages are with their delivery of it, do you think the council could have done anything differently to make it easier?

Participant: I think perhaps looking at various models about how it could work, I think that was one of the things about right this is happening and you just have to provide a breakfast for the children, how are you going to do it? And perhaps offering some options because sometimes it's not always the way that you see things working that you actually know if it's going to work or if it's not going to work and I think people were a bit looking around what do I do, how am I going to implement this and I think things have evolved and you know in the first instance I think there was an awful lot of waste but people now are ordering smartly. I think there were issues about how it was going to impact on the curriculum on time but then considering different options and it's just fitting it in and I just think some further discussion or some further options about how it might work, some models, might have supported that.

Interviewer: Okay have you got any other plans, any further plans to change the scheme at all or are you sticking with the model that you have got?

Participant: I think I mean we've only been doing it for a month and you know that has worked and it is working you know, if we suddenly get to Christmas and you know we do our weights and measures, we find out all of our reception children are overweight then you know, because they are too busy munching on everything all day then we might have to think again, you know but for us it's working nicely at the moment.

Interviewer: Okay is there anything with regards to the whole scheme, so from the council perspective, is there anything you would change or see done differently?

Participant: No because I mean because we just phone up and talk to the catering people you know and you know just I think some of the product choices, so for example you know the pancakes and the waffles and the brioche is that are very popular but looking more down, what options are available for individually wrapped kind of products at the children could have and alternatives really. I mean I don't want to go down the cereal route at all, you know the cereal bars were too high in sugar but it's just looking at what other kind of dry bread products or options are available.

Interviewer: Okay so what's, why wouldn't you consider going down the cereal route?

Participant: Because it would mean washing bowls, spillage, just the whole milk and cereal, that kind of thing. It's just that practical

Interviewer: Okay, how would you like to see the long-term future of the school breakfast scheme in Blackpool?

Participant: I mean for us it works and you know continue with it, I you know I think if it was taken away then we would have to think of providing for certain children or I would have to think about funding a breakfast club place for some children so that I know that they would have a breakfast. Something would have to be in place for some of our children and not necessarily the children who are most deprived either because here we have got some children who it's not through deprivation lack of money it's through time and organisation that sometimes they are rushing to work and you've got three children, you know it's, because I think the issue for some parents is rather that they got to school on time if they've got a massive thing for punctuality, they would rather get them on time than have a breakfast because they will be all right. You know lots of people don't eat breakfast you know.

Interviewer: Yeah okay that's absolutely fabulous was there anything at all that you wanted to put across with regards to your views about the breakfast programme that I haven't covered?

Participant: No I think you've covered at all.

Appendix E: Examples Excerpts from for Themes and Sub-Theme for Study 1

Theme	Sub-theme	Local Authority and Public Health	Senior School Staff
Issues in the Implementation and Delivery	Rushed implementation	<p><i>“The consultation and implementation period wasn't long enough. It was rushed so we accepted the compromises in the initial food choice because of that but we had a revisit which again probably you know you wouldn't want to do that. We struggled to really get the full advantage from suppliers. We didn't have time out to tender so where you using an existing framework and suppliers and it was pretty much what they could offer to us.”</i></p> <p><i>“I think how it was conveyed to head-teachers was rushed and more of a done deal, I don't think there was any consultation.”</i></p>	<p><i>“I would much rather the council have come up and sat with us. We could have spent the meeting looking at the data, what the data was telling them, get everybody on board, seeing how do you think we could roll this out, looking at problem-solving.”</i></p> <p><i>“We were told all of a sudden that we had these huge deliveries of all this food that was supposed to last for the whole week but we had nowhere to store it, there was no room in the kitchens or anything, nobody had thought about it, they thought schools will do this and you will sort out the problems that you face.”</i></p>
	Lack of consultations with schools and parents	<p><i>“We've had that feedback from a couple of teachers in Blackpool that they still feel that parents don't understand it and therefore it causes that concern.”</i></p> <p><i>“I met all the heads a few days after it was implemented or it came out in the Gazette, I had actually sent all the heads a letter the day that went out into the media. A few days later I met them and it was quite difficult for them at the time because you know it felt like they had their arm up their back because it had been announced in the press.”</i></p>	<p><i>“There was nothing really came out from the council from what I can remember, I think it was essentially the school and it to a large extent, we just told parents what we were doing with regards to the scheme.”</i></p> <p><i>“It was introduced without head-teacher knowledge. It did feel at the time that it was, this is the council doing this, you will administer it and the bottom line is that if you want it to be administered well you've got to be engaging with the people who are working with children and young people on a day-to-day basis.”</i></p>

Appendix E: (Continued) Examples Excerpts from for Themes and Sub-Theme for Study 1

Theme	Sub-theme	Local Authority and Public Health	Senior School Staff
Issues in the Implementation and Delivery	Logistical problems	<p><i>“There's a few where they've got some additional costs [...] We had to do a bit of work with a few just to try and iron those issues out. We have bought bins, we've paid for additional bin collections, we've actually bought storage unit at one of the schools, we are paying for staff time to prepare and accept deliveries and distribute it out.”</i></p> <p><i>“Depending on the size of the school, it has been tweaked and changed.. If it was an old school, spread over different floors and corridors and all that sort of thing we've had to make allowances so some schools of got more than the initial one hour of time per school year.”</i></p>	<p><i>“It was gauging how much the children were going to have and looking at things like storage and making sure that health and hygiene was right. Fresh fruits only have a certain lifespan.”</i></p> <p><i>“We negotiated with the contractors to come twice a week rather than every day or once or rather than once a week because he would come once a week and dump all his stuff and then we would have a problem with storing it wearers twice a week meant that at least we were using some of the stuff</i></p>
	Funding and Future	<p><i>“We've set aside the money for this and we will continue to set aside the money for it.”</i></p> <p><i>“All councils have been prepared, of been told to prepare for 40% cuts. I have no idea how 40% cuts will impact on councils.”</i></p> <p><i>“I don't think you can play with people's lives to the point that you sort of switch this on and off because that's not realistic. We started it, run it for long enough so it embedded and it's become part of the culture, it's part of the school day. It would really cause people and inconvenience of you took away now so I don't see it stopping in the short term.</i></p>	<p><i>“Financially can't be cheap because a pack of six of these is about 1 to 2 pound so if they are providing three or four packs a day per class. I mean we are a school of 13 classes, there's got to be huge financial issues with it.”</i></p> <p><i>“It does make me wonder, you know if it is sustainable because obviously it must cost quite a significant amount of money. It will be a shame fit to stop.”</i></p> <p><i>“If it was taken away then we would have to think of providing for certain children or I would have to think about funding a breakfast club place for some children so that I know that they would have a breakfast.”</i></p>

Appendix E: (Continued) Examples Excerpts from for Themes and Sub-Theme for Study 1

Theme	Sub-theme	Local Authority and Public Health	Senior School Staff
<p>Benefits to Local Authority and Schools</p>	<p>Raises the profile of the LA and town</p>	<p><i>“A number of other local authorities have contacted us and asked us for information about the scheme. [...] it raised the profile of Blackpool in terms of taking a step to do this.”</i></p> <p><i>“XXX spoke in the House of Commons regarding this because it's had so much publicity around the whole of the country. It has set us apart in the sense that lots of people want to do it but they have not been able to find that magic key to doing it. It's given us a lot of credibility.”</i></p>	
	<p>Improves punctuality and potentially attendance</p>	<p><i>“I think it encourages attendance as well because I some students know when they get here they are going to get something to eat.”</i></p> <p><i>“It's helped with getting children into school. They want to be in now because they know that they are going to get their breakfast.”</i></p> <p><i>“I think it helped with punctuality because the children know that the minute they walk through that door, they help themselves to fruit or whatever is on offer for that day.”</i></p>	<p><i>“It's punctuality [...] I am aware that kids now get to school earlier than what they did.”</i></p> <p><i>“It has quite clearly had an impact on punctuality rather than attendance, attendance hasn't rocketed but punctuality certainly has improved.”</i></p> <p><i>“I am told by many of the heads that it has helped in terms of punctuality and attendance.”</i></p>

Appendix E: (Continued) Examples Excerpts from for Themes and Sub-Theme for Study 1

Theme	Sub-theme	Local Authority and Public Health	Senior School Staff
Benefits to Local Authority and Schools	Assists schools in alleviating hunger	<p><i>“When you listen to some of the schoolteachers. They were bringing in food items because they knew some kids would be hungry, which is really quite shocking in this day and age, so we're really pleased we can offer that here in Blackpool.”</i></p> <p><i>“The scheme is being more formally welcomed in the very deprived areas, they were the ones that have a deal with the kids that were arriving malnourished.”</i></p>	<p><i>“It ensures that all our young people have the opportunity of having something to eat first thing in the morning and I know some of our young people are very hungry so I think the fact that the food is always there.”</i></p> <p><i>“The fact that the breakfast that we've got is easily available and you can just give them something quite quickly, it means that once they get into lessons they can start learning and they're in the right frame of mind to learn as opposed to being hungry.”</i></p>
	Specific benefits for specialised schools and SEN settings		<p><i>“Some of our children have allergies and can't eat the toast or the bagels, so we offer yoghurts. Our school cook is really good and her link with the authorities is excellent.”</i></p> <p><i>“Our youngsters need support for dressing, support to get into a wheelchair, support feeding. Kids aren't able to get out of bed at the last minute and get up and down to transport. They might have been up since 6:30 and arriving at school Quarter nine. So already they have had quite a significant morning in the respective getting out of bed and getting ready so they are ready for something.”</i></p>

Appendix E: (Continued) Examples Excerpts from for Themes and Sub-Theme for Study 1

Theme	Sub-theme	Local Authority and Public Health	Senior School Staff
Perceived Impacts on Children	Alleviates hunger	<p><i>“It is accepted children can't learn if they're hungry. Not all children arrived hungry but far too many did.”</i></p> <p><i>“I personally have many stories of children arriving at school having not eaten since the last free school dinner.”</i></p> <p><i>“The immediate impact was that kids were not arriving at school and starting their lessons hungry.”</i></p>	<p><i>“I worked in a school in Blackpool that had an incredibly high level of deprivation and it was absolutely fundamental for those children to get breakfast.”</i></p> <p><i>“We give our children the best education that we can possibly provide for their needs. Part of that is to ensure that they are ready for learning and a major barrier particularly in the area like Blackpool is that they come from deprived environment. [...] Many of them don't have breakfast in the morning so providing a small breakfast for them is one positive way that we can reduce the barriers that some of our children have.”</i></p>
	Improves health and nutrition	<p><i>“I think it's been very supportive in terms of you know particularly families in deprived areas where you know they haven't got the resources you know to provide a nutritious breakfast.”</i></p> <p><i>“This is something that is helping to address dietary inequalities in children in Blackpool. There have been huge concerns around this. I think there are a lot of kids in Blackpool who have been disadvantaged in this way, so I think this is actually helping to address that. It's really important for them in terms of their health.”</i></p>	<p><i>“We've got children seeing healthy breakfast displayed in the morning, It's fresh and it's good for them. Rather than children walking to school eating junk. There are people that give their children a packet of crisps or a biscuit to eat on the way to school, I don't see that now.”</i></p> <p><i>“Some of our parents here who would give their kids money to get breakfast on the way to school so you might get back crisps to bags of sweets, actually they are coming into school and getting something of some nutritional value.”</i></p>

Appendix E: (Continued) Examples Excerpts from for Themes and Sub-Theme for Study 1

Theme	Sub-theme	Local Authority and Public Health	Senior School Staff
Perceived Impacts on Children	Provides a positive start to the day	<p><i>“One of the biggest things as far as I’m concerned is the calm start creates to the day, the fact the children sit down with their friends and have their breakfast. I do believe that that is a very calming influence and the key feedback from heads is that they are ready to learn and that breakfast plays an important role in it.”</i></p> <p><i>“Teachers have suggested that the children do seem to be settled down to work and perhaps work more productively, and behave little bit better.[...] It frames the beginning of the day really for them.”</i></p>	<p><i>“They can have a bit of time and a bit of something to eat with their friends and maybe read a book that is quite a nice time actually in the classroom. Quite a nice start to the morning so that is a positive experience for them.”</i></p> <p><i>“It’s the quiet time then and then they start with their reading. It is that quiet time before school starts. [...] They just sit quietly and eat.”</i></p>
	Potential to improve educational and behavioural outcomes	<p><i>“The educational attainment issue is a massive issue here in Blackpool, we have poor levels of educational attainment so it’s great that we can you know feed those kids properly so that they are ready to learn.”</i></p> <p><i>“There’s going to be an impact in terms of behaviour. You know ability to learn if you’re well fed and nourished, all of those things.”</i></p>	<p><i>“They know that they are getting fed. It reduces their anxiety and their anger is because they know that they are going to get something when they get to school. [...] It improves their behaviour because they are not hungry.”</i></p> <p><i>“We don’t have hungry children who lose focus and attention because they are hungry.”</i></p>

Appendix E: (Continued) Examples Excerpts from for Themes and Sub-Theme for Study 1

Theme	Sub-theme	Local Authority and Public Health	Senior School Staff
Perceived Impacts on Children	Double breakfasting and grazing, Concerns about high calorie breakfast items	<p><i>“I think there is a potential if we don't communicate with parents that we do run the risk that people could double-eat. I think with Public Health we are going to monitor and just keep an eye on that because it does mean we could have a situation where children are sort of grazing over half a day and if that's what's happening then that has a potential to cause some problems.”</i></p> <p><i>“I suppose there is that potential for children to have two breakfasts and I think we have seen some evidence that that is happening to some extent and I think I would really hope that if we could do some work with families and with parents then improving confidence in the scheme might help to reduce the numbers of children that having two breakfasts.”</i></p>	<p><i>“In fact there may well be some negative features of feeding children who don't need a second breakfast, and that's essentially what some of these children are having. They get decent breakfast and then they will end up having a second breakfast which for a period of time it is not going to be good.”</i></p> <p><i>“I think we've got to be careful because I have heard of cases where some young people might be getting to 3 breakfasts a day, because if they go to a before school club they get something, and they get something at school, and some students will have breakfast at home.”</i></p> <p><i>“We provide Scotch pancakes and the waffles, the Kingsmill ones, and I was looking at one of the waffles, I've got the pack in front of me here and the, on the traffic light system they have now on the packets, it's red for fat, saturates and sugars.”</i></p>

Appendix E: (Continued) Examples Excerpts from for Themes and Sub-Theme for Study 1

Theme	Sub-theme	Local Authority and Public Health	Senior School Staff
<p>Perceived Impacts for Parents</p>	<p>Financial benefits</p>	<p><i>“It’s an amazing scheme if you have got two or three kids, and there are the families that are really on the breadline. So what a fantastic fact that your kids going to get a good breakfast, and that must release some of your money that you’ve got to be able to spend in other ways and hopefully potentially to food in the evening.”</i></p> <p><i>“It is maybe saving parents a little bit of money, you know parents that would otherwise struggle, are still struggling, but you know hopefully it will just make things a little bit easier for them.”</i></p>	<p><i>“I’ve also got some parents who are just on, kind of the borderline. Just slightly too much to be in receipt of pupil premium. [...] A breakfast for their child every day is saving a little bit of money for them, which they can then spend in different ways. So for me supporting some of our parents who are almost that hidden layer.”</i></p> <p><i>“The parents I know who are maybe a little bit financially better off because they’re not having to give the kids money to give them something on the way to school.”</i></p>
	<p>Alleviates rushed morning routines,</p>	<p><i>“It is just the most hectic time of the day and kids of got no sense of urgency of course have they, they dawdle about. It is a very difficult time of the day and we all get it wrong sometimes, we all run out of time to do hair to do you know sort out shoes, school bags and no matter how much you try the night before it’s difficult but we all now know, every parent in Blackpool now knows that if you miss breakfast isn’t the end of the world, you don’t have to feel like the worst parent in the world.”</i></p> <p><i>“There’s been feedback from parents saying it actually makes things easier for them in the morning and it takes some of the pressure off. You know getting ready for school time, and everybody is trying to get ready for the day and trying to get out of the house on time.”</i></p>	<p><i>“I have got lots of professional parents who in the morning don’t have time to give their children breakfast or I have parents who, their children come to school on their own because they’ve got other drop-offs. They might have younger children or older children or they are at work.”</i></p> <p><i>“It saves them time in the morning. Mornings can be very busy, especially if you’ve got a lot of children.”</i></p>

Appendix E: (Continued) Examples Excerpts from for Themes and Sub-Theme for Study 1

Theme	Sub-theme	Local Authority and Public Health	Senior School Staff
Perceived Impacts for Parents	Removes parental responsibility	<p><i>“The only potential negative really as far as I can see is on the dependency issue. There are a number of different elements of children's lives that unfortunately sometimes parents think I don't have to do that. This could create one of those.”</i></p> <p><i>“You could argue that it, that it's creating a culture of dependency. I don't believe that that's the case but it's an argument that I've heard. There will always be a small number of people that will sit back and let other people do the work for them and I think that that just perhaps something that you've got accept about society, I don't think we are creating people like that, I don't think we're adding to that problem particularly.”</i></p>	<p><i>“What you are doing is you are saving parents the hassle and you are deskilling them.”</i></p> <p><i>“I think there's the potential that we are deskilling some of our parents, that they think or I won't bother making breakfast if they are gonna get breakfast anyway school.”</i></p> <p><i>“It doesn't reduce parental responsibility. They don't all of a sudden decide well there's no breakfast being provided so I need to go out and buy cereal. It doesn't work like that in the populations we are talking about unfortunately so you just have to look at the child and what they need.”</i></p>
Perceived Impacts for The Community	Alleviates food insecurity and improves health and nutrition in deprived communities	<p><i>“It's really great for a town like Blackpool to be doing something like particularly you know with our child poverty rates, our poor diet and nutrition issues, obesity levels. All of those things, poor educational attainment, I think it hits all of those, everything and that's the great thing about the free school breakfast.”</i></p> <p><i>“There are areas of extreme deprivation and they are the ones that are obviously going to benefit the most children.”</i></p>	<p><i>“Falling into the category where we are in one of the least deprived areas within Blackpool at it is benefiting our children.”</i></p> <p><i>“If you're in the town centre and your children are coming from you know really quite deprived backgrounds where there is very very little money and it could be having a really positive impact.”</i></p>

Appendix E: (Continued) Examples Excerpts from for Themes and Sub-Theme for Study 1

Theme	Sub-theme	Local Authority and Public Health	Senior School Staff
<p>Perceived Impacts for The Community</p>	<p>Universal provision reduces stigma and inequality</p>	<p><i>“The fact that it's universal has been recognised, the fact that there is no stigma attached to it, there's no singling out and it doesn't matter about background, I think that's been really positive.”</i></p> <p><i>“We have a universal scheme and I think that's a great thing that all our kids get this. So there's no stigmatisation of the poor kids.”</i></p> <p><i>“The fact that provision is universal means that there is no stigma attached to eating when you come into school.”</i></p>	<p><i>“I do feel by giving on a universal across the board there's that no inequality and that's really important.”</i></p> <p><i>“If it was means tested we couldn't say to our children look you can have it but you can't, that wouldn't work, we would rather stop it, we would rather not.”</i></p> <p><i>“Whenever you do means testing, it always comes back to free school dinners and that's wrong because in Blackpool we have a lot of deprived children, who have working parents on minimum wage, who are seasonal workers, therefore don't work all year and yeah they don't qualify for pupil premium in anyway and that is the issue.”</i></p>
	<p>Targeted provision would direct funding at most 'needy'</p>	<p><i>“There has been an argument, a political argument I guess within the council around the opposition saying should it be means tested and that would reduce the cost. Again that would I think is more problems and stigmatise things.”</i></p> <p><i>“The problem is with means testing you spend, you end up spending more on the admin and, than simply rolling it out.”</i></p>	<p><i>“At the school like ours, we are different from a lot of the other centre of town Blackpool schools. There isn't necessarily a need for all of ours, we have got something like 8 of our 400 children who are pupil premium and that tends to be free school meals. So it's sort of a bit of a sledgehammer to crack a nut really for us and I think it needs to be more carefully targeted at those children who need it.”</i></p> <p><i>“I would say from some schools because obviously it's a universal so there are some schools that say we don't need this.”</i></p>

Appendix E: (Continued) Examples Excerpts from for Themes and Sub-Theme for Study 1

Theme	Sub-theme	Local Authority and Public Health	Senior School Staff
	<p>Contributes to overeating in less deprived communities and may increase obesity levels</p>	<p><i>“My view then is that has been obviously a bit of politics played with the times so we do have a couple of wards where they are probably more affluent and I guess they are linked to the opposition members. There has been times criticisms of been levelled at it. There was sort of initial fears and concerns raised about waste and also about double eating and also about sugar content.”</i></p> <p><i>“I suppose if they are getting an unhealthy breakfast at home in the more affluent families and then getting a healthy one at school it is still adding calories I guess. So we need to get the right message to parents that we will be providing breakfast for those kids.”</i></p>	<p><i>“Because of again kind of catchment we've got and because of the sorts of items that we are serving I think the majority of our children are having a breakfast at home because the parents aren't sure what they're going to get when they come into school, so they have a breakfast at home and then they come here and they have a snack at 9 o'clock which they don't really need.”</i></p> <p><i>“We haven't exactly got affluent families but money is not quite as tight as it is for some of the Blackpool families. It's just a case of children eating food that they don't really need. Like I said maybe we will get children actually becoming overweight now.”</i></p>

Appendix F: Coding Discrepancies and Resolutions for Study 1

Quote	Coder 1	Coder 2	Resolution
<i>“It’s public health that funds the bulk of the free school breakfast provision.”</i>	Theme 1 - Funding	Not coded	Coder 2: Agree with Coder 1, quote fits with Theme 1
<i>“It also helps educate parents about what is healthy eating.”</i>	Theme 4 – Benefits to parents	Not coded	Coder 2: Agree with Coder 1, quote fits with Theme 4
<i>“I think the other councils have offered it on a means tested basis and the problem is with means testing you spend, you end up spending more on the admin and, than simply rolling it out. Take-up is is very high, it's about hundred percent but it's very high which goes to show that it is appreciated by not just those at the bottom end of the income scale, it's taken up by those with slightly higher incomes, one has to say the average wage in Blackpool is fairly low here anyway so that's another issue. There aren't many families out there who are earning so much money that they'd be able to pass up the possibility of a free meal. So in that respect it's very heartening.”</i>	Theme 5 – Inequalities and deprivation/ universal vs targeted	Not coded	Coder 2: Agree with Coder 1, quote fits with Theme 5
<i>“Yeah, it's interesting this because and it's one of the things that you know is gradually working its way through and how it ends up I'm not quite sure because as you say there are areas of extreme deprivation and the are the ones that are obviously going to benefit the most children there and I personally have many many stories of children arriving at school having not eaten since the last free school dinner and if they have been sent with something to eat today it's entirely inappropriate stuff to eat and that happens loads and loads and loads of times but we do have some areas which are aren't quite as deprived.”</i>	Theme 5 – Inequalities and deprivation	Some coded at Theme 3	Coder 1: Agree with Coder 2, but quote also fits in with Theme 5 too. Coder 2: Agree quote also fits with Theme 5

Appendix F: (Continued) Coding Discrepancies and Resolutions for Study 1

Quote	Coder 1	Coder 2	Resolution
<i>“They were the ones that have a deal with the kids that were arriving malnourished and that's you know inevitable and often that was being individual teachers and individual welfare assistance and learning support assistants were actually paying for some kind of food out of their own money quietly.”</i>	Theme 3 – Alleviates hunger	Coded at Theme 5	Coder 1: Agree with Coder 2 but this part also fits in with Theme 3 Coder 2: Agree that part fits with Theme 5 and the impact of the scheme on the wider community
<i>“I know where the kitchen staff have completely taken that on board and have now started to offer a sort of off main curriculum lessons on how to cook and stuff like that to young kids and this is being done by the catering staff rather than the teaching staff but it's obviously supervised in a proper way et cetera so that's interesting.”</i>	Theme 3	Coded at Theme 2	Coder 1: Agree with Coder 2 that this fits in better here/
<i>“Perhaps are eating less junk serials and stuff like that.”</i>	Theme 4	Theme 3	Coder 1: Agree with Coder 2 that this quote should also be coded here.
<i>“Unfortunately there are families where that would appear to be the case and I am close enough to it not to say that that's not anecdotal evidence that's factual evidence you know and it's the same with that comment about teaching assistants and teachers taking in bags of food, it might be anecdotal for some offer me I have seen it happen and I've, my wife is done it so you know it's not anecdotal it's real.”</i>	Theme 5 – leading on from concerns about children during weekends and school holidays	Not coded	Coder 2: Agree with Coder 1, quote fits with Theme 5
<i>“No sorry I don't I mean there was some that brought off, dashed off letters to the local press seeing you know I don't need the council to feed my kids but apart from that you know I am not aware of anybody saying for instance that there was nuts in the cakes and therefore my kids will, I am not aware of any sort of issues like that you know problems with I didn't want my kids to eat that but you know the schools made them but I'm not aware of any issues like that at all.”</i>	Theme 4 - parents	Not coded	Coder 2: Agree with Coder 1, quote fits with Theme 4

Appendix F: (Continued) Coding Discrepancies and Resolutions for Study 1

Quote	Coder 1	Coder 2	Resolution
<i>“But it's not the solution to everything but it's part of an armoury as we try and improve lot of our children their resident in Blackpool.”</i>	Theme 3: Children	Not coded	Coder 2: Agree with Coder 1, quote fits with Theme 3
<i>“No I mean sort of the you know what is considered to be breakfast, healthy breakfast food is, we're quite good at spotting you know what's, new things emerge, it tends to be you know apples and pears and oranges and stuff and a bit of croissant or pastry or if something new comes in at has you know, if it's healthy then we will use it you know and that is sort of spotting something new comes along that remains healthy.”</i>	Theme 1: discussing future of the scheme	Not coded	Coder 2: Agree with Coder 1, quote fits with Theme 1
<i>“Then my school is right slap bang in the middle of downtown Blackpool and we you know are free school meals is about 60% so we benefit from it.”</i>	Theme 5: deprivation	Not coded	Coder 2: Agree with Coder 1, quote fits with Theme 5
<i>“It's added a bit more the sort of social side of the school day you know emotionally for some children it can be a bit daunting you know coming into minutes late whereas now they can be five minutes late and still be in school okay.”</i>	Theme 2 & 3	Theme 2	Coder 1: Also fits in with Theme 3 – benefits for children Coder 2: Agree with Coder 1, quote also fits with Theme 3
<i>“That's where you know, the negative side I would say from some schools because obviously it's a universal so there are some schools that say we don't need this you know I've known one, there is one school in Blackpool that sends the food home the night before, you know for them it don't think it's required.”</i>	Theme 5	Theme 1	Coder 1: Agree that it fits in better with Theme 1.

Appendix F: (Continued) Coding Discrepancies and Resolutions for Study 1

Quote	Coder 1	Coder 2	Resolution
<i>"I know one or two schools said oh there's lots of waste, well children graze don't they through the day and saw some of ours will have something a break time. We don't let them eat after break because then it goes into lunch. You know there is anything left on a Friday afternoon they'll eat it is there going out so it's not, we don't waste, we don't throw stuff away so in a sense that argument holds no water."</i>	Theme 1	Some coded at Theme 3	Coder 1: Agree with Coder 2, but also fits in with Theme 1 – implementation, waste. Coder 2: Agree with Coder 1, also fits with Theme 1
<i>"They don't have it, like there are some schools it's more of like ??? and they can just keep you know dipping in as they do and grazing during the day but yeah it has had an impact."</i>	Theme 3 - children overeating	Not coded	Coder 2: Agree with Coder 1
<i>"Yeah over time we sort of, they keep coming out with, they have raisins, little packs of raisins, which initially were great and I think the kids got fed up with them. Like I say we've got these little sreen slices, which they quite like, yoghurts or sort of little bottle yoghurts and water, you know we give water to them till it's coming out of their ears so you know it's just evolved and I think that's it they've got to keep finding new stuff because it's like..."</i>	Theme 1: Reinvention, future of scheme.	Not coded	Coder 2: Agree with Coder 1, quote fits with Theme 1
<i>"Initially they were quite interested and I think we had a meeting where the parents could see what the children are having and initially I think because, and this went out probably incorrectly, they had a little TV thing on and show the school having cereals and porridge, and I think they had a full English something, so we had to sort of say to them well you know this is what it is, it's not as much as you would expect."</i>	Theme 4: communications with parents	Not coded	Coder 2: Agree with Coder 1, quote fits with Theme 1
<i>"It helps for some with their attendance."</i>	Not coded	Theme 2: wider benefits-attendance	Coder 1: Agree with Coder 2

Appendix F: (Continued) Coding Discrepancies and Resolutions for Study 1

Quote	Coder 1	Coder 2	Resolution
<i>“Oh yeah yeah, they are like the social, the little guys coming at key stage I and they sit down and they have a little circle time, they all sit in a circle and eat what they eat for five minutes, and say to us oh you're all right you know come and join us you know when it is a very nice way to start the day.”</i>	Theme 3 – benefits to children	Not coded	Coder 2: Agree with Coder 1, fits with Theme 3

Appendix Gi: School Staff Invite Letter for Study 2

Dear Staff Member,

I am writing to invite you to participate in a research project being undertaken within your school, by researchers at Northumbria University. The research project aims to identify and examine the views of children, parents, and school staff towards Blackpool's Universal Free School Breakfast Programme, which is currently operating within your school. As a member of staff your views are extremely valuable to this research project.

Participating in this project will allow you to share your views on the school breakfast scheme and breakfast consumption in general, during a discussion with a researcher from Northumbria University.

You will be asked questions about your views and encouraged to speak about the aforementioned topics. All discussions will be recorded and transcribed for the research project, and all information will be stored securely in accordance with the Data Protection Act 1998.

Further details about the project are attached. Should you wish to participate in this project after you have read this information, please complete the consent forms provided and return them to [school contact]. Any help you can offer would be greatly appreciated. If you require any additional information or have any questions, please don't hesitate to contact me via email on louise.harvey-golding@northumbria.ac.uk.

Yours faithfully,

Louise Harvey-Golding
PhD Researcher Northumbria University

Appendix Gii: School Staff Research Information for Study 2

Project Title: Examining the impact of universal free school breakfast on the views of children, parents and school staff.

Lead Researcher: Louise Harvey-Golding [louise.harvey-golding@northumbria.ac.uk]

What is this project all about? Previous research has positively linked school breakfast programmes with health, educational and social benefits. Furthermore, it is considered that school breakfast offers financial and childcare benefits to parents. Research also suggests that positive attitudes towards eating breakfast might be linked to healthier life diets.

Researchers at Northumbria University are currently undertaking an evaluation into Blackpool's Universal Free School Breakfast Programme. As part of this evaluation we would like to find out the views of children, parents and school staff on of the school breakfast programme and breakfast consumption in general. You have been invited to take part in this project as you currently work within a school in which Blackpool's Free School Breakfast Programme is in operation, and therefore we are interested in your experience of the scheme and its impacts within the school, and on children, families and the wider community.

What will I be asked to do? If you would like to participate in this research you will be asked to take part in a discussion with one of our researchers, where you will be asked questions about Blackpool's breakfast programme and your experiences of the scheme within your school. You will also be asked for your views and opinions on breakfast consumption in general.

You will not be expected to answer any questions that you do not feel comfortable answering and if you are asked a question, which you do not want to answer, this is fine. In addition, if you arrive to take part but change your mind, you are free to leave the discussion at any time.

All discussions will be recorded and transcribed for research purposes. The findings from this research will be summarised to provide a general perspective of the views of key groups towards Blackpool's Universal Free School Breakfast Programme.

When will the discussions take place? An appropriate time will be organised with staff members who would like to take part in this research project. Your discussion with the researcher should take approximately 20-30 minutes, depending on how much you want to talk about these topics.

What will happen to the information I provide? The discussions will be recorded and transcribed afterwards. This information will be stored securely in accordance with the Data Protection Act 1998, and electronic information will be password protected. Your information will only be accessed by the researchers working on this project for the purpose of this project.

The research team has put into place a number of procedures to protect your confidentiality. You will be provided with a unique participant number that will be used to identify any information you provide. Your name or other personal details will be stored securely and kept separately from the information you provide during the discussions.

Will my answers remain confidential? Yes, your name will not appear on any of the data collected for this project. All participants will be identified according to a unique participant number only.

How will my information stored and used in the future? All information will be stored and destroyed in accordance with the Data Protection Act 1998. The information collected during the discussions will be summarised and will contribute to a PhD thesis, and may be used in future presentations and publications about the project but no personal information, such as names, will be disclosed.

Has this project received appropriate clearance? This project has been approved by the School of Health and Life Sciences Ethics Committee at Northumbria University and your head teacher has given consent for the project to take place on school premises. Louise Harvey- Golding is in possession of an up to date Disclosure and Barring Service (DBS) Enhanced Check that allows her to undertake research in schools.

How can I withdraw from the project? If for any reason you decide to withdraw your participation or your information from this project, please contact Louise Harvey-Golding on the email address provided, within one month of your taking part. After this date it might not be possible to withdraw your information because the results may have already been published. As all information is anonymised, your individual information will not be identifiable.

How can I find out more? For more information please contact Louise Harvey-Golding via email: louise.harvey-golding@northumbria.ac.uk

Appendix Giii: School Staff Consent Form for Study 2

Your Personal Details		
Title:	Surname:	Forenames:
Age:	Date of Birth:	Gender: (circle the correct answer) Male Female
Ethnicity: Please tick the ethnic background that best describes you:		
White: <input type="checkbox"/> English/Welsh/Scottish/Northern Irish/British <input type="checkbox"/> Irish <input type="checkbox"/> Gypsy or Irish traveler	Asian/ Asian British: <input type="checkbox"/> Indian <input type="checkbox"/> Pakistani <input type="checkbox"/> Bangladeshi <input type="checkbox"/> Chinese	
Mixed / multiple ethnic groups: <input type="checkbox"/> White and Black Caribbean <input type="checkbox"/> White and Black African <input type="checkbox"/> White and Asian	Black / African / Caribbean / Black British: <input type="checkbox"/> African <input type="checkbox"/> Caribbean	
<input type="checkbox"/> Any other background: (please write)		
Please confirm that you agree with the following sentences by ticking the boxes next to each sentence:		
I have read and fully understood all the information provided about the project.		
I understand that if I would like further information about the project I should contact Louise Harvey-Golding.		
I understand that I am free to withdraw my participation from the project at any time, without having to give a reason and without prejudice.		
I understand that my voice will be recorded during the interview and used in the research.		
I understand that information collected from the recordings might be used in presentations and publications, but the actual recordings will be stored securely and will only be accessed by the research team.		
I give my consent to participate in this research project.		

Appendix Giv: Parent Invite Letter for Study 2

Dear Parent/ Carer,

I am writing to let you know about a research project taking place at your child's school, which examines the views of children, parents and school staff towards Blackpool's Universal Free School Breakfast, and breakfast consumption in general. We would like to invite you and your child to take part in a discussion about these issues at your child's school. Your child does not need to be attending the free school breakfast club for you both to be able to take part in the research because we are interested in everyone's views. Taking part in this project would involve you coming into your child's school on the date above to take part in a 20 – 30 minute discussion with a researcher from Northumbria University. Your child's discussion would take place separately during school time on the same date.

Before you decide, please take the time to read the information sheet attached which provides full details of the research. If after reading this information you and/ or your child would like to take part, please complete the reply slips below and return them to your child's teacher as soon as possible.

We request two forms of consent from you, one for your participation and one to allow your child to participate. If you would like to take part but would prefer your child did not, or if your child wants to take part but you do not, that is fine, just fill in the appropriate consent form.

If you have any questions or require further information please tell your child's teacher or contact Louise Harvey-Golding via email at louise.harvey-golding@northumbria.ac.uk. Thank you for taking the time to consider this information, any help you can offer with this project would be greatly appreciated.

Yours faithfully,

Louise Harvey-Golding, PhD Researcher, Northumbria University

Appendix Gv: Parent Research Information for Study 2

Researcher: Louise Harvey-Golding, PhD Researcher, Northumbria University
Contact Details: louise.harvey-golding@northumbria.ac.uk

What is the purpose of the project? Previous research has positively linked school breakfast programmes with health, educational and social benefits. It is considered that school breakfast offers financial and childcare benefits to parents. Research also suggests that positive attitudes towards eating breakfast might be linked to healthier life diets. Researchers at Northumbria University are currently carrying out an evaluation into Blackpool's Universal Free School Breakfast Programme. As part of this evaluation we would like to find out about yours' and your child's views about the school breakfast scheme and breakfast consumption in general. Your child does not need to be attending school breakfast club for you both to take part. We will also be speaking to other children, parents/ carers and school staff.

Why have my child and I been selected to take part? Children from different year groups within your child's school have been selected to take part, along with their parents/ carers, in order to gain views about the free school breakfast scheme from a range of children and parents/ carers at your child's school.

What will I have to do? If you would like to take part in this research you will be asked to come to your child's school to take part in a discussion with one of our researchers. We will make every effort to arrange the discussion at a time convenient to you and the school. Discussions should take approximately 20- 30 minutes, depending on how much you want to speak about these issues. During the discussion you will be asked questions about your views on Blackpool's Universal Free School Breakfast Programme and your experiences of the scheme as a parent/ carer. You will also be asked for your views on breakfast consumption in general. You will not be expected to answer any questions that you do not feel comfortable answering and if you are asked a question, which you do not want to answer, this is fine. In addition, if you arrive to take part but change your mind, you are free to leave the discussion at any time.

What will my child have to do? If your child would like to take part in a discussion, they will be asked to talk to a researcher at a time appropriate to them and the school, with minimal impact on their learning. During the discussions your child will be asked questions about their views and opinions towards the school breakfast programme and breakfast consumption in general. The children will be encouraged to discuss the things that they like, and the things they would change. Your child will not be expected to answer anything that they don't want to answer and will be free to leave the group and go back to their class if they change their mind about joining in. The discussions should take approximately 20-30 minutes, depending on how much your child wants to talk about the topics.

What will happen to the information my child and I provide? The discussions will be recorded and transcribed afterwards. The information collected during the discussions will be summarised and will contribute to a PhD thesis. It may also be used in publications and presentations, but your identity will always remain confidential. Please be assured this information will be stored securely and electronic information will be password protected. Your information will only be accessed by the researchers working on this project for the purpose of this project. The research team has put into place a number of procedures to protect your confidentiality. You and your child will be provided with a unique participant numbers that will be used to identify any information you provide. Your names or other personal details will be stored securely and kept separate from the information you provide during the discussions.

Will our answers remain confidential? Yes, neither yours nor your child's name will appear on any of the data collected for this project. All participants will be identified according to a unique participant number only.

How will our information stored and used in the future? All information will be stored and destroyed in accordance with the Data Protection Act 1998. The information may be used in future presentations and publications about the project but no personal information, such as names, will be disclosed.

Will my child be rewarded for taking part? All children who take part will be given a sticker and a small token, such as a pen or pencil, as a thank you for their help with the project.

Has this project received appropriate ethical clearance? This project has been approved by the School of Health and Life Sciences Ethics Committee at Northumbria University and your child's head teacher has given consent for the project to take place on school premises. The lead researcher, Louise Harvey-Golding, who will be carrying out the interviews, is in possession of an up to date Barring and Disclosure Enhanced Check that allows her to work with children and undertake research in schools.

How can I withdraw from the project? If for any reason you decide to withdraw yours or your child's participation or information from this project, please contact Louise Harvey-Golding on the email address provided, within one month of your taking part. After this date it might not be possible to withdraw individual information because the results may have already been published. As all information is anonymised, your individual information will not be identifiable.

How can I find out more? For more information please contact Louise Harvey-Golding via email: louise.harvey-golding@northumbria.ac.uk or leave your name and contact number at your child's school office and you will be contacted to allow you to ask any questions. Alternatively, you can contact Lynn Donkin at lynn.donkin@blackpool.gov.uk.

What do I do if I decide I want to take part/ want my child to take part? Please find attached two consent forms. The first form is for you to provide consent for your child to take part in this project and the second form is for you to provide consent for you to take part. If both you and your child want to take part, please complete both forms. If only one of you want to take part please complete the correct form. All the information you provide in these forms will be stored securely and your personal details will remain confidential.

What happens next if my child and/ or I decide to take part? Please complete the attached form with your contact details and best days and times to contact you and we will contact you to arrange a discussion. Whilst we will make every effort to arrange a suitable day and time for your discussion, the interviews will take place on school premises during school opening hours. We will arrange your child's discussion via their school with minimal disruption on their learning.

Appendix Gvi: Parent Consent for Study 2

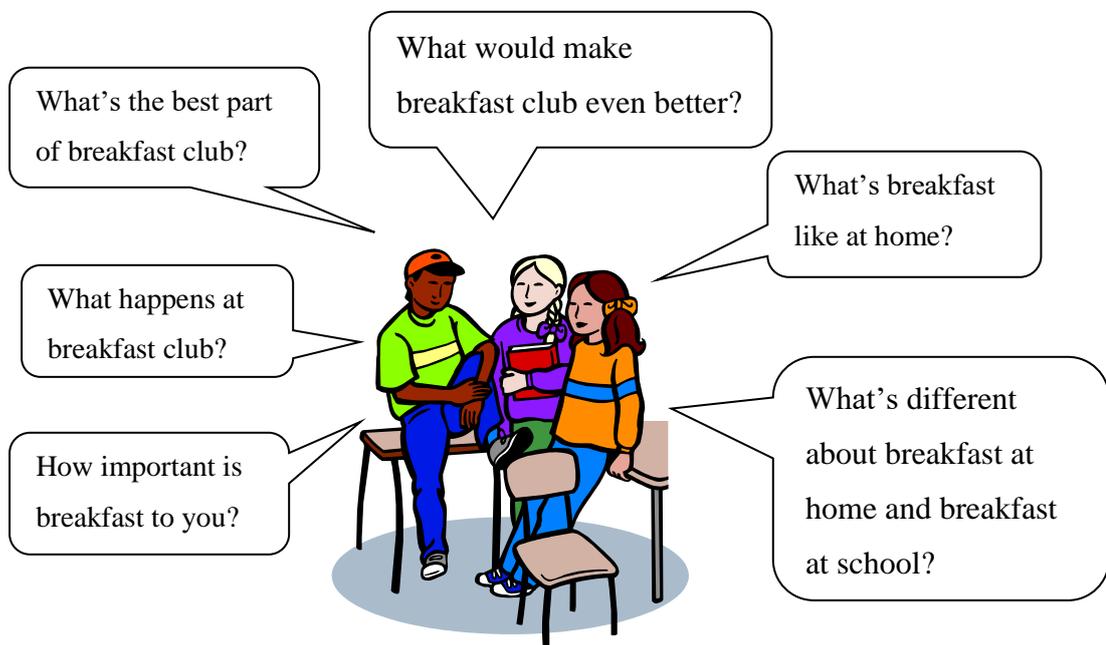
<u>YOUR</u> Personal Details		
Title: E.g. Mrs, Mr, Ms etc.	Surname: Please write <u>YOUR</u> last name:	Forenames: Please write <u>YOUR</u> first name:
Age:	Date of Birth:	Gender: (circle the correct answer) Male Female
Ethnicity: Please tick the ethnic background that best describes <u>you</u>:		
White: <input type="checkbox"/> English/Welsh/Scottish/Northern Irish/British <input type="checkbox"/> Irish <input type="checkbox"/> Gypsy or Irish traveller		Asian/ Asian British: <input type="checkbox"/> Indian <input type="checkbox"/> Pakistani <input type="checkbox"/> Bangladeshi <input type="checkbox"/> Chinese
Black / African / Caribbean / Black British <input type="checkbox"/> African <input type="checkbox"/> Caribbean		Mixed / multiple ethnic groups: <input type="checkbox"/> White and Black Caribbean <input type="checkbox"/> White and Black African <input type="checkbox"/> White and Asian
<input type="checkbox"/> Any other background: (please write)		
Please confirm that you agree with the following sentences by ticking the boxes next to each sentence:		
I have read and fully understood all the information provided about the project.		
I understand that if I would like further information about the project I should contact Louise Harvey-Golding.		
I understand that I am free to withdraw my participation from the project at any time, without having to give a reason and without prejudice.		
I understand that my voice will be recorded during the interview and used in the research.		
I understand that information collected from the recordings might be used in presentations and publications, but the actual recordings will be stored securely and will only be accessed by the research team.		
I give my consent to take part in this research project		

Appendix Gvii: Child Invite, Research Information and Consent for Study 2

I would really like to find out about what children and young people think about their school breakfast clubs and eating breakfast in general.



If you would like to help me with this, you will be invited to come along and talk about your school breakfast club with a researcher. We will talk about things like...



To make sure I remember everything that you say, everyone will be recorded. I will listen to these recordings and write down everything that was said during the discussion. This is nothing to worry about though, only the people working on this project will get to listen to the recordings, and your name will be removed so no one will ever know the bits you said.

Also, if you come along to a discussion but then you change your mind, you can leave at any time because it's up to you whether you join in or not. If you're asked a question you don't want to answer that is fine. You don't have to talk about anything you're not comfortable talking about.

Would you like to come along and talk about breakfast club and other things to do with breakfast with other people from your school?

Yes

No

If you circled yes, does this mean that you are happy to have your voice recorded while you talk about breakfast club with other people from your school?

Yes

No

My first name is...

My last name is...

I am years old

I am a boy/ girl

My school is called..... I am in Year.....

Tick the box which you think best describes your ethnic background:	
White: <input type="checkbox"/> English/Welsh/Scottish/ Northern Irish/British <input type="checkbox"/> Irish <input type="checkbox"/> Gypsy or Irish traveller	Asian/ Asian British: <input type="checkbox"/> Indian <input type="checkbox"/> Pakistani <input type="checkbox"/> Bangladeshi <input type="checkbox"/> Chinese
Black / African / Caribbean / Black British <input type="checkbox"/> African <input type="checkbox"/> Caribbean	Mixed / multiple ethnic groups: <input type="checkbox"/> White and Black Caribbean <input type="checkbox"/> White and Black African <input type="checkbox"/> White and Asian
<input type="checkbox"/> Any other background (please write here)	

Appendix Hi: School Staff Interview Schedule for Study 2

1. What are your views on Blackpool's Universal Free School Breakfast Programme?
2. What are your views on the breakfast scheme at your school?
3. What do you think the scheme offers to parents?
4. What do you think it offers to children?
5. What do you think the scheme offers to families and the wider community?
6. What do you think the scheme offers to the school?
7. How do you think the scheme has impacted on children/ families/ school/ community?
8. What changes would you make, if any, to the breakfast programme within both your school and the programme as a whole?
9. Have there been any problems during the delivery of the breakfast scheme within your school?
10. What are your views on skipping breakfast?
11. Why do you think children might skip breakfast?
12. Do you think eating breakfast is important? [yes/ no] Why?
13. Do you think children eating breakfast at home or school is most important?
14. Do you think eating breakfast with the family is important? [yes/ no] Why?
15. What type of foods do you think should be eaten at breakfast time and why?
16. Do you think that the school breakfast programme is a positive thing for the community/ families? [yes/ no] Why?
17. Is there anything else that you would like to add?

Appendix Hii: Parent Interview Schedule for Study 2

Interview Questions:

1. What are your views on Blackpool's Universal Free School Breakfast Scheme?
2. What are your views on the breakfast scheme at your child's school?
3. What do you think the scheme offers to parents?
4. What do you think it offers to children?
5. What do you think the scheme offers to families and the wider community?
6. What changes would you make, if any, to the breakfast programme within both your child's school and the programme as a whole?
7. Do you think that the school breakfast programme is a positive thing for the community? [yes/ no] Why?
8. What are your views on skipping breakfast?
9. Do you ever skip breakfast? (probe answers)
10. Why do you think children might skip breakfast?
11. Do you think eating breakfast is important?
12. Do you think eating breakfast at home or school is most important?
13. What do your family do for breakfast at weekends/ during school holidays?
14. Do you think eating breakfast with the family is important? [yes/ no] Why?
15. Do you think that the people close to you, for example your family, think eating breakfast is important?
16. Did you eat breakfast this morning? (probe answer: e.g. what did you have? where?)
17. What type of foods do you think should be eaten at breakfast time and why?
18. Do you eat breakfast every day?
19. Do you intend to eat breakfast every day this week?
20. Is it easy for you to eat breakfast every day?
21. What do you do for breakfast at weekends and school holidays?
22. Is there anything else that you would like to add?

Appendix Hii: Children Interview Schedule for Study 2

1. What do you think about the free school breakfast at your school?
2. What do you think about free school breakfast being offered to all primary schools in Blackpool?
3. What do you like about the breakfast club at your school?
4. What do you dislike about the breakfast club at your school?
5. Do you think it helps out your parents/ carers in anyway?
6. What do you think it offers to children, like you and your friends at school?
7. What difference does the free school breakfast make to your school?
8. What changes would you make, if any, to your free school breakfast club?
9. Have there been any problems with the school breakfast club at your school?
10. What do you think about skipping breakfast?
11. Why do you think children might skip breakfast?
12. Do you think eating breakfast is important? [yes/ no] Why?
13. Do you think it's more important eating breakfast at home or school is more important? [yes/ no] Why?
14. Do you think eating breakfast with the family is important? [yes/ no] Why?
15. Do you think that people who are important to you, for example your family, think that YOU should eat breakfast every day? Why?
16. What about your friends; do you think that they think you should eat breakfast every day?
17. What type of foods do you think should be eaten at breakfast time?
18. Where did you eat your breakfast this morning?
19. What did you eat for your breakfast this morning?
20. Do you eat breakfast every day?
21. Is it easy for you to eat breakfast every day? (probe answers)
22. Will you eat a breakfast every day next week?
23. What do you do for breakfast at weekends/ holidays?
24. Is there anything else that you would like to add?

Appendix Ii: School Staff Debrief for Study 2

Participant Number:

Dear Staff Member,

I would like to take this opportunity to thank you for taking part in the research project undertaken by researchers from Northumbria University at your school. Your contribution was vital in helping us to understand staff views about Blackpool's Universal Free School Breakfast Programme, and its impact at your school, and issues concerned with breakfast consumption in general. This project was part of an evaluation into Blackpool's Universal Free School Breakfast Programme. The aim of this project was to gain an overarching picture of the views of those at the centre of this scheme. We wanted to identify perspectives at an individual, school, family and community level, and therefore, your perspective as a member of school staff was extremely valuable.

On completion of the project, your school will receive a summary of the research findings. You can also receive a summary of the research findings by completing the slip at the end of this letter or emailing Louise Harvey-Golding on the email provided and requesting a copy of the research summary, your name, role within the school and reply email or address. You will receive a summary of the results on completion of the project.

All the information we collected during our discussion will be stored in accordance with the Data Protection Act 1998 and will only be used for the purpose of this project. The findings of the research will be included in a PhD thesis and may be included in publications and presentations. Please rest assured, your name and personal information will remain confidential. If for any reason you would like to withdraw your contribution to this project, please contact Louise Harvey-Golding via email louise.harvey-golding@northumbria.ac.uk, within one month of taking part. After this date, it may not be possible to withdraw your individual information as the results may already have been published.

Finally, if you have any concerns or complaints about the way in which this research has been conducted you can contact the Chair of the School Ethics Committee, Dr. Nick Neave via email nick.neave@northumbria.ac.uk. Many thanks again for your help with this project.

Yours faithfully,

Louise Harvey-Golding
PhD Researcher, Northumbria University

.....

If you would like to receive a summary of the research findings, please complete the reply slip below and return it to your child's teacher as soon as possible.

Name:.....

Appendix Iii: Debrief for Parents for Study 1

Participant Number:

Dear Parent/ Carer,

I would like to take this opportunity to thank you for taking part in a research project that was recently conducted at your child's school.

The purpose of the research was to identify the views of children, parents and school staff towards Blackpool's Universal Free School Breakfast Programme, and breakfast consumption in general, in order to gain an overarching perspective of the views of children, parents and school staff in Blackpool. This research was part of a larger evaluation into the free school breakfast scheme for primary children in Blackpool. As a parent/ carer to a child at a primary school in Blackpool, your contribution to this project is very much appreciated.

The results from this research will be summarised and sent to your child's school. You can request a copy of the summary of research results, should you wish, by completing the slip at the end of this letter and returning it to your child's teacher. You will receive a summary of the research findings upon completion of the project.

All the information we collected during our discussion will be stored in accordance with the Data Protection Act 1998 and will only be used for the purpose of this project. The findings of the research will be included in a PhD thesis and may be included in publications and presentations. Please rest assured, your name and personal information will remain confidential.

Should you wish to withdraw yours or your child's information from this project you can do so by emailing louise.harvey-golding@northumbria.ac.uk, within one month of taking part. After this date, it may not be possible to withdraw your individual information as the results may already have been published. If you have any concerns or complaints about the way in which this research has been conducted you can contact the Chair of the School Ethics Committee, Dr. Nick Neave via email: nick.neave@northumbria.ac.uk.

Thank you again for taking part in the research, your contribution was greatly appreciated.

Yours faithfully,

Louise Harvey-Golding
PhD Researcher at Northumbria University

.....

If you would like to receive a summary of the research findings, please complete the reply slip below and return it to your child's teacher as soon as possible.

Name:.....

Appendix Iiii: Debrief for Children for Study 1



Lots of primary schools in Blackpool have school breakfast clubs like the one at your school. The chat we had helped me to learn about children's views on school breakfast and eating breakfast. All the things you shared during the discussion are really important to us. I will tell people what

children at your school and other schools in Blackpool said about school breakfast clubs and eating breakfast.



I recorded our voices during the discussion and afterwards I listened to the recordings and wrote it all down. I made sure that I didn't write your name next to what you said, so no one will know it's you. I also locked away the recordings so only our team can listen to them.



When I've finished finding out about primary school breakfast in Blackpool I will let you and your school know all the things I have found out. I will be using the things you told me for my university work and in the future I will be publishing my work and talking about it to lots of people. I will never put your name on any of this information, so no one will ever know the bits you added during the group chat.

Don't forget, if you have any questions about the project you can ask your school and they will pass the question on to me. I will be sending a summary of all the things I found out to your school by [date].



Thanks for all your help with this important project. You did a great job!

Appendix Ji: Example of Interview Transcript for School Staff

Interviewer: *What are your views on Blackpool rolling out this free universal breakfast scheme to all children?*

Participant: *I think it's a really good thing. I do think it's going to benefit, a lot of them have needs that, it's nice for them to come to school and do a lot of it, from my point of view, it's their social interaction that they're getting when they're sat here having breakfast with their friends and I do think, and it's been taken up, a lot of them are doing it and it does show that they're coming to it.*

Interviewer: *So what do you think about it being available free to all children?*

Participant: *I think it's good. I know some of them will have breakfast at home but I think it's good that the options there so if a parent does feel like they can't cope or maybe financial they can't provide it that week, then it is an option for everyone, so it's not just closed to the people that can use it, it's open if you do need it in the future cause your situation might change. I think it's good that it's open to all.*

Interviewer: *What do you think about targeting, you know maybe parents who can't afford it?*

Participant: *Yeah. Yeah I think it could be targeted to the ones that need it more. I don't know whether they'd take it necessarily. I think it should be their choice, but I don't, they might do, they might take it but yeah.*

Interviewer: *Do you think they would be any disadvantages of that?*

Participant: *Erm, I don't think so, no.*

Interviewer: *Right ok, so do you think if you didn't offer it to all parents and you just offered it to a group of parents, do you think there would be any disadvantages to that at all?*

Participant: *No, I think it should be open to all, yeah, yeah maybe targeting the groups that need it more, the families who you know aren't having breakfast and the children who might need it, who can't concentrate in class, things like that. Targeting it out but again open to all because of your situation might change so. It's nice for it to be open to you, if someone said it's not open to you, you might have a bit of a panic that things might change in the future. You could lose your job, you could lose anything so.*

Interviewer: *Yeah that's a really interesting point. What are your views at the breakfast scheme at your school then? At this school?*

Participant: *I think it's working well. I think it's a really good thing to do, the ones who, last year I had a lot who came from breakfast club, obviously this year it's just getting up and running with the new children I've got but I think it was a really good thing to do. They come down from breakfast club and they're fresh and they're ready. They're on time, they're ready to learn, they've had their drinks, they've had their breakfast and they are, they tend to be the ones who can then sit and listen to you while you're doing your phonics, while you're doing the register, cause they've not been rushed in so I think it makes a difference.*

Interviewer: *What difference have you noticed in your classroom then, so if you think back to before the breakfast scheme and now, what difference has it made in your classroom?*

Participant: *I think it's given better attention in the morning, first thing, when we're doing that first initial carpet session and we're going into phonics, I think the attention has been better. Whether or not it's down to that, but I would like to think so because of the amount*

that have been coming through our breakfast club, they're in on time, so I think it has made a difference.

Interviewer: I know it was a while back because it's been almost two years now but have you got any experiences that you could share where you've noticed an impact on learning?

Participant: I wasn't actually teaching then, I wasn't here. But erm no when I started the breakfast started. I've seen the impact coming through and I think it's good. You do notice the difference between the ones who are brought in in the morning and those who come from our breakfast club. They come in 5 minutes earlier from our breakfast club before we open the doors for the other ones but their attentions a lot better.

Interviewer: Right, so that's where you notice the difference then between those are coming in on the school start time and those who are having their breakfast?

Participant: Definitely, yeah.

Interviewer: Do you think that's solely down to them having something to eat in school and the food that's provided or do you think that it's the environment, coming in a little bit earlier?

Participant: I think it's a mixture, it's the fact that someone's got up and brought them in, they've sat with their friends, they've already had a bit of interaction with their friends, they've already got used to the fact that they're in school, they've not just rushed in. They've been here a while and then they've had their breakfast, obviously that obviously helps, and then they've come down. It's a mixture of being here and having the breakfast that they need.

Interviewer: Do you think in that respect that it impacts on attendance and punctuality?

Participant: I would've though so yeah. Yeah I think a lot of them have been, with this new reception group, and I've been saying you can bring them for breakfast from quarter past 8, and they've been saying, 'aw right we weren't aware of that', so I've been telling them and then I've had a few more coming through this morning and once they're aware I think yeah definitely.

Interviewer: Brilliant. What do you it actually offers to parents?

Participant: Well obviously it's the help. It's a bit of relief for if you've got a lot of children, bringing them to breakfast club, knowing that they've had something to eat if you can't necessarily afford to feed them all. Bringing them, knowing they've had something good and then knowing they're in a safe place and they're reading to into class. I think as well them not being rushed in the morning. I know it can be quite a rush in the morning when you've got lots of children so to bring them in and know that they're here and they're ready.

Interviewer: So what about different types of families so maybe if we thought about like a working family, single parents families, non-working families? What kind of different things do you think it offers to different families?

Participant: I think it's good for all, cause everyone's situation's different, but obviously your breakfast clubs offering what they need at that time. If you're working, you're able to bring them without rushing them because you're ready to go to work, you're being them and having a bit more of a calmer start to the morning. Cause I know when I'm getting ready for work it's very, and you don't really want to pass that onto your children so instead you're just saying we're going to go for our breakfast now and that's from a working point of view. Erm lots of children again, bringing them in, making them feel a bit settled, they're sitting together, they might not necessarily be sitting together at home to have their breakfast and I

do get a lot that come walking in with their breakfast so it's that thing of sitting down I do think.

Interviewer: *The social aspect?*

Participant: *Yeah.*

Interviewer: *So what about non-working families, what do you think the breakfast scheme offers to non-working families?*

Participant: *I think it's a bit of a financial help really, I think it's a benefit that they can bring them in and know that they've had something good to eat rather than worry that they haven't provided them with something and what the day's going to start like. It's a bit of a brighter note, start to the day isn't it?*

Interviewer: *Yeah. What do you think it offers to the children?*

Participant: *I think it's lovely. I think it's the best start for the day. They're getting their variety of the breakfast they need. They're getting the choice as well cause a lot of them are quite picky eaters so they are getting a choice rather than someone saying I've got toast and that's what you're having. We've got the choice if they want something different and the social, I just agree with them sitting down and just talking and having someone there, having the TAs who work in the dinner hall, coming and being with them and saying, 'oh are you looking forward to your day?' and a bit of conversation really. I think that's the main thing rather than it being eat your breakfast as you're walking, sat down and they're happy so...*

Interviewer: *So do you think the social aspect is very important then?*

Participant: *I do yeah. When they come to the breakfast club, but ideally it should be at home, that social interaction with their parents but if it can't be then we're offering something different aren't we so that they're definitely getting that and they're sitting down, they're having their interactions but ideally I would've said at home but it's offering it.*

Interviewer: *So do you think it would be beneficial to offer some kind of activity or would you prefer them just to be sitting and talking and enjoying that time together?*

Participant: *Erm, it could possibly work, I don't see why it wouldn't cause they enjoy coming in, they know that they're coming in for their breakfast club so I think whatever you offered them, they'd enjoy because they just like being here, and a lot of them that come in you never really have any problems with them, they want to be here so...*

Interviewer: *What type of activities would you think would be good during the breakfast period?*

Participant: *Oh gosh...I'm not sure.*

Interviewer: *It's fine.*

Participant: *No it's one of those things that you'd have to see, try something and then see how well it worked. It could possibly, the breakfast club's worked well so I'd say whatever you brought into it it's worth a try.*

Interviewer: *What do you think the breakfast scheme offers to the community that this school serves?*

Participant: *Erm...They come in all at different times to the breakfast club, erm I'm not sure.*

Interviewer: *That's totally fine you don't have to answer every question. Are there any changes that you would particularly make to the breakfast scheme at your school?*

Participant: *Erm, I don't think so, no I think it works well, I do think it works well as it is, they get their choice they want, they gets things offered, they get their water, they get their cereal. No I think there's a good choice and I think that the staff being there as well to help them and it changes faces occasionally, sometimes the reception TAs they come up and they swap around a bit, so they get a bit of a different face. No I think it works quite well.*

Interviewer: *Ok, brilliant. Do you know, have you encountered any problems?*

Participant: *With the breakfast club?*

Interviewer: *Yeah.*

Participant: *Erm, I don't think I have, no, I don't come up here to do it but obviously the children get brought down to me, I don't think I've ever heard of any problems with it.*

Interviewer: *In some schools they do it in the classroom at the start of the formal school day so do you, what would you preference be?*

Participant: *Erm I quite like them coming up here for it because they know that this is where they have their dinner so this is, they're sitting down the same way as they come when they come for their dinner so I think the classroom is more of a learning environment, but again they have their snack in the classroom in the day time but they still have a table where they know to sit. So I think keeping that routine of knowing that this is where they come for their breakfast, then this is where they come for their dinner. Like they would at home ideally. If they had a table they could go for their breakfast and go for their dinner, so yeah.*

Interviewer: *Ok. I'm going to focus now on breakfast consumption rather than the breakfast scheme. So what are your views on skipping breakfast?*

Participant: *I don't think it should be skipped. I know how I struggle when I've missed my breakfast when I'm in a hurry and you've just got no energy, nothing, you need something to get your day started and take you to dinner time really and if you haven't had that your attention's just not there. You can tell the ones who come in and tell me that they haven't had breakfast. We get them something. We get them their milk and the fruit because their attention's just not there.*

Interviewer: *Right. Why do you think children might skip breakfast?*

Participant: *I think a lot of the time round here it's the rush, getting everyone ready, quite a fraught morning I think of getting everyone ready for school and then maybe just sent out the door and again a lot of them do come in eating their breakfast still, eating an apple, drinking a fizzy drink and so I'm taking it off them and saying come and sit down with your milk but yeah it's generally a rush I think. Parents trying rush around and again maybe not having the money to give them breakfast so they haven't got the choice of giving them their breakfast.*

Interviewer: *Erm do you think eating breakfast at home or at school is more important?*

Participant: *I'd say at home is more important, but if it's not happening I'd say it's good for them to have the choice of having it at school. Obviously it would be better at home to sit having conversations with maybe your siblings and your mum and dad but if that's not possible then that's not the situation they're in then to bring them somewhere I think it's best for them rather than having nothing so...*

Interviewer: *So in an ideal world?*

Participant: *Ideal world it would be at home, but if that's not the option or if they struggle then I agree that it should be somewhere else rather than just as they're walking.*

Interviewer: *Why do you think then eating breakfast with the family is particularly important?*

Participant: *I think it's a nice start to your day. It's always what I done before I moved out of my house with my mum, and it's just a nice start to your day. You get to know what everyone's doing. It's a bit of a calmer start and quite a positive thing I think to just sit down rather than just to feel a bit rushed. Just have a bit of communication before you come to school, and that positive is really important we'll find when they come into reception if they've not had a positive interaction with their parent before they leave then that can really ruin their day so to just have a positive morning.*

Interviewer: *What types of food do you personally think should be eaten at breakfast time?*

Participant: *Erm cereals, erm milk and I do think quite a variety of fruit. A lot of them haven't really tried many fruits so we do a lot of activities in reception with trying different fruits because they're not aware of what they are, but once they've tried them they love them so I think to have a variety for them to choose from cause again sometimes they might not eat breakfast cause they don't want what you've got in, children can be very picky so I think to have a variety for them to choose from, definitely fresh fruits and cereals and toast.*

Interviewer: *So do you, you provide fruit and milk is it, mid-morning?*

Participant: *Yeah we have a snack in the classrooms. They all have 1 milk and 1 piece of fruit in the classroom so then if they've come in straight from their parents we know that they are getting something mid-morning. At the moment if they have it all together and then they move on to a self-choice, when you feel like you need you snack, you go and get it. So that they know, just those two weeks we do it sat down so that they get used to what we do, and then obviously we move on to when you want it, as long as you have it before your dinner then we have it so yeah. It is nice yeah, so then at least you know that they've all had something cause the ones that you don't manage to get through breakfast club you know that they've had something with you so yeah.*

Interviewer: *Brilliant. Is there anything else I haven't covered that you would like to add?*

Participant: *Erm I don't think so no.*

Appendix Jii: Example of Interview Transcript for Parents

Interviewer: Blackpool decided to provide all primary school children a free school breakfast,. So what are your views on that?

Participant: I think it's cause it's such a deprived area, that's why they've done it, either children aren't get fed at all or they're getting fed the wrong things and maybe it gives children a chance to get into school on time. Cause they come early for breakfast club they're actually in school already. Parents [inaudible] turn up late for school, don't know whether that's an issue but that's my thoughts on it.

Interviewer: So in that respect do you think that the provision should be targeted where just certain groups of people get it?

Participant: No I think it should be universal. Cause I don't think it's fair it should be targeted, because then children of higher class families are compared to families on benefit who attend the same school, they're getting penalised and they can't then mix with their friends and then they get even more ostracised in school and I don't think that's fair.

Interviewer: Ok. What are your views on the breakfast scheme here?

Participant: I think it's brilliant, absolutely brilliant. Erm cause I sent my older boy to the paid breakfast club anyway, more of a social event than actual eating his breakfast cause he's not a big eater anyway, but I think it's absolutely brilliant cause it's got a good variety of foods and they get their fruit as well and my children are good with fruit but maybe some children aren't. Erm and it just gets them in school, they get them in the school way of thinking before class because I'm sure children take about half an hour to settle in anyway but they've already settled in and their breakfast club. So they're already in a school mind.

Interviewer: Brilliant. What do you think the scheme offers to parents then?

Participant: If you have to go to work and say you have to be in work at 9 o'clock if gives you a chance to drop your child off and actually not have to rush mad to get to work at 9 o'clock cause I use it sometimes if I've got to go places early or I use the actual paid breakfast club cause that opens at quarter to 8 but it just gives you that chance you know to get somewhere like work or university or whatever on time so you're not late so it's not as much of a rush.

Interviewer: So it provides a little bit of childcare as well as the breakfast doesn't it?

Participant: It does yeah and you know you children are safe there.

Interviewer: Yeah so what about non-working families, what do you think it provides to them?

Participant: Erm maybe if they can't afford to feed their children, you don't know their situation, it might not because they don't know so maybe they can't afford good food of a morning. You don't know the circumstances. Everyone's different. So they know then the child's going to get a good breakfast. If they care.

Interviewer: What do you think the scheme offers to children?

Participant: Erm a chance to mix with their friends, it's like a play time before school and it also starts with their table manners as well, cause they all have to sit properly because XXXX who's normally there, I've witnessed her, they do like a 3 clapping hand thing in this school and they all go quiet and it's really good. They were quite loud this morning and she did that and they stopped. The whole room stopped. So it just reinforces what the school's

teaching and I think at meals times when they're all they don't know what the numbers, you can have a lot of children there and it's difficult to control, but when they know it's getting backed up by the dinner ladies, they know what happens in school, it just helps reinforce the rules at school.

Interviewer: Yeah, brilliant. Do you think it has any impact on learning then?

Participant: Yeah cause I think of you go to school and you've had, you've not eaten anything you start getting hungry about 10 o'clock and you might [inaudible] as an adult, so as a child you haven't got no hope really, so if you've had something to eat it keeps you going till break-time or whatever then you can have fruit or whatever else they offer and then dinner time. It just helps with their concentration a bit.

Interviewer: Yeah, good, ok. Do you think the scheme provides anything to this small community then?

Participant: Erm I don't know really, I haven't really thought about that. Erm I don't know.

Interviewer: Ok, that's fine. Would you make any changes to the breakfast scheme as a whole in Blackpool?

Participant: Erm no I don't think I would cause obviously I don't know the dynamics of it but from what I can see as a parent it offers a wide range, it's here from half 8. I think if it was open any earlier people would use it just to dump the children. Cause I think some parents actually do that anyway, just use it for free childcare. Erm so I think if it was opened any earlier it would, people would abuse it and then maybe children would eat more and it would cost more. But I think the variety they offer and the facilities that it's in, I think it is quite good. So what I know of it, no I wouldn't change anything, no.

Interviewer: Erm do you think the school breakfast programme's a positive thing?

Participant: Yes I do very positive for all the previous things I've said.

Interviewer: Ok, is there a key reason why you think that?

Participant: Erm because it's free, because families, like I would struggle to put children in the other breakfast club although I would do it, some families can't do that, I'm quite good at budgeting. I don't drink a lot and I don't smoke. I don't go on holiday so I'm quite good with my money. Some families aren't erm so in that respect because it's free that is the main thing and you know the children are getting something to eat.

Interviewer: Good. I'm going to ask you a couple of questions about breakfast consumption now of that's alright. What are your views on skipping breakfast?

Participant: I think it's wrong although I did used to when I was younger. Err cause I never wanted to eat and I know me parents had quite a lot of issues with me. We'd go somewhere and I'd be hungry at half 10 and we'd have to stop and get me something to eat. Erm and I went and I've sort of never been a big breakfast eater until I got pregnant with my first and I was told I have to have breakfast cause of low iron issues and that's why I started having breakfast. And even if the children just have a piece of toast, they I don't care I don't want them to be late for school but I tell them I don't care if you're late for school you will eat breakfast so I think it is quite important.

Interviewer: So do you ever skip breakfast now?

Participant: I do now and again erm only because if say something's gone wrong in the house with the children and if there's just physically no time for me but they don't. I might

have a piece of toast walking round the house but I will have, most times, say out of the 7 days, 5 or 6 I will have something, yeah.

Interviewer: *Ok, brilliant. Why do you think children might skip breakfast?*

Participant: *Because it's a healthy meal and they don't want it, they want chocolate and sweets and stuff like that and they want to watch television and they're not awake properly and all things like that. They don't wanna sit at a table. They just wanna play and watch television.*

Interviewer: *Do you think children ever intentionally skip breakfast?*

Participant: *No because I don't think up to a certain age they don't really understand how important meals are. It's like dinner and tea, they don't really know the difference, it's just all food, mealtime, my youngest has asked for a roast dinner for breakfast. It just depends, the child just knows it'd food time, they don't know the importance of it. I don't think they would intentionally skip any meal, well my oldest doesn't cause he likes his food, but me 6year old would, he would quite happily not eat, cause he doesn't have a big appetite, so I think it depends on the child.*

Interviewer: *So do you think eating breakfast is important?*

Participant: *Yes I do.*

Interviewer: *Do you think eating breakfast at home or school is most important?*

Participant: *I don't think it really matters, really but then again it does depend on the child and the family. See the children in my house they'll have breakfast in the house and then they'll come and have a second breakfast here, so as long as there's some continuity they know they have food somewhere I don't think it's important where they have it, as long as they have it.*

Interviewer: *Are you concerned about them having two breakfasts?*

Participant: *no not really cause it's quite healthy.*

Interviewer: *Right ok.*

Participant: *Cause sometimes it might just be a piece of fruit here, so it's not like they're sitting down to a massive breakfast and I don't put a cooked breakfast down for them. It's either a little bit of cereal and milk or a piece of toast. So it's not like they're overloading themselves, and then they'll come here and have like a fruit bag or they have a yoghurt drink, so it's not a lot of calories going in in particularly.*

Interviewer: *So do you think eating breakfast with the family is important?*

Participant: *If you can yes, I think it's important that you have it at the table but that's how I was brought up and my boys see it as a treat when you don't have to have it at the table. Cause sometimes I'll put a picnic blanket down on the floor and we'll have movie night and things like that. But I have like a picnic table outside so if it's nice, I'll feed them outside but we always sit at a table but that's how I was brought up. And although it's wrong maybe for them to see me walk round with a piece of toast I do explain to them, I'm doing this because I gotta put the washing on, I've gotta do this, I've gotta sort uniforms out, you know you will sit at the table until you've finished.*

Interviewer: *So it's the lifestyle isn't it, it's busy?*

Participant: *Yeah.*

Interviewer: Do you think the people close to you so maybe your partner or your family like you mentioned your parents before, do you think they think eating breakfast is important?

Participant: Yeah well my dad's passed away now but me mum yes, and she still has her breakfast at the table, you know even if it's just toast and a cuppa tea, she still has her breakfast at the table.

Interviewer: Ok. Did you eat breakfast this morning?

Participant: Actually no I don't think I did this morning because I had to be in Lanchester really early but I did eat my dinner in the car. I did I ate a wrap on the road.

Interviewer: What types of foods do you think should be eaten at breakfast time and why?

Participant: Cereals and toast and stuff like that, erm...

Interviewer: Why is that?

Participant: It's just cause it's, we're told it's healthy and fruit and yogurt, cause we're told it's healthy. Erm as a treat bacon butty, like of a Sunday I'll do a Sunday breakfast, but we don't have it till about half 10. They might have like a little bit of cereal at 7 o'clock but then I don't, it's like more of an early, it's like a brunch really, and they like a bacon or a sausage butty.

Interviewer: So that brings us onto the next question cause I was going to ask do you do anything different on a weekend?

Participant: Yeah well Sunday we normally have a cooked breakfast.

Interviewer: Yeah. What about during the school holidays, do you do anything different during the holidays?

Participant: Not their breakfast, no. If we're away obviously cause you fit into where you are. Erm so like if you're at a hotel and they provide all breakfast, they gonna have sausages every morning but you're on holiday so you're allowed erm, but summer, no cause I don't usually change my routine anyway. They still go to bed 7, half 7, unless it's a special, they're allowed a special reason, so I like keep their routine anyway.

Interviewer: Ok brilliant. Is there anything particularly you would avoid at breakfast time?

Participant: Sweets, and chocolate and crisps.

Interviewer: Why's that?

Participant: Because it's sugary and it's no good for them.

Interviewer: Why do you think it's no good for them?

Participant: Cause it's full of sugar and it's the wrong type of energy and fat. I personally, cause I know sometimes my children will, they have too many sweets but they have it in the afternoon or after their tea.

Interviewer: Ok. Do you eat breakfast every day?

Participant: Well out of 7 days about 5 times.

Interviewer: Ok. Do you intend to eat breakfast every day?

Participant: Oh I intend to yeah, I'll even put cereal in bowl and milk in it or out toast on and just forgot about it and walked out the house.

Interviewer: Is that cause you're busy?

Participant: Yeah basically yeah.

Interviewer: Erm is it easy for you to eat breakfast every day?

Participant: It can be yeah but it depends, I do different things every day. Cause I don't have a set job I do different things every day you see so.

Interviewer: Ok, anything else that I didn't cover?

Participant: I think it's marvellous.

Appendix Ji: Example of Interview Transcript for Children

Interviewer: You get a free school breakfast don't you? What do you think about that?

Participant 23: I think it's excellent that the government has erm gave schools free school breakfast so it's good that the children are able to eat if they're not getting it at home.

Interviewer: That's brilliant, well done.

Participant 25: I think it's good because parents which like sometimes like don't give kids breakfast at home, it's good that the government has erm provided breakfast you know for the children who don't get it at home.

Interviewer: Brilliant.

Participant 23: Just like what XXXX (PN25) said. I was gonna say exactly what XXX said. Erm I'm happy cause erm some kids come into school hungry and they can't get through the day without breakfast.

Interviewer: Ok, so what do you think about the breakfast club here at your school?

Participant 23: It's good I think cause as the same people will get to eat if they don't get food at home.

Interviewer: But what do you think about the breakfast at school here? Do you like it?

Participant 23: I like it but I don't have it myself but I do think it's good.

Participant 25: I like it but erm I had breakfast at home you see and I sometimes have it here but not all the time and I do think it's really you know good of the government.

Interviewer: Ok, so what do you think about the breakfast here at your school?

Participant 25: Yeah I really like it.

Interviewer: What do you like the most about it?

Participant 25: Erm I like it you know cause erm other people like it and they just get a good...

Participant 23: It's good for children to eat.

Participant 25: Yeah its yeah...

Interviewer: What do you think about it XXXX?

Participant 24: I think it's good, I have it every morning and the only thing I don't like is brioche and I'd change that for the breakfast bars again.

Interviewer: Ok, so why don't you like the brioche?

Participant 24: I just don't like brioche, the taste of it.

Interviewer: Is there anything, so like what XXXX (PN24) said is there anything else that you don't like about the breakfast club at your school?

Participant 24: Erm no, just the brioche?

Interviewer: What about you XXXX?

Participant 23: *Not at all, I think it's excellent, just all of it.*

Interviewer: *Is there anything you don't like XXXX?*

Participant 25: *No it's just like perfect you know. I like everything.*

Interviewer: *So there's no food or anything you don't like?*

Participant 25: *No*

Interviewer: *And it's at the right time?*

Participant 23: *It's at the right time cause as soon as you come in class it's already on the desk so you can just help yourself so it's good.*

Interviewer: *Ok, anything else that you would like to add, apart from the brioche XXXX? No, ok, XXXX?*

Participant 24: *And can I just add me and my mum pay for the NSPCC so that helps the children as well.*

Interviewer: *That's lovely XXXX, that's really kind of you and your mum. Ok, we'll start with XXXX, what do you think it offers parents?*

Participant 25: *Yeah you know because those parents who don't feed their children and erm because it like takes care of the children because they haven't had anything in the morning or at home so...*

Interviewer: *Ok so you think it helps parents to feed children? Do you think it helps parents XXXX?*

Participant 24: *Erm, the don't have to like rush to get out of bed to get their breakfast cause they can have it here.*

Interviewer: *Ok, that's brilliant. What do you think XXXX? Do you think it helps parents?*

Participant 23: *I think it's wonderful and I think it does help parents for the parents that don't provide breakfast at home for the children, it's stopping the children from having starvation so it'll keep the children healthy and give them the vitamins that they need.*

Interviewer: *Brilliant, ok excellent answers from everyone. Ok, we'll start this one with XXXX this time. XXXX what do you think it offers to children?*

Participant 23: *It offers obviously food that they want and it offers the vitamins and health of them and thing that they have in their breakfast they, if they don't have it at home it helps them, erm for what they have in their food.*

Interviewer: *What do you think it offers children? Why do you think it's good for children XXXX?*

Participant 24: *Because it's bad to be starving and it gives them vitamins and stuff.*

Interviewer: *OK, what do you think XXXX?*

Participant 25: *I think it's good because erm you know the children need the vitamins and for their need and you know that they don't starve for the next of the day and you know erm until lunch.*

Interviewer: Brilliant. Ok, so we'll start this one with XXXX? What difference do you think the free breakfast makes to your school?

Participant 25: Yeah cause it all started when we were in year 3 and I was like well we've never had breakfast in our classroom before and I was like oh this like sounds good you know because I've not been used and I like tried something first and thought to myself ahh this is like really really good you know, if it helps like children to like erm be strong and that.

Interviewer: Brilliant do you think it makes any difference to your school XXXX?

Participant 24: Yeah erm it's it stops everyone from being starving all through the day and it helps people to do the work cause they're not starving.

Interviewer: Brilliant, good answers. What about you XXXX?

Participant 23: I think it's good that the government have provided food because the children might need it if they don't get took care of at home and it's good do you know just for the nutrition. I think it's an excellent idea of the government.

Interviewer: Good, good so would... we'll start with you XXXX this time. XXXX would you make any changes to the school breakfast at your school?

Participant 24: The brioche.

Interviewer: The brioche?

Participant 24: Oh and breakfast bars.

Interviewer: Any other changes, so bring back breakfast bars and get rid of brioche?

Participant 24: Yeah and erm bring some more fruit.

Interviewer: And some more fruit? What about what time it is, are you ok with what time it is?

Participant 24: Yeah

Interviewer: What about you XXXX, is there anything you would change?

Participant 25: I think they should bring back you know the bagels. Yeah because I was saying you know in year three they had bagels for the first time and people never used to eat them you see so that's why they took them away probably. So and I think they should bring them back you know so other people can try them again, you know so if they eat more they won't take them back.

Interviewer: And what do you think XXXX? Do you think there's anything you could change to make it better?

Participant 23: Yeah I think that it's good that they have breakfast and it's good that they give provide free school dinners but in the middle like say an hour before lunch time and a few hours after breakfast I think cause most children get hungry and feel sick and want to go home I think they could do something do you know and a snack or something and it would be good cause you know cause half of the children feel sick waiting for lunch time.

Interviewer: Yeah brilliant.

Participant 23: Everything else it's amazing.

Interviewer: Good. Did you have another change?

Participant 24: Erm yeah it's erm it's semi skimmed milk and I don't really like it. I do drink it but I like the blue one and that's full fat.

Interviewer: Ok. That's brilliant. Right. Do any of you know if there's been any problems with the school breakfast? Has there been any problems?

Participant (all): No

Interviewer: So it's been ran totally fine? Yeah?

Participant 23: One thing as well in year 4 they used to come a bit too early where you had to quickly drink your water but...

Interviewer: Right, right I get what you mean

Participant 25: Erm and I think you know cause the teachers, cause we had to go into assembly that the teachers have to rush us a bit. I was drinking milk one time and I had just literally got it and I was like half way of drinking it so and then it was time to go and they were like hurry up so we were a bit late so...

Interviewer: Ok. What do you all think about skipping breakfast? So missing your breakfast?

Participant 24: Erm I never miss breakfast.

Interviewer: You never miss breakfast? So you you think missing breakfast is good or missing breakfast is bad?

Participant 24: Erm is can sometimes be erm good cause you can like, you might not have any supper at night and in the morning you can't eat lots of breakfast and you're not hungry at breakfast?

Participant 23: I think it's a terrible idea to skip breakfast because, one you could you know you get hungry and you would feel sick and if you didn't eat then your body would just shut down you know if you never ate. Erm and it's good that they do it at school because if you don't get breakfast at home then it's a great idea.

Interviewer: What do you think XXXX about skipping breakfast?

Participant 25: Erm I think it's a bad idea to skip your breakfast erm because then you won't get enough energy in your body you know for when you're playing out and that so and you need your vitamins and fats.

Interviewer: Ok, so XXXX, why do you think some children might skip breakfast?

Participant 24: Erm cause they're not hungry.

Interviewer: Cause they're not hungry. Any other reasons?

Participant 23: Cause they think oh I've got breakfast at school I'll wait until I have lunch and but they will get hungry and start feeling sick and having headaches and it won't be that good.

Interviewer: Ok. Why do you think, any other reasons why XXXX, why children might skip breakfast?

Participant 25: Erm, it's because you know they sometimes have breakfast at home and they might feel that they're you know not hungry and they might say, "Ahh I'm feeling hungry, I want something to eat." And then they feel like they've got a headache and they feel sick and they just want to go home and telling the teacher all the time.

Interviewer: Yeah I get what you mean.

Participant 23: If they never eat breakfast then it's not just good for you because you won't get the vitamins, you won't get the protein and you'll just get nothing and your body will end up shutting down.

Interviewer: Ok, good answer.

Participant 24: In year two before we started to have breakfast. In the morning before we had milk and fruit erm I was really hungry and I kept asking the teacher I'm hungry and I couldn't do my work and then when breakfast came I could do my work.

Interviewer: Right ok, that's really interesting, so you think you can do you work better now you have breakfast?

Participant 24: [Nods]

Interviewer: Now this one is an important question, do you think eating breakfast at home or eating breakfast at school is more important?

Participant 23: Erm eating breakfast at home because your mum knows what you like and then say if you were new and they didn't know you was allergic to something in your food, then do you know you would end up in a rash and it would just be terrible.

Participant 24: Erm it's better to have it at home sometimes because erm it's quicker, you can have it quicker and you can have it before you brush your teeth. Like if you have it when you have it before you come to school then you can brush your teeth and have it.

Interviewer: Ok. XXXX do you think home or school's more important?

Participant 25: Erm home because you know before you go into school you're gonna get your protein, your vitamins and your calcium and you know when your mum know, you mum or dad or whoever is like looking after you who knows what you want to eat, like what's good for you and if you get like aller... like something wrong with you like...

Interviewer: Do you think that your family think that eating breakfast is important?

Participant 25: Erm yes because the need to get the vitamins, the calcium and the protein, you know so they don't like, their organs don't shut down one by one and erm that they you know stay alive for longer with eating and that.

Interviewer: Do you think that your family think that eating breakfast is important XXXX?

Participant 24: Yeah.

Interviewer: Yeah. What about you XXXX?

Participant 23: I think school and home breakfast is important because if you eating at home then your family will know do you know that you'll be eating and you'll be fine and healthy and where it's not a bad idea eating at school, it's just I think it's better eating at home so your family know that you're eating.

Interviewer: Yeah, yeah. Right I'm going to have one more question for you because we've got...

Participant 24: I had one from before. When you have breakfast at home it's also good to have it at school because erm it gives you extra protein and vitamins.

Interviewer: Brilliant

Participant 23: Children can't like get hungry or anything in the day so I think they should...

Participant 24: Get the vitamins and the nutritious

Participant 23: Yeah, and I think you know in between when they get hungry at playtime because now we're like in the top juniors you have to wait a bit longer while other people are starving and saying, "oh I'm hungry and I'm..."

Interviewer: Do you do anything different for breakfast on a weekend or during the school holidays?

Participant 25: Erm no not really I just stick to you know the normal routine so

Participant 23: Well obviously, when it's a school morning your have to get up and quickly do you know get dressed and eat your cereal or breakfast toast where if you're on school holidays or on a weekend you don't have to rush as much so that is ok, that's good.

Interviewer: Do you do anything different during the holidays or the weekends?

Participant 24: I was gonna say exactly what XXXX (PN25) said.

Participant 25: I do like you know to change the routine you know cause if it's the summer holidays you can just lie in bed and get it when like toast or cereal whenever you want.

Appendix K: Examples Excerpts for Themes and Sub-Themes for Study 2

Theme	Sub-Theme	Children	Parents	School Staff
Breakfast Behaviours	Later Breakfast Consumption	<p><i>“My mum sometimes doesn’t have any, but erm when she gets home she does or sometimes at the children’s centre she does.”</i></p> <p><i>“My dad never has any but sometimes when he goes to work he makes a sandwich or erm toast.”</i></p>	<p><i>“Whenever I have a fry up it’s only ever late morning, I wouldn’t have it first thing on a morning cause it’s too heavy.”</i></p> <p><i>“I just had a late breakfast today but after 11, time I got sorted out, but most of time before that or it’s just after kids have gone to school and it’s just after 9.”</i></p>	<p><i>“By time I get up to work, so I’m up and I don’t want anything to eat at 6oclock in the morning, So I won’t but I’d have something later.”</i></p> <p><i>“No because we getting up early, you know we work together in children’s centre, so after we finish then we have something to eat.”</i></p>
	Breakfast Skipping	<p><i>“If we’re running late then we need to hurry and get dressed and do all that but and err sometimes the breakfast clubs always shut cause they ring the bell and they shut the door.”</i></p> <p><i>“When I don’t have my breakfast I have to wait all that time until dinner time.”</i></p>	<p><i>“I mean I have got time to do it, it’s just I don’t, I just think oh I’m not hungry at the minute, I don’t fancy it at the minute.”</i></p> <p><i>“Cause I don’t want to just because I’m busy. Erm and then it, it all most just roles by and before I know it it’s early dinner time and I think oh god I ain’t had nowt to eat.”</i></p>	<p><i>“I do it and it’s really bad. I know it is. Erm, I just can’t eat in the morning but then I’ll get really hungry by like 10 – 11 o clock.”</i></p> <p><i>“I’m probably the wrong person to ask cause I do skip breakfast, but I always make sure my children have breakfast.”</i></p>

Appendix K: (Continued) Examples Excerpts for Themes and Sub-Theme for Study 2

Theme	Sub-Theme	Children	Parents	School Staff
	<p>Double-Breakfasting and Grazing</p>	<p><i>“Some people just get one thing and then another and then another and then another.”</i></p> <p><i>“Two and one basically, maybe three if I’m lucky.”</i></p> <p><i>“I like have a lot of stuff for breakfast to get my energy up and I just come into class and like I can’t eat anymore but I just can’t resist pancakes which I have to eat.”</i></p>	<p><i>“I mean the majority of children do get something to eat. My daughter however, because of the breakfast in class she’s now sort of saying, oh, not eating as much at home because it might be her favourite thing in class when she gets to school.”</i></p> <p><i>“I think in some areas it’s a good idea but in other areas I’m not so sure because children could be having breakfast twice and that means they’re gonna be overeating.”</i></p>	<p><i>“Well if they’re having a good breakfast at home, then I suppose in the wider scheme you’ve got obesity issues as well because that’s a big problem because around here so if they don’t need it, do you know what I mean, if they’re coming from home with a good breakfast inside them they don’t need it, they’ll be having fruit at half past 10, they’ll be having milk at half past 10 and they’ll be having their dinner at half past 12. There’s only so much food they need.”</i></p> <p><i>“I mean you know you’ve got children that barely touch a morsel in the morning, you get some that’s got quite healthy appetites in a morning so I’d draw the line, I think you know if we’re having toast and we’re on like can I have my forth slice I think I’d have to draw the line you know and say I think you’ve had enough.”</i></p>

Appendix K: (Continued) Examples Excerpts for Themes and Sub-Theme for Study 2

Theme	Sub-Theme	Children	Parents	School Staff
	<p>Breakfast on the Way to School</p>	<p><i>“A lot of children get money from their parents and they can just go to the shop and buy sweets for their breakfast.”</i></p> <p><i>“Some people should start having more fruit for breakfast instead of just chocolate from the shop and crisps and stuff.”</i></p>	<p><i>“Neither of my sons and none of my sons partners focus on breakfast, they’re a bit like me they need to be up a while before they can eat so it’s not on their mind but I know that they try to make sure that the kids have something to eat, even if it’s only a flap jack or a breakfast bar on the way to school or a banana and then they come to breakfast club.”</i></p> <p><i>“I think even rushing you can by the bowls now, XXXX can sit in the car with the special bowls and the lid and you can eat on the way to school. There’s cereal bars, there’s no excuse really, there’s bits you can eat on the way to school isn’t there?”</i></p>	<p><i>“Erm if mum’s rushing to get to work there would be no sit down and eat it, you know here’s a piece of toast eat it on the way to school.”</i></p> <p><i>“We’re in a deprived area so for whatever reason a lot of children come to school without breakfast or they come to school with a chocolate bar in their hand or a bag of crisps in their hand so erm to get the best out of them in class I think the breakfast scheme’s a brilliant, brilliant idea.”</i></p>

Appendix K: (Continued) Examples Excerpts for Themes and Sub-Theme for Study 2

Theme	Sub-Theme	Children	Parents	School Staff
Internal Influences of Breakfast Behaviour	Breakfast in the home ‘vs’ breakfast at school	<p><i>“Eating breakfast at home [is more important] because your mum knows what you like.”</i></p> <p><i>“It’s better to have it at home sometimes because erm it’s quicker, you can have it quicker and you can have it before you brush your teeth. Like if you have it when you have it before you come to school then you can brush your teeth and have it.”</i></p>	<p><i>“As long as the person’s getting a decent healthy, well fairly healthy anyway meal, it doesn’t really matter but obviously it does benefit having it in school cause then if they’re in early to get their breakfast obviously their attendance and punctuality’s gonna go up.”</i></p> <p><i>“Once you stop actually giving them breakfast at home you’re starting on a lazy path there. Oh I won’t bother, let school do it, you know.”</i></p>	<p><i>“Ideally it should be at home, that social interaction with their parents but if it can’t be then we’re offering something different aren’t we so that they’re definitely getting that and they’re sitting down, they’re having their interactions but ideally I would’ve said at home.”</i></p> <p><i>“I’d say at home is more important, but if it’s not happening I’d say it’s good for them to have the choice of having it at school. Obviously it would be better at home to sit having conversations with maybe your siblings and your mum and dad but if that’s not possible then that’s not the situation they’re in then to bring them somewhere I think it’s best for them rather than having nothing.”</i></p>

Appendix K: (Continued) Examples Excerpts for Themes and Sub-Theme for Study 2

Theme	Sub-Theme	Children	Parents	School Staff
Internal Influences of Breakfast Behaviour	Breakfast with the family	<p><i>“I think eating breakfast at home is ok because some families want to spend some time with them when they have their breakfast before they go to school.”</i></p> <p><i>“It makes you feel comfortable, like at school cause you’re eating round your friends, like it’s you’re eating with your mum and dad at home so it makes you feel even more comfortable.”</i></p>	<p><i>“I would say at home cause I’m a family orientated person erm most meals are at, as a family in my house all together at a table, nowhere else, TVs not on, phones aren’t allowed at the table, other families don’t have that but it’s just something that I have.”</i></p> <p><i>“You should want to eat with your daughter/ son before they go off to school for the 6 and a quarter hours your gonna miss em so it’d be nice to sit and eat breakfast knowing that their tummy’s full and then you’re not gonna worry at school, when they’re at school that they’re hungry or you know they can’t get on with their work.”</i></p>	<p><i>“You eat with your family and I think it’s like a nice time to sit round like the table and talk about their day and things like, that’s what my little girl does with her dad, they’ll both sit down and have breakfast, I wish I could be there for that but obviously I can’t.”</i></p> <p><i>“I think your breakfast is nicer to eat, better, not nicer, better maybe to eat it at home, with your family, get ready and come to school, but I also appreciate that that’s not always possible.”</i></p>

Appendix K: (Continued) Examples Excerpts for Themes and Sub-Theme for Study 2

Theme	Sub-Theme	Children	Parents	School Staff
Internal Influences of Breakfast Behaviour	Breakfast is important	<p><i>“In breakfast it’s kind of, when your next meal after you’ve had your last meal that come the other day then you need to wait all the night until breakfast time so it’s, so I think that’s the most important meal of your day.”</i></p> <p><i>“They wake up a bit more cause they’ve had some breakfast and they feel ready to get learning in class.”</i></p>	<p><i>“They say breakfast is the most important meal of the day, so obviously of you do without it. There has been studies, cause I done a course, and there has been studies stating that children can’t concentrate enough and can’t learn as quick as they can be if somebody has a healthy balanced diet.”</i></p> <p><i>“It sets them up for the day. If they’re tired, if they’ve no food in them to give them energy then they’re lethargic during the school lessons and they can’t work while they’re lethargic can they when they’re thinking about what’s for dinner, cause I’m hungry, can you understand what I mean?”</i></p>	<p><i>“I think that children, well anybody really I think needs that energy in a morning, I personally definitely do. Erm but you can tell when they’ve not eaten breakfast and they so tired, eyes are droopy and you can really, really tell with a child, it affects them more than an adult.”</i></p> <p><i>“Children need food for energy to learn. If they don’t start off on the right foot in the morning then their day can just go from bad to worse, especially in this catchment area, we’re in a deprived area.”</i></p>

Appendix K: (Continued) Examples Excerpts for Themes and Sub-Theme for Study 2

Theme		Sub-Theme	Children	Parents	School Staff
External Influences of Breakfast Behaviour		Poverty and food insecurity	<p><i>“Some people might have not much money and if they go to breakfast club it might help them save money.”</i></p> <p><i>“It’s good because certain people like don’t get breakfast at home, say like their mum and dad are too busy and they can’t buy something.”</i></p>	<p><i>“If they can’t afford to feed their children, you don’t know their situation, it might not because they don’t know so maybe they can’t afford good food of a morning. You don’t know the circumstances. Everyone’s different. So they know then the child’s going to get a good breakfast.”</i></p> <p><i>“I think it’s cause it’s such a deprived area, that’s why they’ve done it, either children aren’t get fed at all or they’re getting fed the wrong things.”</i></p>	<p><i>“The vast majority of the school are single parents one way or another. Erm yeah one parent families so for all the reasons I’ve said really, financial, cause the bottom line, this catchment area that’s what it come down to, it is, within Blackpool it’s a deprived area for many reasons.”</i></p> <p><i>“For low income families it means that their children are definitely getting breakfast if they can’t afford it. You know the situation especially around here is, we are quite a poverty stricken area and it perhaps doesn’t seem a great deal of money to somebody that’s got a little bit in their pocket but when you have nothing cereal, toast, it can mean you know mean going without.”</i></p>

Appendix K: (Continued) Examples Excerpts for Themes and Sub-Theme for Study 2

Theme	Sub-Theme	Children	Parents	School Staff
External Influences of Breakfast Behaviour	Weekends and school holidays	<i>“Sometimes I don’t have any...because sometimes on weekends there isn’t any breakfast things in because erm the food are only in little boxes and erm there’s isn’t any left.”</i>		<p><i>“You know certain children and you think god what’s gonna happen to them over the holidays err. Like I say I think you’re worried, are they getting fed and you probably the answer is no they’re not and you know, you must think, it must be hard for children.”</i></p> <p><i>“There are families of concern that we think we know there not going to have that breakfast when they get home and it’s, not necessarily the quality, they won’t have the quality and it’s whether when there’s lots of them, lots of big families you know it’s erm it is the cost and especially during holidays to when there’s a few of them.”</i></p>

Appendix K: (Continued) Examples Excerpts for Themes and Sub-Theme for Study 2

Theme	Sub-Theme	Children	Parents	School Staff
External Influences of Breakfast Behaviour	Rushed morning routines	<p><i>“Sometimes when I’m late at home and we always get up in a rush my mum doesn’t get time to make breakfast so we all just come down to breakfast club and we like all the toast.”</i></p> <p><i>“If they don’t have breakfast at home and they feel in a rush and can at breakfast club.”</i></p>	<p><i>“People have busy lives don’t they and the children might get rushed out the door to school.”</i></p> <p><i>“I mean I don’t have time to sit down with XXXX, even if I ate a breakfast I wouldn’t have time to sit down. By the time I’ve fed all the zoo at my house.”</i></p>	<p><i>“I don’t want to sound derogatory to some of our parents but erm they either haven’t got time or they don’t make time do you know what I mean they’re getting up too late, they haven’t got thing prepared the night before and it’s just too manic in the morning.”</i></p> <p><i>There’s other parents who like you say are busy or have got busy lives, parents who’ve new babies, like XXXX’s mum, you know even though she always does, she’s really good but you know it could be a struggle you know three children and a baby.”</i></p>

Appendix K: (Continued) Examples Excerpts for Themes and Sub-Theme for Study 2

Theme	Sub-Theme	Children	Parents	School Staff
	Employment/ educational commitments	<p><i>“I think it’s a good idea cause people who struggle getting their children breakfast err cause they’re going to work, it’s easy for them to just let their kids come to school and get some breakfast.”</i></p> <p><i>“Sometimes parents have to be up early or go to work or something so it could get us to school earlier.”</i></p>	<p><i>“Some parents work, like I say I do a part time course and I’ve gotta be at collage for 9 o clock in the morning so that helps me drop them off before going to college and it’s likewise with people who work, it’s the exact same reason, if someone has a 9 to 5 job they’re gonna struggle to get them up, ready and fed and brought to school so sometimes things happen.”</i></p> <p><i>“It’s good because we as parents in the morning, I’ve got so much to do in the morning it’s horrendous. By the time we’ve got ourselves ready, erm you know if you’ve got other children or whatever you’re doing at home. Erm you know you haven’t got time to be saying with here’s the breakfast menu what would you like children to eat, please choose and I will be down promptly into the kitchen to cook your breakfast. It’s just not a reality is it?”</i></p>	<p><i>“If you’re working, you’re able to bring them without rushing them because you’re ready to go to work, you’re being them and having a bit more of a calmer start to the morning. Cause I know when I’m getting ready for work it’s very busy.”</i></p> <p><i>“Well I suppose it helps them because they don’t have to like rush around in the morning sorting breakfast out for the kids, especially if they’re working.”</i></p>

Appendix L: Coding Discrepancies and Resolutions for Study 2

Quote	Coder 1	Coder 2	Resolution
<i>"...especially in this catchment area."</i>	Coded as theme 3 – poverty and food insecurity	No coded	C1: C2 2 has coded the subsequent part of this code at theme 3, but not this section. This should be coded too as it is referring to poverty and food insecurity in the local community. C2 Agree should be coded as theme 3
<i>"...they come to school with a chocolate bar in their hand or a bag of crisps in their hand."</i>	Coded at theme 1 – breakfast behaviours	Coded at theme 2 – good and bad breakfast food	C1: Agree that this fits in better with theme 2.
<i>"...some children just do not need a breakfast as well but some desperately do."</i>	Not coded	Coded at theme 3 – poverty and food insecurity	C1: Agree that this should be coded at theme 3.
<i>"Erm I'd say the vast majority of the school are single parents one way or another."</i>	Coded at theme 3	Not coded	C1: C2 has coded subsequent part of quote as theme 3 as participant is discussing poverty and food insecurity in the area. This part of the quote should be coded too. C2 Agree that should be theme 3

Appendix L: (Continued) Coding Discrepancies and Resolutions for Study 2

Quote	Coder 1	Coder 2	Resolution
<i>“They know they can come in, they know they’re gonna, they’re not coming into school thinking I’m hungry, some of them haven’t been fed since I don’t know tea time the night before, they know they’re coming in, they know they can get something, if they need extra they’ll ask for extra, they now they can take water, they know that they’re not going to be sat hungry. Erm because when you’re hungry it’s all you think about isn’t it? So you not concentrating on what you should be doing because all you can think about is I’m hungry. I’m the same if I’m hungry that’s all I think about. So once they’re fed, they know gonna get fed and they can go into class and they’re off.”</i>	Coded at themes 2 and 3	Coded at theme 2	C1: Quote fits in with both themes as participant is discussing both the detrimental effects of skipping breakfast and referring to children that are experiencing food insecurity. C2: Agree that fits in to both themes
<i>“It’s the social, it’s the social gathering as well, erm the tables aren’t set out in year groups, so you’ve got the older ones interacting with the little ones and the little ones, and it’s very much a social meeting as well for them and they get to sit or talk to children that they wouldn’t normally talk to, erm so it’s widening their friendship groups as well.”</i>	Coded at theme 1 – breakfast at school	Coded at theme 2 – breakfast with peers - social	C1: Agree this fits in better with theme 2.
<i>“Yeah erm I think at the minute we can get between 60 and 80 children coming to our breakfast club, which means at quarter to 9 in the morning when the school doors open there’s 80 less children hanging round the roads, there’s 80 less children annoying the man in the shop down the road, do you know what I mean, they’re in school, they’re safe, they’re off the streets. Erm so it’s just yeah, less busy around the streets and the school.”</i>	Coded at theme 1 – breakfast at school	No coded	C1: Quote is referring to breakfast at school and breakfast consumption behaviours in children. C2 Agree that fits in theme 1 discussing breakfast at school

Appendix L: (Continued) Coding Discrepancies and Resolutions for Study 2

Quote	Coder 1	Coder 2	Resolution
<i>“It’s like when you need the toilet as well, you know that’s all you think about, I’m hungry, I need the toilet, I’m not really listening because I’ve got other things on my mind at the minute and you take those things out of their mind and they can concentrate on what they’re doing.”</i>	Coded at theme 2 – detrimental effects of skipping breakfast	Not coded	C1: C2 has coded the previous part of the quote at theme 2 – this part should be coded too as it is also referring to the negative effects of breakfast skipping. C2 agree that should be coded as theme 2
<i>“I’d like the children to come and have their breakfast but then I’d like them to go off and erm do different activities. Even like board games or something round here. Cause then social interaction once again, turn taking, learning how to interact, erm so but that would obviously be staffing and...”</i>	Coded at theme 2 – social benefits of school breakfast	Not coded	C1: Participant is referring to the social benefits of school breakfast. C2: Agree theme 2 but also theme 1 breakfast at school
<i>“I think erm if there was always erm erm a senior member or a teaching member of staff.”</i>	Not coded.	Coded at theme 3 – financial costs of running school breakfast.	C1: Agree this should be coded at theme 3.
<i>“Er just perhaps throwing something, throwing the water bottle across or pushing tables or I mean they’re meant to come in and they’re meant to sit down, it’s a long time for a child to sit for half an hour. So it is a long time, I think the activities would be good because the ones that are arriving at quarter past 8 are sat there for half an hour and once they’ve eaten their breakfast, you know what kids are like they wanna be up don’t they? So erm I just think they’d need, they need something to occupy them and then I think the behaviour would because it would be more structured.”</i>	Coded at theme 1 – breakfast consumption behaviours.	Coded at theme 2 – breakfast environment.	C1: Agree this fits in better with theme 2.

Appendix L: (Continued) Coding Discrepancies and Resolutions for Study 2

Quote	Coder 1	Coder 2	Resolution
<i>"That's just a bad habit, two cups of coffee's my breakfast,..."</i>	Coded at theme 1 – breakfast consumption behaviours.	Not coded.	C1: C2 has coded previous section as theme 1 – this part of the quote should be coded too. C2 Agree theme 1
<i>"...you know but I think as adults with the hustle and bustle of the day you do sort of its very often easy to fall into that pattern but I would never encourage it."</i>	Coded at theme 3 – external influences of breakfast consumption.	No coded.	C1: Participant is referring to rushed morning routines being a barrier to breakfast consumption. C2 Agree theme 3
Interviewer: <i>"Brilliant. Do you think children eating breakfast at home or school is most important?"</i> Participant: <i>"I think at home."</i>	Coded at theme 2 – breakfast at home verses school.	Not coded	C1: Participant is discussing breakfast at home verses breakfast at school. C2 Agree theme 2
<i>"...but I know that children will be eating on the run at home erm and they'll probably be getting dressed and having a piece of toast"</i>	Not coded.	Coded at theme 1 – breakfast on the way to school.	C1: Agree this should be coded at theme 1.
<i>"I think it's good because one thing it'll get kids on time to school as well knowing they come to breakfast club. Erm we've only lived over here a couple of years and XXXX does come, she really enjoys coming here. She'd come earlier if she could. Yeah she loves it. "Is it time yet?" "No until it's get to quarter past." You know stuff like that? Err little lad he does come now and again but it depends, but she really enjoys coming, plus she has a friend that comes as well."</i>	Coded at theme 1: Breakfast Consumption Behaviours – breakfast at school	Partially coded at themes 2 and 3.	C1: Agree with C2s partial coding at themes 2 and 3. However, whole quote is referring to 'breakfast at school'. C2 Agree theme 1 breakfast at school
<i>"Well we're on a bit of a low income, you know so, I mean XXXX has breakfast before she comes here but she likes coming here, you know and that,..."</i>	Coded at theme 3: External Influences of Breakfast Behaviours - poverty	Subsequent part of quote is coded at theme 3.	C1: Participant is discussing school breakfast in relation to low incomes. C2 Agree theme 3, poverty

Appendix L: (Continued) Coding Discrepancies and Resolutions for Study 2

Quote	Coder 1	Coder 2	Resolution
<i>“Cause you’re supposed to have a breakfast, dinner and evening meal aren’t you, really everybody? Some might not you know?”</i>	Coded at theme 3: External Influences of Breakfast Behaviours	Coded at theme 2: Internal Influences of Breakfast Behaviours – breakfast is important	C1: Agree with C2 – quote fits in better with theme 2.
<i>“...they don’t always have a breakfast at home if they come to breakfast club because they don’t have that.”</i>	Coded at themes 2 and 3	Coded at theme 3 only – food insecurity	C1: Agree with C2 that quote relates solely to theme 3.
<i>“Well you’re supposed to have at least 3 meals a day so breakfast, dinner and evening tea or tea whatever you want to call it.”</i>	Coded at theme 2 – Internal influences – breakfast is important	Not coded	C2: Agree theme 2
<i>Interviewer: “So do you think that eating breakfast with family is important?” Participant: “Err I would but there’s always, depends what time they start school, you know some got to go before them so some might be up before them but if they don’t have any at home I think breakfast club is a good idea ...”</i>	Coded at theme 2 – breakfast with the family	Coded at theme 1 – breakfast at home	C1: Participant is discussing their beliefs about the importance of breakfast with the family, which fits in better with theme 2. C2: Agree theme 2 importance of breakfast/breakfast at home v school
<i>Interviewer: “So do you eat anything different on a weekend to what you would normally eat during the week? Do the family have different things” Participant: “Sometimes they’ll want this or they’ll want the other.”</i>	Coded at theme 1 – breakfast behaviours	Not coded	C1: Participant is discussing their children’s breakfast consumption behaviours during the weekend. C2 Agree theme 1.
<i>Interviewer: “Ok, what type of food do you think should be eaten at breakfast time?” Participant: Well we used to get chocolate spread but they go mad over it, I’ve only just got that jar I’d think so I stopped getting it. They either have cereal or toast.</i>	Coded at themes 1 and 2	Coded at theme 2 – good and bad breakfast foods	C1: Agree with C2 that quote fits in with theme 2, but also fits in with theme 1 children’s breakfast consumption behaviours at home. C2 Agree that theme 1 and 2 are relevant.

Appendix L: (Continued) Coding Discrepancies and Resolutions for Study 2

Quote	Coder 1	Coder 2	Resolution
<p>Interviewer: “Ok. Do you eat breakfast every day?” Participant: “Yep.”</p>	Coded at theme 1.	Not coded.	C1: Participant is discussing the own breakfast consumption behaviours.C2: Agree theme 1.
<p>Interviewer: “Right so it’s just to do with time?” Participant: “Yeah, if I’m doing out first, I’ll get all that done you know, kids off to school or any appointments early.”</p>	Coded at theme 3 external influences – rushed mornings	Coded at theme 1: breakfast behaviours	C1: Participant is discussing external influences of breakfast behaviours such as additional responsibilities, including getting children ready for school etc., and therefore fits in better with theme 3. C2 Agree theme 3 but 1 is relevant as discussing how they get other things first before breakfast.
<p>“Yeah, I just had a late breakfast today but after 11, time I got sorted out, but most of time before that or it’s just after kids have gone to school and it’s just after 9.”</p>	Coded at themes 1 and 3	Coded at theme 1 – breakfast behaviours	C1: Agree that quote fits in with theme 1 but also fits in with theme 3 as participant is discussing that they consume a late breakfast due to rushed morning routines. C2 Agree theme 1 and 3 are both relevant
<p>“I know there’s an odd time when she’s said I’ve had toast or whatever but I’m not right sure what they do have. I know she chatters a bit, too much sometimes.”</p>	Coded at theme 1.	Not coded.	C1: Participant is discussing child’s breakfast consumption behaviours. C2 Agree theme 1
<p>“I think it’s great, excellent, especially if they’re children who don’t eat ...”</p>	Coded at theme 1	Coded at theme 1 and 3	C1: Agree that this part of the quote should be also be coded at theme 3 as participant is referring to poverty/ food insecurity. C2 Agree

Appendix L: (Continued) Coding Discrepancies and Resolutions for Study 2

Quote	Coder 1	Coder 2	Resolution
<i>"I think it's great for the children, especially that don't get really what they should at home."</i>	Coded at theme 2 and 3	Coded at theme 2	C1: As part of a larger quote this fits in with theme 2, but this section also refers to poverty/ food insecurity and should also be coded at theme 3.C2Agree
<i>"I think it's a mum's job, personally as a mum, I think it's a mum's job, I don't think you know you should come to school and be fed by anybody else, I think that's your mum's job, whether they work early or... I'm a carer for my mum so I'm out as soon as XXXX's in school I go to look after mum and there's no way I'd let anyone else feed XXXX. When XXXX's up, washed, dressed, she has her breakfast, tummy settles and then we come into school. So I think some parents are a bit lazy, I do I think a lot's lazy and they think oh school'll provide it. I think that's a bit cheeky, you know they're yours aren't they, you brought them into the world, you feed them and that's my opinion a million percent."</i>	Coded at themes 2 and 3	Coded at theme 3	C1: In addition to discussing the external factors that may influence children's breakfast behaviours, they are also discussing their internal beliefs about breakfast being a mother's responsibility. Therefore fits in with both themes. C2 agree that fits in with theme 2 too
<i>"Yes definitely, I'm a single parent, I always have been from XXXX being born and I don't, I just make sure, single or not I'd make sure that XXXX has got what she needs, it's important, it's vital isn't it? But yeah I think it offers different things but I think some people take advantage really, and think, oh school'll do it, I don't have to do this cause I know lots of mums that'll just send them into school and you know they're not that bothered if something's in their tummy or not and then they know school'll do something if tummies are sore, which is a shame."</i>	Coded at themes 2 and 3	Coded at theme 3	C1: In addition to discussing the external factors that may influence children's breakfast behaviours, they are also discussing their internal beliefs about the importance of breakfast for children. Therefore fits in with both themes. C2 agree that fits in to theme 2 too.

Appendix L: (Continued) Coding Discrepancies and Resolutions for Study 2

Quote	Coder 1	Coder 2	Resolution
<i>"I think it's brilliant for the children, I think that's the main thing isn't it and that's everybody's concern, the children yeah ..."</i>	Coded at theme 2 – breakfast most important meal	Not coded	C1: C2 has coded the subsequent section as theme 2. As participant is also discussing the importance of the breakfast meal, this section should be coded too. C2 Agree
<i>"...they're off to school in the morning with nothing in their tummy. I think that's great that they're doing that for the children, yeah. Definitely."</i>	Not coded	Coded as theme 2 – effects of breakfast skipping	C1: Agree this should be coded at theme 2.
<i>"I think it's given us, like showing that we're all working together and helping each other, I think that's nice that the community's sticking together and they're all there and helping the children which are the priority, yeah I think that's nice."</i>	Coded at theme 3 – poverty and food insecurity	Not coded	C1: Participant is discussing how the school breakfast scheme helps to alleviate issues in the community such as poverty and food insecurity. C2 Agree theme 3
<i>"...as I said XXXX's not eating it but I know lots of children that are."</i>	Coded at theme 1 – breakfast consumption behaviours	Not coded.	C1: Participant is discussing attendance at school breakfast.
<i>Participant: "definitely not, I wouldn't let XXXX, never, but XXXX knows to, she's so used to it, routine in the morning, she knows breakfast's very important. I skip it personally, I do, I'm terrible in the mornings, I am, I tend to eat after I've brought her to school and looked after mum, that's when I'll pick and the we'll sit down at tea together, XXXX and I'll eat then, but I'm terrible and XXXX often tells me for that, "Mum you know, if I do you should", but XXXX's brilliant in the mornings and all of her friends that stay, they all eat in the morning before they go out of my door. Yeah I think it's very important. Very."</i>	Coded at themes 1 and 2	Coded at theme 1	C1: In addition to discussing their own breakfast consumption behaviours, participant is also discussing their beliefs about the importance of breakfast. C2 agree theme 2

Appendix L: (Continued) Coding Discrepancies and Resolutions for Study 2

Quote	Coder 1	Coder 2	Resolution
<i>“Erm I think maybe rushing about, I love to get XXXX all ready and make sure just XXXX’s perfect for the morning and off to school for her day ahead and then I’ll go home, look after mum, tidy up and then I’ll have bits to eat then.”</i>	Coded at themes 1 and 3	Partially coded at theme 1.	C1: In addition to discussing their own breakfast behaviours, participant is also discussing external factors that result in them skipping breakfast. C2 Agree theme 3 and rushed routines
<i>“Yeah I think that’s, I’m not that hungry in the mornings, my appetite’s a bit poor in the morning really. I probably eat a bit late at night time, maybe so I’m still a bit full in the morning, I think that’s might be why too.”</i>	Coded at theme 1	Not coded	C1: C2 has coded previous section as theme 1. As participant continues to discuss their breakfast behaviours here this should also be coded as theme 1. C2 Agree theme 1
<i>“XXXX has her a day and she take vitamins every morning, she has from being a baby.”</i>	Coded at theme 1 – breakfast behaviours	Not coded	C1: Participant is discussing child’s regular breakfast consumption.
<i>“... you know she’s always had, first thing in a morning when we’re up or if she has a lie in at the weekend she’ll have it later on. She’s always had breakfast in her tummy.”</i>	Coded at themes 1 and 2	Coded at theme 2	C1: In addition to discussing the importance of breakfast, participant is also discussing child’s breakfast behaviours. C2 agree also theme 1
<i>“Well we always eat together on the weekends, we’ll eat bits then and XXXX like bacon and eggs and things like that.”</i>	Coded at theme 1 – breakfast behaviours	Coded at theme 1 and 2	C1: Agree that quote also fits in with theme 2 as part of a larger section participant is discussing how they have more time for breakfast on a weekend as morning routines are less rushed.

Appendix L: (Continued) Coding Discrepancies and Resolutions for Study 2

Quote	Coder 1	Coder 2	Resolution
<i>"...again cause it was about a week since we'd done that to get my mum and dad and us together, with my mum being poorly she's not up much, but my mum swears by it."</i>	Coded at theme 1 – breakfast behaviours	Not coded	C1: C2 had coded previous section as theme 1. As participant continues to discuss their breakfast behaviours this section should be coded too. C2 Agree theme 1
<i>"I didn't. Do you know what I had one of XXXX's Actimels, I did. I came really early this morning, Mrs XXXX had put 9.45 I think and it was 10.45." Interviewer: "yeah there was a bit of a mix up." Participant: "So I nipped and had a cuppa tea. It's fine I'm always here anyway, the second they call I'm here so I'm always in school, so it's not a problem."</i>	Coded 1 theme 1	Not coded	C1: Participant is discussing breakfast consumption behaviours that morning. C2 Agree theme 1
<i>"I think the nestle cereals and Kellogg's I think they're all good and as we said the fibre and the wheat and everything in it, erm XXXX does like fruit but it's rare in the morning, she'll pick, if I slice bit of apple or something it's rare. I don't mind her having a bit of toast and jam. I don't mind that. She doesn't like chocolate or all that rubbish really. She doesn't like any of that. Erm cereal bars, I try and get her to have a quarter of that after but I give her quite a large bowl of cereal you see so I think her tummies full then after but I'd be happy if XXXX ate a bit of fruit and some cereal and I a good drink to wash it down, like this morning she had Cheerios and a glass of milk, just to wash it down afterwards."</i>	Coded at theme 1 – breakfast consumption behaviours	Coded at theme 2 – good and bad breakfast foods	C1: Agree that quote fits in better with theme 2 – good and bad breakfast foods.
<i>"...because I've often asked, you know have been hungry until dinner time, until quarter past 12 and XXXX's been fine, and they've worked with XXXX from being a baby. As long as the cereal's down it's important."</i>	Coded at theme 2	Not coded	C1: C2 coded previous section as theme 2. As participant continues to discuss good breakfast foods and the importance of breakfast this part should also be coded. C2 Agree theme 2.

Appendix L: (Continued) Coding Discrepancies and Resolutions for Study 2

Quote	Coder 1	Coder 2	Resolution
<i>Interviewer: "Ahh so you don't like the food that's there? So have you been before?" Participant 42: "No"</i>	Coded as theme 1 – breakfast consumption behaviours	Not coded	C1: C2 has coded previous and subsequent sections as theme 1. This part should also be coded as the participant is referring to their breakfast behaviours. C2 Agree theme 1
<i>Interviewer: "And you said that you didn't like some of the food?" Participant 42: "Yeah" [...] Erm the bagels, the erm the yoghurt juice, erm and the I can't remember what else is in there but I don't like those.</i>	Coded as theme 1 – breakfast at school.	Some coded at theme 2.	C1: Agree that it fits in better with theme 2 – good and bad breakfast foods
<i>Interviewer: "Ok, so what do you like for breakfast?" Participant 42: "Toast and cereal." Interviewer: "Ok, so would you come to school breakfast if they gave you toast and cereal?" Participant 42: Yeah, if it's toast.[...] Participant 41: "No, I like it but I would like to keep the other stuff."</i>	Coded at theme 1 – breakfast consumption behaviours	Partially coded at theme 1	C1: Whole quote should be coded at theme 1 as participant is discussing breakfast consumption behaviours. C2 Agree theme 1 and theme 2 good and bad breakfast foods.
<i>Interviewer: "Yeah handy, good, good." Participant 41: "For your school and your family."</i>	Not coded	Coded at theme 3 benefit to morning routines	C1: Agree that quote should be coded at theme 3
<i>Participant 41: "Apple juice maybe."</i>	Not coded	Coded at theme 2 good and bad breakfast foods	C1: Agree with C2 that quote should be coded at theme 2.
<i>Interviewer: "Is there any other changes that you would like at breakfast club?" Participant 41: "Erm, do they do water I forget" Interviewer: "I don't know, you tell me, I've never been." Participant 41: "I've been loads of times." Interviewer: "So you would like some apple juice XXXX and you would just like some toast and some cereal?" Participant 42: "And some water. Just water and toast and that's it."</i>	Coded at theme 1 - breakfast consumption behaviours	Not coded	C1: Participant is discussing breakfast at school C2 Agree theme 1 and theme 2 good and bad breakfast foods

Appendix L: (Continued) Coding Discrepancies and Resolutions for Study 2

Quote	Coder 1	Coder 2	Resolution
<i>Interviewer: What do you think about not eating breakfast, is that good or bad? Participant 41: Bad</i>	Coded at theme 2 – effects of breakfast skipping	Not coded	C1: C2 has coded subsequent sections as theme 2 where the participant discusses the negative effects of breakfast skipping. This quote should be coded too. C2 Agree theme 2
<i>Interviewer: “Yeah. So do you both think that eating breakfast is important?” Participant 42: “Mmhum”</i>	Coded at theme 2 – effects of breakfast skipping	Not coded	C1: C2 has coded subsequent sections at theme 2 where participant discusses the negative effects of breakfast skipping. This quote should be coded too. C2 Agree theme 2
<i>Participant 42: “You’ll just drink and you’ll die if you just drink.”</i>	Coded at theme 2 – effects of breakfast skipping	Not coded	C1: C2 has coded prior sections at theme 2 where participant discusses the negative effects of breakfast skipping. This quote should be coded too. C2 Agree them 2.
<i>Interviewer:” No. What do you think eating breakfast at home or at school is more important?” Participant 41: “School.” Interviewer: “You think school yeah. What do you think XXXX home or school?” Participant 42: “Home and school.” Participant 41: “I like home and school as well.” Interviewer: “XXXX you said school first why you you think eating breakfast at school’s more important?” Participant 41: “Because it’ll keep your energy up at school so you can write more and do stuff and keep your work up.”</i>	Coded at theme 2 – breakfast at home verses school	Partially coded at theme 3 – external breakfast influences	C1: Fits in better with theme 2 as participant is discussion breakfast at home verses school, and the importance/ benefits of breakfast. C2 Agree theme 2

Appendix L: (Continued) Coding Discrepancies and Resolutions for Study 2

Quote	Coder 1	Coder 2	Resolution
<i>Interviewer: “Do you think eating breakfast with your family or friends is more important XXXX?” [...] Participant 41: “Family”</i>	Coded at theme 2 – breakfast with family verses friends	Not coded	C1: C2 has coded previous and subsequent sections as theme 2. As the participant is discussing them same issues here this section should be coded too. C2 Agree theme 2.
<i>Interviewer: “To keep you alive?” [...] Participant 41: “Yeah” Interviewer: “Ok, good answer. What about all your friends, do you think they thinking eating breakfast is important?” Participant 41: “Yeah”</i>	Coded as theme 2 – importance of breakfast	Not coded	C1: C2 has coded previous section as theme 2. As participant is discussing the same issues in these sections this quote should be coded too. C2 Agree theme 2.
<i>Participant 41: “Cause I just know cause they just eat breakfast a lot.”</i>	Coded as theme 2 – importance of breakfast	Coded as theme 1 – breakfast behaviours	C1: Participant is discussing how they know that their friends believe breakfast is important. C2 Think should still be theme 1 too – breakfast behaviour
<i>Interviewer: “Ok, good answer. Erm what types of food do you think you should eat at breakfast?” Participant 41: “The same as what we’ve got in now.”</i>	Coded as theme 2 – good and bad breakfast foods	Not coded	C1: C2 has coded subsequent section as theme 2. As the participant is discussing the same issue this quote should be coded too. C2 Agree them 2
<i>Interviewer: “Right, so we think it’s teeth and we think it’s fattening? Yeah?” Participant 41: “Mmhum” Participant 42: [nods]</i>	Coded as theme 2 – good and bad breakfast foods	Not coded	C2: C2 has coded previous section as theme 2. As the participant is discussing the same issue this quote should be coded too. C2 Agree theme 2.

Appendix L: (Continued) Coding Discrepancies and Resolutions for Study 2

Quote	Coder 1	Coder 2	Resolution
<p><i>Interviewer: "Ok, really good answers. Can any of you remember what you had for breakfast this morning?"</i></p> <p><i>Participant 42: "Err I got, I can't remember." Participant 42: "Yoghurt drink and a bagel." Interviewer: "So, XXXX had a yoghurt drink and bagel, and can you not remember XXXX?"</i></p> <p><i>Participant 42: "No. I can remember for what I had for my juice, I had milk." Interviewer: "So you definitely had some milk, yeah?" Participant 41: "Mmhum" Interviewer: "Do you both eat breakfast every single day?" Participant 42: "Yeah" Participant 41: "Yeah"</i></p>	<p>Coded at theme 1 – breakfast consumption behaviours</p>	<p>Not coded</p>	<p>C2: Participant is discussing breakfast consumption that morning. C2 Agree theme 1</p>
<p><i>Interviewer: "Good, that's brilliant. Is it easy for you both to eat breakfast every day?" Participant 42: "Not really cause you have to go shopping and you need to find the food you need." Participant 41: "Nar cause my mum goes work nearly every day."</i></p>	<p>Coded at theme 3 – external influences</p>	<p>Partially coded at theme 2</p>	<p>C2: Participant is discussing external factors that makes eating breakfast difficult i.e. parent's work commitments and purchasing foods C2 Agree theme 3 external influence</p>
<p><i>Interviewer: "Will you both eat breakfast every day next week?" Participant 41: "Yep" Participant 42: "Mmhum"</i></p>	<p>Coded at theme 1 – breakfast behaviours</p>	<p>Not coded</p>	<p>C2 Participant is discussing breakfast consumption over the next week. C2 Agree theme 1.</p>

Appendix Mi: School Invite Letter for Study 3

Dear Head Teacher,

I am writing to invite your school to participate in a research project currently being undertaken by researchers at Northumbria University, which evaluates Blackpool's Universal Free School Breakfast Programme.

The research aims to examine attitudes and health related behaviours of children and parents. I have attached copies of the research aims and purposes, which contain further information about this study.

We are looking to recruit children aged 9-11 years of age and 1 of their parents/ carers to complete questionnaires. The questionnaires should take no longer than 20 – 30 minutes to complete. The research team will provide hard copies of all the questionnaires for children and parents who wish to take part.

Please complete the consent form attached to confirm that that you have read the information provided about the research and to consent for the research to be undertaken within your school.

Alternatively, if you would like more information about any aspect of the research before reaching a decision, please contact the lead researcher Louise Harvey-Golding via email louise.harvey-golding@northumbria.ac.uk. Alternatively, you can contact the principle supervisor Professor Greta Defeyter via email greta.defeyter@northumbria.ac.uk.

Yours sincerely,

Louise Harvey-Golding, PhD Researcher, Northumbria University.

Appendix Mii: School Research Information for Study 3

Project Title: Examining the impact of universal free school breakfast on the attitudes and health related behaviours amongst primary school children and parents in Blackpool.

Researcher: Louise Harvey-Golding [louise.harvey-golding@northumbria.ac.uk]

What is this project all about?

Researchers at Northumbria University are currently undertaking an evaluation into Blackpool's Universal Free School Breakfast Programme. As part of this evaluation we would like to find out about the attitudes towards breakfast and health related behaviours amongst children and parents.

Previous research has positively linked school breakfast programmes with health, educational and social benefits. Furthermore, it is considered that school breakfast offers financial and childcare benefits to parents. Research also suggests that positive attitudes towards eating breakfast might be linked to healthier life diets.

What children and parents be asked to do?

Children and parents will be asked to complete a questionnaire on their attitudes towards breakfast and health related behaviours. Children will complete questionnaires in school and questionnaires will be distributed to parents via the school. The questionnaire will take approximately 20 – 30 minutes to complete.

Children and parents will not be expected to answer any questions that they do not feel comfortable answering are both free to withdraw from project at any time.

The information provided in the questionnaires will be used as part of the evaluation of Blackpool's Universal Free School Breakfast programme. The findings from the questionnaires will be summarised to gain an overarching view of the attitudes and health related behaviours of children and parents.

What will happen to the information provided?

The information collected via the questionnaires will be summarised and will contribute to a PhD thesis. It may also be used in publications and presentations, but identities will always remain confidential.

How will information stored and used in the future?

All information and data will be stored securely in accordance with the Data Protection Act 1998, and electronic information will be password protected. Information will only be accessed by the researchers working on this project for the purpose of this project. The research team has put into place a number of procedures to protect confidentiality. Participants will be provided with a unique participant numbers that will be used to identify any information you provide. Names or other personal details will be stored securely and kept separate from the information provided in the questionnaires.

Has this project received appropriate clearance?

This project has been approved by the Faculty of Health and Life Sciences Ethics Committee at Northumbria University. Louise Harvey-Golding is in possession of an up to date Barring and Disclosure Enhanced Check that allows her to undertake research in schools.

How can I find out more?

For more information please contact Louise Harvey-Golding via email: louise.harvey-golding@northumbria.ac.uk or leave your name and contact number at your child's school

office and you will be contacted to allow you to ask any questions. Alternatively, you can contact Greta Defeyter at greta.defeyter@northumbria.ac.uk

Appendix Miii: School Consent for Study 3

Project Title: Examining the impact of universal free school breakfast on the attitudes and health related behaviours of primary school children and families

Name of School:
Please confirm that you agree with the following sentences by providing your signature below:
I have read and fully understood all the information provided about the research project.
I understand that children and parents will provide information on their attitudes and health related behaviours via validated questionnaires.
I understand that information collected from the questionnaires might be used in presentations and publications about the project but the actual hard copies will be stored securely and will only be accessed by the research team
I provide consent for my school to participate in this research project.

Name:

Signed:

Date:

Researchers Signature:

Appendix Miv: Parent Invite Letter for Study 3

Dear Parent/Guardian,

I am writing to invite you and your child to take part in a research project being carried out by researchers at Northumbria University, which is taking place within your child's school. The aim of the research project is to examine attitudes and breakfast behaviours among primary school children and parents in Blackpool. This project is part of a wider evaluation into Blackpool's Universal Free School Breakfast programme.

Your child does not have to attend school breakfast in order for you and your child to take part in the project as we are interested in everyone. Taking part in this project involves you and your child completing questionnaires on your attitudes towards breakfast and breakfast behaviours. An information sheet giving full details of the research project is attached. If after reading this you and your child would like to take part, we require two forms of consent from you; one for you and one for your child. If you would like to take part but would prefer your child did not, or if your child wants to take part but you do not, that is fine, just complete the appropriate consent form/s and return them to your child's teacher.

If you require any further information about the research please contact: Louise Harvey-Golding via email: louise.harvey-golding@northumbria.ac.uk. Alternatively, you can let your child's school know that you have a question, leave a contact number at the school office and I will contact you to answer any questions you have. Thank you for taking the time to consider this information. Any help you can offer with this project would be greatly appreciated.

Yours faithfully,

Louise Harvey-Golding
Postgraduate PhD Researcher, Northumbria University

Appendix Mv: Parent Research Information for Study 3

Project Title: Examining the impact of universal free school breakfast on the attitudes and health related behaviours amongst primary school children and parents in Blackpool.

Researcher: Louise Harvey-Golding [louise.harvey-golding@northumbria.ac.uk]

What is this project all about?

Researchers at Northumbria University are currently undertaking an evaluation into Blackpool's Universal Free School Breakfast Programme. As part of this evaluation we would like to find out about attitudes towards breakfast and health related behaviours amongst children and parents.

Previous research has positively linked school breakfast programmes with health, educational and social benefits. Furthermore, it is considered that school breakfast offers financial and childcare benefits to parents. Research also suggests that positive attitudes towards eating breakfast might be linked to healthier life diets.

You and your child have been invited to take part in this research project as your child attends a school with a free breakfast club in operation, and in parents' and child's attitudes towards breakfast and their health related behaviours.

What will my child and I be asked to do?

If you would like to participate in this research you will be asked to complete a questionnaire on your attitudes towards breakfast and health related behaviours. You will be provided with the questionnaire via your child's school for you to complete and return. The questionnaire will take approximately 20 minutes to complete. Your child will be required to complete a similar questionnaire during school time. This will be arranged so that there is minimal impact on your child's learning.

You and your child will not be expected to answer any questions that either of you do not feel comfortable answering, and if you or your child are asked a question, which either of you do not want to answer, this is fine. In addition, if you change your mind or your child changes their mind about taking part in the research, you are both free to withdraw from project.

The information you provide in the questionnaires will be used as part of the evaluation of Blackpool's Universal Free School Breakfast programme. The findings from the questionnaires will be summarised to gain an overarching view of the attitudes and health related behaviours of children and parents.

What will happen to the information my child and I provide?

Yours and your child's information will be stored securely in accordance with the Data Protection Act 1998, and electronic information will be password protected. Yours and your child's information will only be accessed by the researchers working on this project for the purpose of this project.

The research team has put into place a number of procedures to protect your confidentiality. You and your child will be provided with unique participant numbers that will be used to identify any information you provide. Your names or other personal details will be stored securely and kept separate from the information you provide in the questionnaires. The information collected via the questionnaires will be summarised and will contribute to a PhD thesis. It may also be used in publications and presentations, but your identity will always remain confidential.

Will our answers remain confidential?

Yes, your names will not appear on any of the data collected for this project. All participants will be identified according to a unique participant number only.

How will our information stored and used in the future?

All information will be stored securely and destroyed in accordance with the Data Protection Act 1998. The information may be used in future presentations and publications about the project but no personal information, such as names, will be disclosed.

Will I receive any financial rewards for taking part?

As a gesture of appreciation for taking the time to provide invaluable information for this research project, all parents/ carers who take part will be offered a £5.00 gift voucher, for their time and help.

Will my child be rewarded for taking part?

All children who take part will be given a small token as a thank you for their help with the project.

Has this project received appropriate clearance?

This project has been approved by the Faculty of Health and Life Sciences Ethics Committee at Northumbria University and your child's head teacher has given consent for the project to take place on school premises. Louise Harvey-Golding is in possession of an up to date Barring and Disclosure Enhanced Check that allows her to undertake research in schools.

How can I withdraw from the project?

If for any reason you decide to withdraw yours' or your child's participation or information from this project, please contact Louise Harvey-Golding on the email address provided, within one month of your taking part. After this date it might not be possible to withdraw individual information because the results may have already been published. As all information is anonymised, your individual information will not be identifiable.

How can I find out more?

For more information please contact Louise Harvey-Golding via email: louise.harvey-golding@northumbria.ac.uk or leave your name and contact number at your child's school office and you will be contacted to allow you to ask any questions. Alternatively, you can contact Greta Defeyter at greta.defeyter@northumbria.ac.uk

What do I do if I decide I want to take part/ want my child to take part?

Please find attached two consent forms. The first form is for you to provide consent for your child to take part in this project and the second form is for you to provide consent for you to take part. If both you and your child want to take part, please complete both forms. If only one of you want to take part please complete the correct form. All the information you provide in these forms will be stored securely and your personal details will remain confidential.

Appendix Mvi: Parent Consent for Study 3

Your Personal Details		
Title: e.g. Mrs, Mr, Ms etc.	Surname: Please write your last name.	Forenames: Please write your first name.
Age:	Date of Birth:	Gender: (circle the correct answer) Male Female
Ethnicity: Please tick the ethnic background that best describes you:		
Asian/ Asian British: <input type="checkbox"/> Indian <input type="checkbox"/> Pakistani <input type="checkbox"/> Bangladeshi <input type="checkbox"/> Chinese <input type="checkbox"/> Any other background: (please write)		Black / African / Caribbean / Black British <input type="checkbox"/> African <input type="checkbox"/> Caribbean <input type="checkbox"/> Any other background: (please write)
Mixed / multiple ethnic groups: <input type="checkbox"/> White and Black Caribbean <input type="checkbox"/> White and Black African <input type="checkbox"/> White and Asian <input type="checkbox"/> Any other background: (please write)		White: <input type="checkbox"/> English/Welsh/Scottish/Northern Irish/British <input type="checkbox"/> Irish <input type="checkbox"/> Gypsy or Irish traveller <input type="checkbox"/> Any other background: (please write)
Please confirm that you agree with the following sentences:		
I have read and fully understood all the information provided about the project.		<input type="checkbox"/>
I understand that if I would like further information about the project I should contact Louise Harvey-Golding.		<input type="checkbox"/>
I understand that I am free to withdraw my participation from the project at any time, without having to give a reason and without prejudice.		<input type="checkbox"/>
I understand that information collected from the recordings might be used in presentations and publications, but the actual recordings will be stored securely and will only be accessed by the research team.		<input type="checkbox"/>
I give my consent to take part in this research project.		<input type="checkbox"/>
Signature of Participant:..... NAME IN BLOCK LETTERS: Date: Signature of researcher..... Date.....		

Appendix Mvii: Parental Consent for Study 3

Your Child's Personal Details	
Surname: Please write your child's last name.	Forename: Please write your child's first name.
Child's Age: Please write your child's age.	Date of birth: Please write your child's date of birth.
Child's Gender: Please circle the correct answer. Male Female	
Child's School: Please write the name of your child's school.	
Year group: Please circle the correct year group for your child. Year 1 Year 2 Year 3 Year 4 Year 5 Year 6 Year 7	
Ethnicity: Please tick the ethnic background that best describes your child.	
Asian/ Asian British: <input type="checkbox"/> Indian <input type="checkbox"/> Pakistani <input type="checkbox"/> Bangladeshi <input type="checkbox"/> Chinese <input type="checkbox"/> Any other background: (please write)	Black / African / Caribbean / Black British: <input type="checkbox"/> African <input type="checkbox"/> Caribbean <input type="checkbox"/> Any other background: (please write)
Mixed / multiple ethnic groups: <input type="checkbox"/> White and Black Caribbean <input type="checkbox"/> White and Black African <input type="checkbox"/> White and Asian <input type="checkbox"/> Any other background: (please write)	White: <input type="checkbox"/> English/Welsh/Scottish/Northern Irish/British <input type="checkbox"/> Irish <input type="checkbox"/> Gypsy or Irish traveller <input type="checkbox"/> Any other background: (please write)

Appendix Mviii: Children Invite, Information and Consent for Study 3

Most primary schools in Blackpool give their pupils a breakfast for free. We would like to find out about children's thoughts and feelings about breakfast.



We also want to find out about the things children do that have an effect on their health. If you would like to help us with this, you will be asked to do a questionnaire where you will have to answer questions about your thoughts and feelings about breakfast, and the things you eat.

I will take the questionnaires away and read them to find out about children's attitudes towards breakfast and the things children do that have an effect on their health. This will help us to understand more about children and the things they need to be happy and healthy.



Your completed questionnaire will be locked away and only the people working on this project will be able to read it. Your name will also be completely removed so no one will ever know the information you gave.

Also, if you are asked any questions you don't want to answer that is fine. If you decide you want to take part, but then you change your mind, you can stop taking part at any time because it's up to you whether you do it or not.

Would you like to take part in this project? (Circle yes or no)

Yes

No

Appendix N: Additional Demographics Questionnaire for Study 3

Additional Information

Important note! Questions about your child are in relation to **one** child attending primary school in years 5 or 6.

1. What is your employment status?

Please **tick** those that apply:

Employed <input type="checkbox"/>	Self-employed <input type="checkbox"/>
Unemployed <input type="checkbox"/>	Full time student <input type="checkbox"/>
Part-time employed <input type="checkbox"/>	Part-time student <input type="checkbox"/>
Please write any other employment status below:	

2. What educational qualifications do you hold?

Please circle all those that apply.

GCSE A – C	GCSE D - G	Level 1
Level 2	Level 3	A Level
Diploma	Degree	Master Degree
Please write any other below:		

Appendix N: (Continued) Additional Demographics Questionnaire for Study 3

Remember these questions are about ONE child attending primary school in years 5 or 6.

3. Are you entitled to free school meals for your child?

Please circle ONE answer only.

YES	NO	DON'T KNOW
-----	----	------------

4. Does your child mostly attend school lunch or do they take a packed lunch?

Please circle ONE answer only.

School lunch	Packed lunch
--------------	--------------

5. Does your child attend free school breakfast at their school?

Please circle ONE answer only.

YES	NO
-----	----

If YES, how many times does your child attend free school breakfast per week?

Please circle ONE answer only

1	2	3	4	5
---	---	---	---	---

If NO, is there any reason why your child doesn't attend free school breakfast?

Please write your answer below:

--



Free School Breakfast Questionnaire Booklet

Children

Important instructions!

- The questionnaire should be completed on a school day between Tuesday to Friday.
- The questionnaire should be completed after lunch time as you will be asked questions about the food and drink you had in the morning.



Your secret number is:

Part 1

This first part is about what **you** think about eating breakfast. For each question please put a tick in the space that best describes what you think. Kids often think different things about eating breakfast so there are no right or wrong answers. The form is about what **you** think.

Here is an example:

	Agree a lot	Agree a bit	Don't agree or disagree	Disagree a bit	Disagree a lot
1. Eating breakfast keeps you healthy					

If you really agree that eating breakfast keeps you healthy, you should put a tick in the first space, underneath where it says, **Agree a lot.**

If you agree a bit that eating breakfast keeps you healthy, you should put a tick in the second space, underneath where it says, **Agree a bit.**

If you don't agree or disagree that eating breakfast keeps you healthy you should put a tick in the third space, underneath where it says, **Don't agree or disagree.**

If you disagree a bit that eating breakfast keeps you healthy you should put a tick in the fourth space, underneath where it says, **Disagree a bit.**

And, if you disagree a lot that eating breakfast keeps you healthy you should put a tick in the fifth space, underneath where it says, **Disagree a lot.**

All your answers are kept secret between you and the research team. Please don't talk to your friends while you're filling in this form and try not to let anyone see your answers. If you need help, ask an adult.

Remember to put a tick in **ONE** space for **each** question:



	<i>Agree a lot</i>	<i>Agree a bit</i>	<i>Don't agree or disagree</i>	<i>Disagree a bit</i>	<i>Disagree a lot</i>
1. I usually eat healthy foods for breakfast					
2. I often miss breakfast					
3. It's okay for me to miss breakfast					
4. I hardly eat anything for breakfast					
5. I hate eating breakfast					
6. I usually eat unhealthy foods for breakfast					
7. I can concentrate in class even when I've missed breakfast					
8. I usually have a snack at morning break instead of breakfast					
9. I feel okay in the mornings even if I haven't eaten breakfast					
10. Eating breakfast is boring					
11. I'd rather have a snack in the morning than breakfast					
12. If I miss breakfast I feel more tired in the morning					
13. I usually eat a good breakfast					

Keep going on the next page.

Part 2

This next part is about what you did, and what you had to eat and drink **this morning** and **yesterday morning**.

It is **not a test** so there are no right or wrong answers. The important thing is that you answer the questions **truthfully** and try your hardest to remember what you had to **eat and drink**.

Here is an example below:

3. Did you have anything to eat or drink at home this morning?

Please tick **YES** or **NO**. If you ticked **yes** please write **everything** you had to eat or drink in the box provided:

Yes

No

What did you have to **eat or drink** this morning at home? *Please record everything*

If you **didn't have anything to eat or drink** at home this morning you should put a tick in the box that says 'No' and move on to the next

If you **did have something to eat or drink** at home this morning you should write **everything** that you had to **eat and drink** in the box. It's important you write down **everything** you had!

Please try not to talk to any of your friends while you're filling in the form, and don't let anyone see your answers. If you don't understand anything ask an adult for help.

Start of Part 2!

What did you do this morning?

1. Did you watch television at home this morning?

Please tick YES or NO

Yes No



2. Did you have anything to eat or drink at home this morning?

Please tick YES or NO. If you ticked 'yes' please write everything you had to eat or drink in the box provided:

Yes No

What did you have to eat or drink this morning at home?
Please record everything

If you answered yes; please tell us what time you had something to eat or drink at home this morning: (circle or cross one answer)

Between
6:00am &
6:30am

Between
6:30am &
7:00am

Between
7:00am &
7:30am

Between
7:30am &
8:00am

Between
8:00am &
8:30am

Between
8:30am &
9:00am

3. How did you travel to school this morning?

Please circle **1 or more answers**. For example, if you only walked to school you should circle 'walk', but if you got the bus and walked you should circle 'bus' and 'walk'.

Walk	Cycle	Bus	Tram	Car
------	-------	-----	------	-----

4. Did you have anything to eat or drink on the way to school this morning?

Please tick YES or NO. If you ticked 'yes' please write everything you had to eat or drink in the box provided:

Yes

No

What did you have to eat or drink on the way to school this morning? *Please record everything*

If you answered yes; please tell us what time you had something to eat or drink on the way to school this morning (circle or cross one answer)

Between
8:00am &
8:15am

Between
8:15am &
8:30am

Between
8:30am &
8:45am

Between
8:45am &
9:00am

5. Did you buy anything to eat or drink from the shop on your way to school this morning?

Please tick YES or NO.

Yes No

If you answered **yes**; what did you buy to eat or drink from the shop this morning?



6. Did you have anything to eat or drink at school this morning before class started?

Please tick YES or NO. If you ticked 'yes' please write everything you had to eat or drink in the box provided:

Yes No



What did you have to eat or drink **this morning before class started**? *Please record everything*

7. What did you mostly do at morning break today?

Please circle 1 answer



Sat around



Stood around



Walked around



Ran around

8. Did you have anything to eat at morning break today?

Please tick YES or NO. If you ticked 'yes' please write everything you had to eat or drink in the box provided:

Yes

No

What did you have to eat or drink at morning break today? *Please record everything*

9. Did you have anything else to eat or drink before school lunch today?

Please tick YES or NO. If you ticked 'yes' please write everything you had to eat or drink in the box provided:

Yes

No

What else did you have to eat and or drink? *Please record everything*

That's today finished.

Keep going and tell us about yesterday. You're doing really well so far.

What did you do yesterday?

1. Did you watch television at home yesterday morning?

Please tick YES or NO

Yes

No



2. Did you have anything to eat or drink at home yesterday morning at all?

Please tick YES or NO. If you ticked 'yes' please write everything you had to eat or drink in the box provided:

Yes

No

What did you have to eat or drink at home yesterday morning? Please record everything

If you answered yes; please tell us what time you ate and/ or drank something at home yesterday morning:

Between
6:00am &
6:30am

Between
6:30am &
7:00am

Between
7:00am &
7:30am

Between
7:30am &
8:00am

Between
8:00am &
8:30am

Between
8:30am &
9:00am

3. How did you travel to school yesterday morning?

Please circle 1 or more answers. For example if you only walked to school you should circle 'walk', but if you got the bus and walked you should circle 'bus' and 'walk'.

Walk	Cycle	Bus	Tram	Car
------	-------	-----	------	-----

4. Did you have anything to eat or drink on the way to school yesterday morning?

Please tick YES or NO. If you ticked 'yes' please write everything you had to eat or drink in the box provided:

Yes

No

What did you have to eat or drink on the way to school yesterday? Please record everything

If you answered yes, please tell us **what time** you had something to eat or drink **on the way to school** yesterday morning:

Between
8:00am &
8:15am

Between
8:15am &
8:30am

Between
8:30am &
8:45am

Between
8:45am &
9:00am

5. Did you buy anything to eat or drink from the shop on your way to school yesterday morning?

Please tick YES or NO

Yes No

If you answered **yes**; what did you buy to **eat or drink** from the shop yesterday morning?

6. Did you have anything to eat or drink at school yesterday morning, before class started?

Please tick YES or NO. If you ticked 'yes' please write everything you had to eat or drink in the box provided:

Yes No

What did you have to eat or drink yesterday morning before class started? *Please record everything*

7. What did you mostly do at morning break yesterday?

Please circle 1 answer



Sat around



Stood around



Walked around



Ran around

8. Did have anything to eat at morning break yesterday?

Please tick YES or NO. If you ticked 'yes' please write everything you had to eat or drink in the box provided:

Yes

No

What did you have to eat or drink at morning break yesterday? *Please record everything*

9. Did you have anything else to eat or drink before school lunch yesterday?

Please tick YES or NO. If you ticked 'yes' please write everything you had to eat or drink in the box provided:

Yes

No

What else did you have to eat and or drink? *Please record everything*

The End

Thank you very much for your help. Your answers are extremely important to our research into school breakfast clubs.



Free School Breakfast Questionnaire Booklet

Parents

Important instructions!

- The questionnaire should be completed on a **school week day between Tuesday to Friday.**
- The questionnaire should be completed **after lunch time** as you will be asked questions about the food and drink you've consumed throughout the morning.



Your unique participant number is:

Part 1

This part is about your attitudes towards breakfast. For each question please put a tick in the space that best describes what you think. There are no right or wrong answers. The form is about what **you** think.

Here is an example:

	<i>Agree a lot</i>	<i>Agree a bit</i>	<i>Don't agree or disagree</i>	<i>Disagree a bit</i>	<i>Disagree a lot</i>
1. Eating breakfast keeps you healthy					

- If you **really agree** that eating breakfast keeps you healthy, you should put a tick in the first space, underneath where it says 'Agree a lot'.
- If you **agree a bit** that eating breakfast keeps you healthy, you should put a tick in the second space underneath where it says 'Agree a bit'.
- If you **don't agree or disagree**, that eating breakfast keeps you healthy you should put a tick in the third space, underneath where it says 'Don't agree or disagree'.
- If you **disagree a bit** that eating breakfast keeps you healthy you should put a tick in the fourth place, underneath where it says 'Disagree a bit'.
- Finally, if you **disagree a lot** that eating breakfast keeps you healthy you should out a tick in the fifth space, underneath where it says 'Disagree a lot'.

All your answers are confidential between you and the researchers working on this project. Please fill this form in yourself, without talking to others about your answers.

This is the start of Part 1

Remember to put a tick in **one** space for **each** question:



	<i>Agree a lot</i>	<i>Agree a bit</i>	<i>Don't agree or disagree</i>	<i>Disagree a bit</i>	<i>Disagree a lot</i>
1. I usually eat healthy foods for breakfast					
2. I often miss breakfast					
3. It's okay for me to miss breakfast					
4. I hardly eat anything for breakfast					
5. I hate eating breakfast					
6. I usually eat unhealthy foods for breakfast					
7. I can concentrate even when I've missed breakfast					
8. I usually have a snack mid-morning instead of breakfast					
9. I feel okay in the mornings even if I haven't eaten breakfast					
10. Eating breakfast is boring					
11. I'd rather have a snack in the morning than eat breakfast					
12. If I miss breakfast I feel more tired in the morning					
13. I usually eat a good breakfast					

That's the end of Part 1. Please continue to Part 2 on the next page.

This is Part 2

Part 2 is about what **you** did, and what had to eat and drink **this morning and yesterday**. Try your best to remember exactly what you had to eat and drink and that you write down **everything**.

Here is an example of how to complete the questionnaire below:

2. Did you have anything to eat or drink for breakfast at home this morning before lunch time?

Please tick **YES or NO**. If you ticked yes write what you had to eat or drink in the box below:

No

Yes

What did you have to eat or drink for breakfast at home this morning before lunchtime? *Please record everything*

Follow the instructions for each question and provide additional information on the foods and drinks you consumed. In this example, if you didn't eat or drink anything at home this morning for breakfast you should tick *No* and move on to the next question. However, if you did eat or drink something at home this morning you should tick *Yes* and write down **everything you had to eat and drink** in the box provided.

Start Part 2

What did you do this morning?

1. Did you watch television at home this morning?

Please tick YES or NO

Yes No

2. Did you have anything to eat or drink for breakfast at home this morning before lunch?

Please tick YES or NO. If you ticked yes write what you had to eat or drink in the box below:

No Yes

What did you have to eat or drink for your breakfast at home this morning? Please record everything

If you answered 'yes'; what time did you eat and/ or drink something for your breakfast at home this morning?

Before 6am	Between 6:00 & 6:30am	Between 6:30 & 7:00am	Between 7:00 & 7:30am	Between 7:30 & 8:00am	Between 8:30 & 9:00am
Between 9:00 & 9:30am	Between 9:30 & 10:00am	Between 10:00 & 10:30am	Between 10:30 & 11:00am	Between 11:00 & 11:30am	After 11:30am

3. Did you have anything else to eat or drink, other than your breakfast, at home this morning before lunch?

Please tick **YES** or **NO**. If you ticked yes write what you had to eat or drink in the box below:

No Yes

What else did **you** have to eat or drink at home this morning?
Please record everything

If you answered '**yes**', what time did you eat or drink something else (other than your breakfast) at home this morning before lunch?

Before 6am	Between 6:00 & 6:30am	Between 6:30 & 7:00am	Between 7:00 & 7:30am	Between 7:30 & 8:00am	Between 8:30 & 9:00am
Between 9:00 & 9:30am	Between 9:30 & 10:00am	Between 10:00 & 10:30am	Between 10:30 & 11:00am	Between 11:00 & 11:30am	After 11:30am

4. Did you have anything to eat or drink for your breakfast outside of the home this morning before lunch?

Please tick **YES** or **NO**. If you ticked yes write what you had to eat or drink in the box below:

No Yes

What did you have to eat or drink for your breakfast outside the home this morning before lunch? *Please record everything*

If you answered **'yes'**; what time did you eat something **for breakfast outside of the home this morning** before lunch?

Before 6am	Between 6:00 & 6:30am	Between 6:30 & 7:00am	Between 7:00 & 7:30am	Between 7:30 & 8:00am	Between 8:30 & 9:00am
Between 9:00 & 9:30am	Between 9:30 & 10:00am	Between 10:00 & 10:30am	Between 10:30 & 11:00am	Between 11:00 & 11:30am	After 11:30am

5. Did you have anything else to eat or drink, other than your breakfast, outside of the home this morning before lunch?

Please tick **YES** or **NO**. If you ticked yes write what you had to eat or drink in the box below:

No Yes

What else did **you** have to eat or drink **outside of the home this morning** before lunch? *Please record everything*

If you answered **'yes'**; what time did you eat something else (other than your breakfast) **outside of the home this morning** before lunch?

Before 6am	Between 6:00 & 6:30am	Between 6:30 & 7:00am	Between 7:00 & 7:30am	Between 7:30 & 8:00am	Between 8:30 & 9:00am
Between 9:00 & 9:30am	Between 9:30 & 10:00am	Between 10:00 & 10:30am	Between 10:30 & 11:00am	Between 11:00 & 11:30am	After 11:30am

What did you do yesterday?

1. Did you watch television at home yesterday morning?

Please tick YES or NO

Yes No

2. Did you have anything to eat or drink for your breakfast at home yesterday morning before lunch?

Please tick YES or NO. If you ticked yes write what you had to eat or drink in the box below:

Yes No

What did you have to eat or drink for your breakfast at home yesterday morning before lunch? *Please record everything*

If you answered 'yes'; what time did you eat or drink something for your breakfast at home yesterday morning before lunch?

Before
6am

Between
6:00 &
6:30am

Between
6:30 &
7:00am

Between
7:00 &
7:30am

Between
7:30 &
8:00am

Between
8:30 &
9:00am

Between
9:00 &
9:30am

Between
9:30 &
10:00am

Between
10:00 &
10:30am

Between
10:30 &
11:00am

Between
11:00 &
11:30am

After
11:30am

3. Did you have anything else to eat or drink, other than your breakfast, at home yesterday morning before lunch?

Please tick **YES** or **NO**. If you ticked yes write what you had to eat or drink in the box below:

No Yes

What else did **you** have to eat or drink **at home yesterday morning** before lunch? *Please record everything*

If you answered '**yes**'; what time did you eat something else (other than your breakfast) **outside of the home yesterday morning** before lunch?

Before 6am	Between 6:00 & 6:30am	Between 6:30 & 7:00am	Between 7:00 & 7:30am	Between 7:30 & 8:00am	Between 8:30 & 9:00am
Between 9:00 & 9:30am	Between 9:30 & 10:00am	Between 10:00 & 10:30am	Between 10:30 & 11:00am	Between 11:00 & 11:30am	After 11:30am

4. Did you have anything to eat or drink for your breakfast outside of the home yesterday morning before lunch?

Please tick **YES** or **NO**. If you ticked yes write what you had to eat or drink in the box below:

Yes No

What did you have to eat or drink **outside the home for your breakfast yesterday morning** before lunchtime? *Please record everything*

If you answered 'yes'; what time did **you** eat something **for your breakfast, outside of the home, yesterday morning** before lunch?

Before 6am	Between 6:00 & 6:30am	Between 6:30 & 7:00am	Between 7:00 & 7:30am	Between 7:30 & 8:00am	Between 8:30 & 9:00am
Between 9:00 & 9:30am	Between 9:30 & 10:00am	Between 10:00 & 10:30am	Between 10:30 & 11:00am	Between 11:00 & 11:30am	After 11:30am

5. Did you have anything else to eat or drink, other than breakfast, outside the home yesterday morning before lunch?

Please tick **YES** or **NO**. If you ticked yes write what you had to eat or drink in the box below:

No Yes

What else did **you** have to eat or drink **outside the home yesterday morning** before lunch? *Please record everything*

Appendix Pi: Parent Debrief for Study 3

Participant number: _____

Dear Parent/Guardian,

I would like to take this opportunity to thank you for taking part in a research project that was recently conducted at [name of school]. Your contribution to this project is very much appreciated.

The purpose of the research project was to identify children's and parents' attitudes towards breakfast and their health related behaviours. This research project was part of a wider evaluation of Blackpool's Universal Free School Breakfast Programme, undertaken by researchers at Northumbria University.

Please be assured that all information collected during your discussion will be stored in accordance with the Data Protection Act 1998 and will only be used for the purpose of this project. The findings of the research will be included in a PhD thesis and may be included in publications and presentations about the project. However, no personal information such as children's names will be disclosed.

It is standard research practice to provide research participants with an overall summary of the research findings on completion of the project. If you would like to receive a summary of these findings, please complete the reply slip below and return it to your child's teacher by [date].

Should you wish to withdraw your information from this project you can do so by emailing louise.harvey-golding@northumbria.ac.uk and quoting the participant number provided. Furthermore, if you have any concerns or complaints about the way in which this research has been conducted you can contact the Chair of the School Ethics Committee, Dr. Nick Neave via email nick.neave@northumbria.ac.uk .

Yours faithfully,

Louise Harvey-Golding
PhD Researcher at Northumbria University

I would like to receive a summary of the research findings.

Name:.....

Email
address:.....

Appendix Pii: Child Debrief for Study 3

Lots of primary schools in Blackpool have school breakfast clubs like the one at your school.



The questionnaires you completed helped me to learn about children's attitudes towards breakfast and breakfast habits.

All the things you shared are really important to us. I will tell people children's breakfast and snack food habits, so that people can understand more about children in Blackpool.

I made sure that your name was removed, so no one will know the information that you gave. I also locked away the questionnaires in a safe place where only our team can get to them.

When I've finished finding out about children's breakfast habits, I will let you and your school know all the things I have found out. I will be using the things you told me for my university work and in the future I will be publishing my work and talking about it to lots of people. I will never put your name on any of this information.



Don't forget, if you have any questions about the project you can ask your school and they will pass the question on to me so I can get back to you with an answer.

Thank you for all your help with this important project. You did a great job!

Thank you!



Appendix Qi: School Invite and Information for Study 4

Dear Head Teacher/ School Business Manager,

I am writing to invite your school's participation in a research project currently being undertaken by researchers at Northumbria University, which evaluates Blackpool's Universal Free School Breakfast Programme. The research aims to examine breakfast intakes across the morning in children.

Your participation in this important research would be much appreciated and the school would be invited to assist in the following:

- School staff assistance in the distribution and retrieval of research information and opt out consent forms to parents/ carers;
- School head teacher to act as in-loco parentis, to allow all children aged 9-11 to participate in the research, unless they are opted out by their parents;
- Children will be invited to complete short food diaries over the period of one school week detailing the food they consumed from waking to lunchtimes;
- It would be necessary for children to complete food diaries in school time following lunch, therefore your assistance in facilitating this would be greatly welcomed;
- School catering staff to provide information of the foods and drinks served at school breakfast.

I have attached copies of the research aims and purposes for children, parents and school staff, which contain further information about this study. Should you wish for your school to participate in this research please complete and sign the consent form included below and return via email or post. Alternatively, if you would like more information about any aspect of the research before reaching a decision, please contact Louise Harvey-Golding via email louise.harvey-golding@northumbria.ac.uk. Any assistance you can offer towards this project would be greatly appreciated.

Yours sincerely,

Louise Harvey-Golding, PhD Researcher, Northumbria University.

Appendix Qii: School Consent Form for Study 4

Project Title: Examining the effect of universal free school breakfast on children's food consumption.

Name of School:
Please confirm that you agree with the following sentences by signing below:
I have read and fully understood all the information provided about the research project.
I understand that children will provide information on their food consumption over a week long period.
I understand that a researcher will be present in the school to assist with the collection of data and to observe school breakfast for additional information towards the research.
I understand that data will also be collected on the foods and drinks served at school breakfast via school catering staff.
I understand that data collected might be used in presentations and publications about the project but the actual hard copies will be stored securely and will only be accessed by the research team.
I provide consent for my school to participate in this research project.
I provide consent for children at the school who are not opted out by their parents to participate in the research project.
The school will act as in loco parentis for children who are not opted out of the study by parents/ carers.

Name: _____

Signed: _____

Date: _____

Researcher's Signature: _____ Date: _____

Appendix Qiii: Parent Letter for Study 4

Dear Parent/Guardian,

I am writing to inform you that your child has been invited to take part in a research project being carried out by researchers at Northumbria University, which is taking place within your child's school. The aim of the research project is to examine the effect of universal free school breakfast on children's food consumption across the morning. The project is part of a wider evaluation into Blackpool's universal free school breakfast scheme.

Taking part in the research will involve your child completing a food diary of everything they eat from waking to lunchtime over a week long period. The diary will be completed in school time with minimal impact on your child's learning. I have attached an information sheet with full details of the research project. If after reading this you would prefer that your child **did not** complete a food diary that is fine, just complete and return the opt-out consent form to your child's school by [date].

If you require any further information about the research please contact: Louise Harvey-Golding via email: louise.harvey-golding@northumbria.ac.uk. Alternatively, you can let your child's school know that you have a question and I will answer any questions you have. Thank you for taking the time to consider this information. Any help you can offer with this project would be greatly appreciated.

Yours faithfully,

Louise Harvey-Golding
Postgraduate PhD Researcher, Northumbria University

Appendix Qiv: Parent Information for Study 4

Project Title: Examining the effect of universal free school breakfast on children's breakfast consumption across the morning.

Researcher: Louise Harvey-Golding [louise.harvey-golding@northumbria.ac.uk]

What is this project all about?

Researchers at Northumbria University are currently undertaking an evaluation into Blackpool's Universal Free School Breakfast Programme. As part of this evaluation we would like to find out about the effect of free school breakfast on children's breakfast food consumption.

Previous research has suggested that free school breakfast programmes may contribute positively to the reduction of obesity. However, other research has suggested that some children may be consuming more breakfast food across the morning at home and school. Your child has been invited to take part in this research project because they attend a school with a universal free breakfast in operation. We are interested in the impact this may be having on your child's food consumption across the morning.

What will my child be invited to do?

Your child will be invited to complete a food diary over a week long period during school time and at the weekend. This will be arranged so that there is minimal impact on your child's learning. Your child will not be expected to answer any questions that they do not feel comfortable answering. In addition, if your child changes their mind about taking part in the research, they are free to withdraw from project straight away. The research is planned for week commencing [Dates].

The information children provide in the questionnaires will be used as part of the evaluation of Blackpool's Universal Free School Breakfast programme. The findings from the food diaries will be used to look for differences in children's food consumption across the morning.

What will happen to the information my child provides?

Your child's information will only be accessed by the researchers working on this project for the purpose of this project. The research team has put into place a number of procedures to protect your child's confidentiality. Your child will be provided with a unique participant number that will be used to identify any information they provide. Their name or other personal details will be stored securely and kept separate from the information they provide in the food diaries.

The information collected via the food diaries will be summarised and will contribute to a PhD thesis. It may also be used in publications and presentations, but your child's identity will always remain confidential.

Will my child's answers remain confidential?

Yes, your child's names will not appear on any of the data collected for this project. All participants will be identified according to a unique participant number only.

How will my child's information stored and used in the future?

All information will be stored securely and destroyed in accordance with the Data Protection Act 1998. The information may be used in future presentations and publications about the project but no personal information, such as names, will be disclosed.

Has this project received appropriate clearance?

This project has been approved by the Faculty of Health and Life Sciences Ethics Committee at Northumbria University and your child's head teacher has given consent for the project to take place on school premises. Louise Harvey-Golding is in possession of an up to date Barring and Disclosure Enhanced Check that allows her to undertake research in schools.

How can my child withdraw from the project?

If for any reason you decide to withdraw your child's participation or information from this project, please contact Louise Harvey-Golding on the email address provided, within one month of your taking part. After this date it might not be possible to withdraw individual information because the results may have already been published. As all information is anonymised, your child's individual information will not be identifiable.

How can I find out more?

For more information please contact Louise Harvey-Golding via email: louise.harvey-golding@northumbria.ac.uk or leave your name and contact number at your child's school office and you will be contacted to allow you to ask any questions. Alternatively, you can contact Lynn Donkin at lynn.donkin@blackpool.gov.uk or Greta Defeyter at greta.defeyter@northumbria.ac.uk.

What do I do if I decide I do not want my child to take part?

Please find attached an opt-out consent form. The form is for your opt your child out of the research if you do not want them to take part for any reason. All the information you provide in these forms will be stored securely.

Appendix Qv: Parent Opt-out Consent Form for Study 4

Project Title: Examining the effect universal free school breakfast on children’s breakfast food consumption.

To be completed by a parent or guardian who **DOES NOT AGREE** to their child taking part in the universal free school breakfast study at their child’s school. **If you are happy for your child to take part you do not need to do anything.**

If you **do not** want you child to take part in the study please complete this form and return it to your child’s school by no later than [date]. If the form is not returned by this date it will be assumed that you are happy for your child to take part, and your child will be invited to complete a food diary at school.

I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions, but **I DO NOT** wish my child to take part in the above study.

.....

Your Name:.....

Child’s full name:.....

Child’s school:

Signature of Parent/Guardian:.....

Date of signature:.....

Appendix Qvi: Child Information for Study 4

Most primary schools in Blackpool give their pupils a breakfast for free.



We would like to find out about how school breakfast affects the food that children eat in the mornings.

If you would like to help us with this, you will be asked to complete a food diary over a week telling us about the food you ate in the mornings and lunch times.



I will take the food diaries away and read them to find out about how school breakfast affects the food that children eat. This will help us to understand more about children and the things they need to be happy and healthy.

Your completed food diaries will be locked away and only the people working on this project will be able to read it. Your name will also be completely removed so no one will ever know the information you gave.

Also, if you are asked any questions you don't want to answer that is fine. If you decide you want to take part, but then you change your mind, you can stop taking part at any time because it's up to you whether you do it or not.

Would you like to take part in this project? (Circle yes or no)

Yes

No

Appendix Qvi: Child Consent and Demographic Questionnaire for Study 4

Please give me some information if you said yes to take part.

My first name is... 		My last name is... 	
I am <input type="text"/> years old.  My date of birth is <input type="text"/>		I am a... (draw a circle around the right answer)  Boy Girl	
My school is called... 	I am in year... E.g. Year 5, Year 6... 	My teacher's name is... 	
Tick the box which you think best describes your ethnic background <input checked="" type="checkbox"/>			
Asian/ Asian British: <input type="checkbox"/> Indian <input type="checkbox"/> Pakistani <input type="checkbox"/> Bangladeshi <input type="checkbox"/> Chinese <input type="checkbox"/> Any other back ground: 		Black / African / Caribbean / Black British <input type="checkbox"/> African <input type="checkbox"/> Caribbean <input type="checkbox"/> Any other background: 	
Mixed / multiple ethnic groups: <input type="checkbox"/> White and Black Caribbean <input type="checkbox"/> White and Black African <input type="checkbox"/> White and Asian <input type="checkbox"/> Any other background 		White: <input type="checkbox"/> English/Welsh/Scottish/Northern Irish/British <input type="checkbox"/> Irish <input type="checkbox"/> Gypsy or Irish traveller <input type="checkbox"/> Any other background 	

Appendix Ri: Breakfast Food Diary for Study 4 (School Week Day)



Children's Breakfast Food and Drink Diary

For primary school children
aged 9-11

Monday

Secret number:	Date:



DAY 1: MONDAY

Part 1 – At home this morning

1) What time did you get up out of bed this morning?



2) Did you watch television at home this morning?

Please tick YES or NO Yes No



3) Did you have anything to eat or drink at home this morning?

Please tick YES or NO Yes No



If 'No' please move onto [Part 2 – On your way to school](#)

If you ticked 'Yes' please tell us about what you had to eat/ drink at home this morning below: (See your diary toolkit for help)

a) What time did you have something to eat or drink at home this morning?



b) Who were you with when you had something to eat or drink at home this morning?

c) What else were you doing when you had something to eat or drink at home this morning? e.g. watching TV, sitting at the kitchen table, playing on computer, doing homework.

d) What did you have to eat and drink at home this morning? Remember to say what including the name and brand, the amount you ate/ drank (use your diary tool to help with this), cooking methods, and if there were any left overs.

Please tell us more about what you had to eat and drink at home this morning:

- 1) If you had milk this morning at home, was it whole milk (blue top), semi-skimmed milk (green top), skimmed milk (red top) or a milk alternative e.g. soya, oat, coconut?



Whole Milk



Semi-skimmed
Milk



Skimmed Milk

Other milk:

- 2) If you had cereal at home this morning, how much milk did you have on your cereal?



A little



Some



A lot



Drowned

- 3) If you had cereal at home this morning, did you sweeten it with sugar, honey or syrup?

Yes, sugar Yes, honey Yes, syrup None/ did not have

If yes, how many teaspoons?

- 4) If you ate bread at home this morning, what type of bread was it?

White Granary Wholemeal Brown 50/50 bread

Other Type:

Large loaf or small loaf: Large Small

If the bread was shop bought, how was it sliced?

Thick Medium Thin Unsliced

Name: e.g. Warburton's, Asda, Hovis.



5) If you had porridge at home this morning, how was it made?

With all water With all milk With milk and water Did not eat

Did you sweeten or salt your porridge?

With sugar With honey With salt Neither



6) If you had butter or margarine this morning at home, what brand was it? e.g. Utterly Butterly, Lurpack, Flora

7) If you had butter or margarine this morning at home, how thickly did you spread it?



1.

2.

3.

4.

5.

8) If you did drink tea or coffee at home this morning, how much milk did you have in it?

A lot Some A little None/ did not drink

9) If you did you did drink tea or coffee at home this morning, did you sweeten it with sugar?

Yes No/did not drink How many teaspoons in a mug/cup?

10) If you did drink fruit juice, squash/cordial, fizzy or other soft drinks at home this morning, was it?

Standard No added sugar /diet/low calorie Did not drink

Please record the full name/ type of the fruit juice, squash/cordial, fizzy or other soft drinks you drank at home this morning, e.g. Asda fresh orange juice, fresh apple juice, Robinsons Blackcurrant no added sugar, Sainsbury's Orange and Pineapple squash, Diet Coke, Fanta etc.

Part 2 – On your way to school

1) How did you travel to school this morning?

Please circle one or more answers. For example, if you only walked to school you should circle 'walk', but if you got the bus and walked you should circle 'bus' and 'walk'.



Walk



Cycle



Bus



Car



Tram

2) Did you have anything else, apart from what you've already told us, to eat or drink, on the way to school this morning?

Yes No If you answered 'No' move onto Part 3 - At school this morning

If you ticked 'Yes' please tell us about what you had to eat/ drink on the way to school this morning below: (See your diary toolkit for help)

a) What time did you have something to eat or drink on the way to school this morning?

b) Who were you with when you had something to eat or drink on the way to school this morning?

c) What were you doing when you had something to eat or drink on the way to school this morning?

d) What did you have to eat and drink on the way to school this morning? Remember to say what including the brand/ name, the amount you ate/ drank (use your diary tool to help with this) and if there were any left overs.

Part 3 – At school this morning



1) Did you have anything to eat or drink at school breakfast this morning?

Please tick YES or NO.

Yes No If 'No' please move onto Question 2

If you ticked 'Yes' please tell us what you had to eat/ drink at school breakfast this morning below: (See your diary toolkit for help)

a) What did you have to eat and drink at school breakfast this morning? Remember to say what including the name, the amount you ate/ drank (use your diary toolkit to help with this) and if there were any left overs.

2) Did you like the food and drink served at school breakfast this morning?

Please tick one box.

Yes No Don't Know

3) Did have anything to eat or drink between school breakfast ending and before morning break time today that you haven't already told us about?

Please tick YES or NO.

Yes No If you answered 'No' move onto Question 4

If you ticked 'Yes' please tell us what you had to eat/ drink between school breakfast ending and before morning break time today that you haven't already told us about: (See your diary toolkit for help)

a) What did you have to eat and drink between school breakfast ending and before morning break time today that you haven't already told us about? Remember to say what including the name, the amount you ate/ drank (use your diary tool to help with this) and if there were any left overs.

4) What did you mostly do at morning break today?



Sat around



Stood around



Walked around



Ran around

5) Did you have anything to eat or drink during morning break at school today that you haven't already told us about?

Please tick YES or NO.

Yes

No

If you answered 'No' move onto [Question 6](#)

a) What did you have to eat and drink at break time this morning? Remember to say what including the name, the amount you ate/ drank (use your diary toolkit to help with this) and if there were any left overs.

6) Did you have anything to eat or drink after morning break but before lunch break at school today that you haven't already told us about?

Please tick YES or NO.

Yes

No

a) What did you have to eat and drink after morning break but before lunch break at school today? Remember to say what including the name, the amount you ate/ drank (use your diary toolkit to help with this) and if there were any left overs.

That's it for today. Thank you and well done.
Don't forget to fill in your diary tomorrow.

Appendix Rii: Breakfast Food Diary for Study 4 (Weekend Day)



Children's Breakfast Food and Drink Diary

For primary aged children 9-11

Weekend

Secret number:	Date:



DAY 6: Saturday

1) What time did you get up out of bed this morning?



2) Did you watch television this morning?

Please circle YES or NO

Yes

No



3) Did you have anything to eat or drink this morning between waking up and before lunch?

Please circle YES or NO

Yes

No



If you ticked 'Yes' please tell us what you had to eat/ drink at home this morning below: (See your diary tool for help)

a) What time did you have something to eat or drink this morning?



b) Who were you with when you had something to eat or drink this morning?

c) What else were you doing when you had something to eat or drink this morning? e.g. watching TV, sitting at the kitchen table, playing on computer, doing homework.

d) Where were you when you had something to eat or drink this morning?

e) What did you have to eat and drink this morning? Remember to say what including the name and brand, the amount you ate/ drank (use your diary tool to help with this), cooking methods, and if there were any left overs.

Please tell us more about what you had to eat and drink this morning:

- 1) If you had **milk this morning**, was it whole milk (blue top), semi-skimmed milk (green top), skimmed milk (red top) or a milk alternative e.g. soya, oat, coconut?



Whole Milk



Semi-skimmed



Skimmed Milk

Milk

Other milk:

- 3) If you had **cereal this morning**, how much milk did you have on your cereal?



A little



Some



A lot



Drowned

- 4) If you had **cereal this morning**, did you sweeten with sugar, honey or syrup?

Yes, sugar Yes, honey Yes, syrup None/ did not have

If yes, how many teaspoons?

- 5) If you ate **bread this morning**, what type of bread was it?

White Granary Wholemeal Brown 50/50 bread

Other Type:

Large loaf or small loaf: Large Small

If the bread was shop bought, how was it sliced?

Thick Medium Thin Unsliced

Name: e.g. Warburton's, Asda, Hovis.

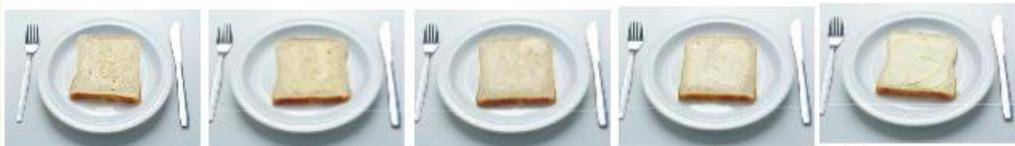


- 6) If you had **porridge this morning**, how was it made?
 With all water With all milk With milk and water Did not eat
 Did you **sweeten or salt** your porridge?
 With sugar With honey With salt Neither



- 7) If you had **butter or margarine this morning**, what brand was it?
 e.g. Utterly Butterly, Lurpack, Flora

- 8) If you had **butter or margarine this morning**, how thickly did you spread it?



1. 2. 3. 4. 5.

- 8) If you did **drink tea or coffee this morning**, how much **milk** did you have in it?
 A lot Some A little None/ did not drink

- 9) If you did you did drink **tea or coffee this morning**, did you sweeten it with sugar?
 Yes No/did not drink How many teaspoons in a mug/cup?

- 10) If you did drink **fruit juice, squash/cordial, fizzy or other soft drinks this morning**, was it?
 Standard No added sugar /diet/low calorie Did not drink

Please record the full **name/ type of the fruit juice, squash/cordial, fizzy or other soft drinks you drank this morning**, e.g. Asda fresh orange juice, fresh apple juice, Robinsons Blackcurrant no added sugar, orange and pineapple squash, Diet Coke, Fanta etc.

That's it for today. Thank you and well done.
 Don't forget to fill in your diary tomorrow.

Appendix: Riii: Breakfast Food Diary Toolkit for Study 4



Children's Seven Day Breakfast Food and Drink Diary Toolkit

For primary aged children 9-11
To be completed Monday - Saturday

Name:



Food Diary Information

This is a food diary for you to tell us about the food and drink you have from waking up in the morning to before lunch:

- On school days this includes: at home in the morning, on the way to school and at school before lunch.
- At the weekend it includes everywhere from waking up to before lunch.

It is not a test and it is important that you do not change what you normally eat and drink just because you're keeping this diary. The most important thing is that you answer the questions truthfully.

You should start your food and drink diary on Monday and fill it in for seven days, finishing on Sunday. After lunch break each day you will be asked by your teacher to fill in a section of the food diary telling us about what you had to eat and drink from waking up to before lunch break.

When: On a school day each day is divided into 3 main time slots: at home in the morning, on the way to school and at school before lunch.

Where: This could be at home in your bedroom, kitchen, sitting room, dining room, at a friend's or family member's house, in a car, on a bus/ tram on the way to school. It could also be from a shop, takeaway, café, school canteen, classroom or playground. Tell us if you were sitting at a table or watching TV.

With Whom: Give information about who you were with when you were eating and drinking. This could be alone, with family, with friends, with your teacher, other school staff etc.

What: Describe your food and drink giving as much detail as you can. Include any extras like sugar and milk in your tea or cereal; butter or other spreads on your bread; and sauces such as ketchup and mayonnaise.

Brand: Please make a note of the brand name (e.g. Heinz, Walkers, Hovis) if you know it.

Amount eaten: You can specify packet (e.g. Crisps), or number of individual items (e.g. biscuits, cereal bars), or slices (e.g. bread, bacon), or spoons. For drinks you can write glass, cup or mug. More help on describing portion sizes is provided in the next sections of this toolkit.

Cooking methods: If you know how the food was cooked (e.g. grilled, baked, boiled, fried), please record this. If you're unsure about how your food is cooked, please ask the person who prepares it if possible.

Help: You can find help on describing food and drink in this toolkit. As well as descriptions, you can find pictures of portion sizes of some common breakfast foods. Pick the picture that looks the most like the portion you had and record the number or letter in your food diary.

Left overs: We would like to know the amount that you actually ate, so you need to tell us if you left any food or drink.

Describing food/drink and amounts

Use the following table for information on how to describe the food and drink you had in your diary. It's in alphabetical order so you can easily look up the food or drink you need.

Food/ Drink	Description	Preparation	Amount
Baked beans	Standard, reduced salt or reduced sugar	Cooked in pan or microwave	Number of tablespoons
Biscuits	Cheese, wafer, crispbread, sweet, chocolate (fully or half coated), bourbon, custard cream, jammy dodger, shortbread	Home-made or shop bought	Number, size
Breakfast cereal and muesli	Brand: Kellogg's, Nestle, Asda Variety: Cornflakes, Weetabix, Cheerios, Coco pops	Added fruit or nuts With milk, sugar, honey, syrup	See pages 6 –12 for help with cereal portion sizes Spoons for sugar, honey and syrup
Bread	Wholemeal, granary, white or brown; 50/50 Currant, fruit, malt Sliced, unsliced, rolls, wraps, bagels, muffins	Alone or with spread or filling Grilled, toasted, fried	Number of slices/pieces Thick, medium or thin slices Cut or uncut loaf
Buns and pastries	Iced, currant or plain, jam, custard, fruit, cream	Homemade or shop bought	Size, number of pieces.
Butter, margarine & fat spreads	Flora margarine, Lurpack butter, Asda margarine, Utterly Butterly	On bread, crackers, malt loaf	For help with spreads see page 13-15
Cake	Fruit, sponge, fresh cream, iced, chocolate coated Filling: buttercream, jam	Homemade or shop bought	Large or small slice How many slices or pieces
Cereal bars	Type/ brand name: Cocopops bar, Kellogg's Special K Bar	With fruit, nuts, coated with chocolate/yoghurt	Size of bar Standard or multi-pack
Cooked breakfast foods, e.g. bacon, sausage, eggs	Bacon: back, streaky, smoked, unsmoked, with/without fat Sausage: type, brand name, pork, beef, fat/ thin etc.	Fried with or without oil, grilled, baked, boiled, poached, scrambled	Number of pieces, rashers, items etc
Crisps	Brand name and type: Walker's Salt and Vinegar, Wotsits Cheese What sort: potato, corn, wheat, maize, vegetable		Standard or from multipack Standard or sharing bag
Fruit: fresh	Apple, banana, orange, grapes	With or without skin Chopped up or whole fruit?	Small, medium or large piece or portion

Describing food and drink continued...

Fruit – Tinned, stewed	Sweetened or unsweetened With fruit juice or syrup	With cream or yoghurt?	Spoons
Fruit – juice (pure)	Flavour: apple, orange, grapefruit	From concentrate or freshly squeezed	For help with drinks sizes see pages 16-22
Jam, marmalade, honey & syrups	Low-sugar, shop bought or homemade	On bread, crackers, malt loaf, cereals	Spoons, heaped or level Spreads
Milk	What sort; whole (blue top), semi-skimmed (green top), skimmed (red top) or 1% fat; fresh, UHT, dried, soya milk (sweetened/unsweetened), goats' milk, rice milk, oat milk; flavoured milk	On cereal In tea/coffee/ hot drinks	For help with drinks sizes see pages 16-22
Milkshake	Fresh or long life/UHT Dairy or soya Brand, variety and flavour: Strawberry Yazoo, Asda Banana	If powder made up with whole, semi-skimmed, skimmed milk	For help with drinks sizes see pages 16-22
Porridge	Oats or instant oat cereal Brand and variety: Readybrek, supermarket's own brand Flavour: plain, syrup, apple	Made with milk and/ or water Added sugar, honey, syrup or salt	Spoons or bowl size—see page 11 Spoons of sugar, honey
Sandwiches and rolls	Type of bread/roll (see Bread & Rolls) Butter or margarine Type of filling; including salad, mayonnaise, pickle	If shop-bought, where from?	Number of rolls or slices of bread Amount of butter/ margarine, and amount of filling
Sauce	Tomato ketchup, brown sauce, soy sauce, salad cream, mayonnaise	With what food?	Spoons
Savoury snacks	Cheddars, cheese straws, Twiglets, Pretzels		Size: standard, mini, multi-pack
Smoothies	Contents: types of fruit, milk, yoghurt, fruit juice	If homemade give recipe	For help with drinks sizes see pages 16-22
Soft drinks: squash	Flavour; no added sugar/, low calorie, sugar free; "high" juice		For help with drinks sizes see pages 16-22
Soft drinks: fizzy	Flavour; standard/ diet/low-calorie; canned or bottled; cola – caffeine free		For help with drinks sizes see pages 16-22
Soft drinks: ready to drink	Flavour; no added sugar/low calorie/sugar free Real fruit juice		For help with drinks sizes see pages 16-22

Describing food and drink continued...

Tea, coffee, hot chocolate, cocoa, malted drinks	Ground/ filter, instant, decaffeinated Cappuccino, latte	Added sugar or sweetener With milk, half milk/ half water, all milk	For help with drinks sizes see pages 16-22
Sugar	White, brown, demerara.	Added to cereals, tea, coffee, fruit	Heaped or level Teaspoons
Sweets	Toffees, boiled sweets, jellies Brand and variety: Rowntree's Fruit Pastels		Number, packet size
Yoghurt inc. drinking yoghurt	Natural/plain or flavoured, creamy, Greek, low-fat, soya, with fruit pieces or fruit flavoured, twinpot, corner		Pot size or tablespoons

Portion Sizes

Use the pictures on the following pages to help you tell us the size of the portion you have eaten/ drank. Write the letter or number of the portion size you had in your diary next to the food/ drink you're describing. Remember that the pictures are much smaller than life size.

Cereals.....Pages 6 - 12

- Cornflakes.....p 6
- Hoopsp 7
- Shreddies p 8
- Rice Crispies p 9
- Sugar Puffs p 10
- Porridge p 11
- Milk on Cereal p 12

DrinksPages 16-22

- Glasses of milkpp 16-18
- Glasses of juice/ waterpp 19-21
- Mug sizesp 22

Spoons sizes Page 23

Spreads on Bread.....Pages 13-15

- Butter/ margarine etc. spreadsp 13
- Jam spreadsp 14
- Peanut butter (chocolate spread)p 15

Cornflakes:



A.



B.



C.



D.



E.



F.



G.

Hoops:



A.



B.



C.



D.



E.



F.



G.

Shreddies:



A.



B.



C.



D.



E.



F.



G.

Rice Crispies:



A.



B.



C.



D.



E.



F.



G.

Sugar Puffs:



A.



B.



C.



D.



E.



F.



G.

Porridge:



A.



B.



C.



D.



E.



F.



G.

Milk on cereal:



A Little



Some



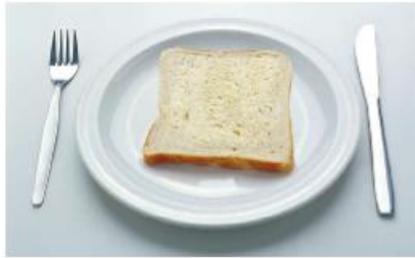
A Lot



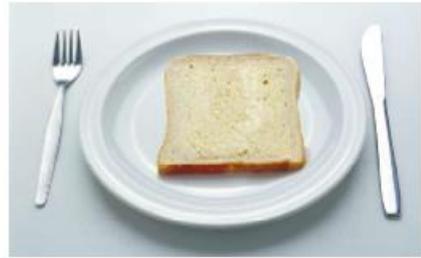
Drowned

Spreads on bread

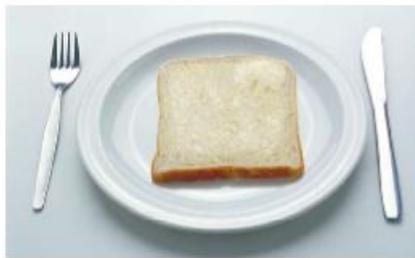
Butter/ margarine:



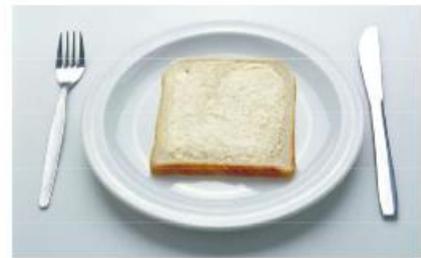
1.



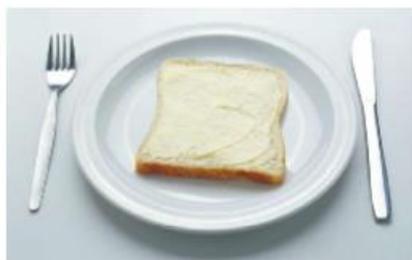
2.



3.



4.



5.

Spreads on bread

Jam:



1.



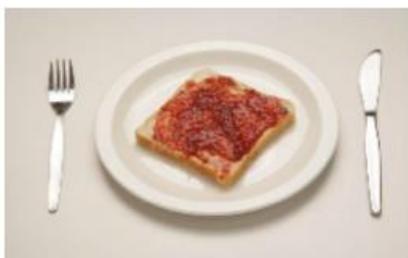
2.



3.



4.



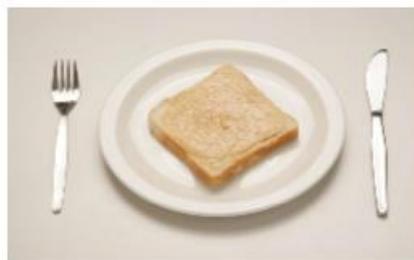
5.

Spreads on bread

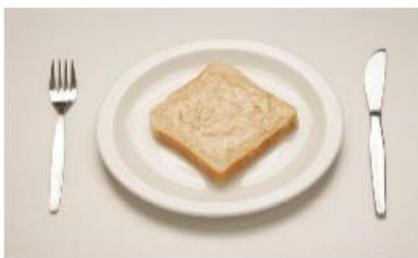
Peanut Butter: (You could use this to measure chocolate spread too)



1.



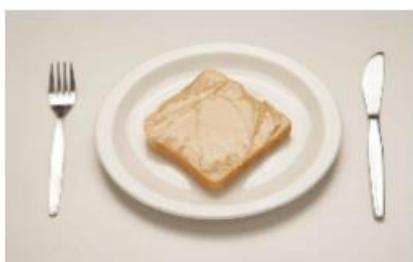
2.



3.



4.



5.

Drinks - Glasses of milk:



Drinks - Glasses of milk:



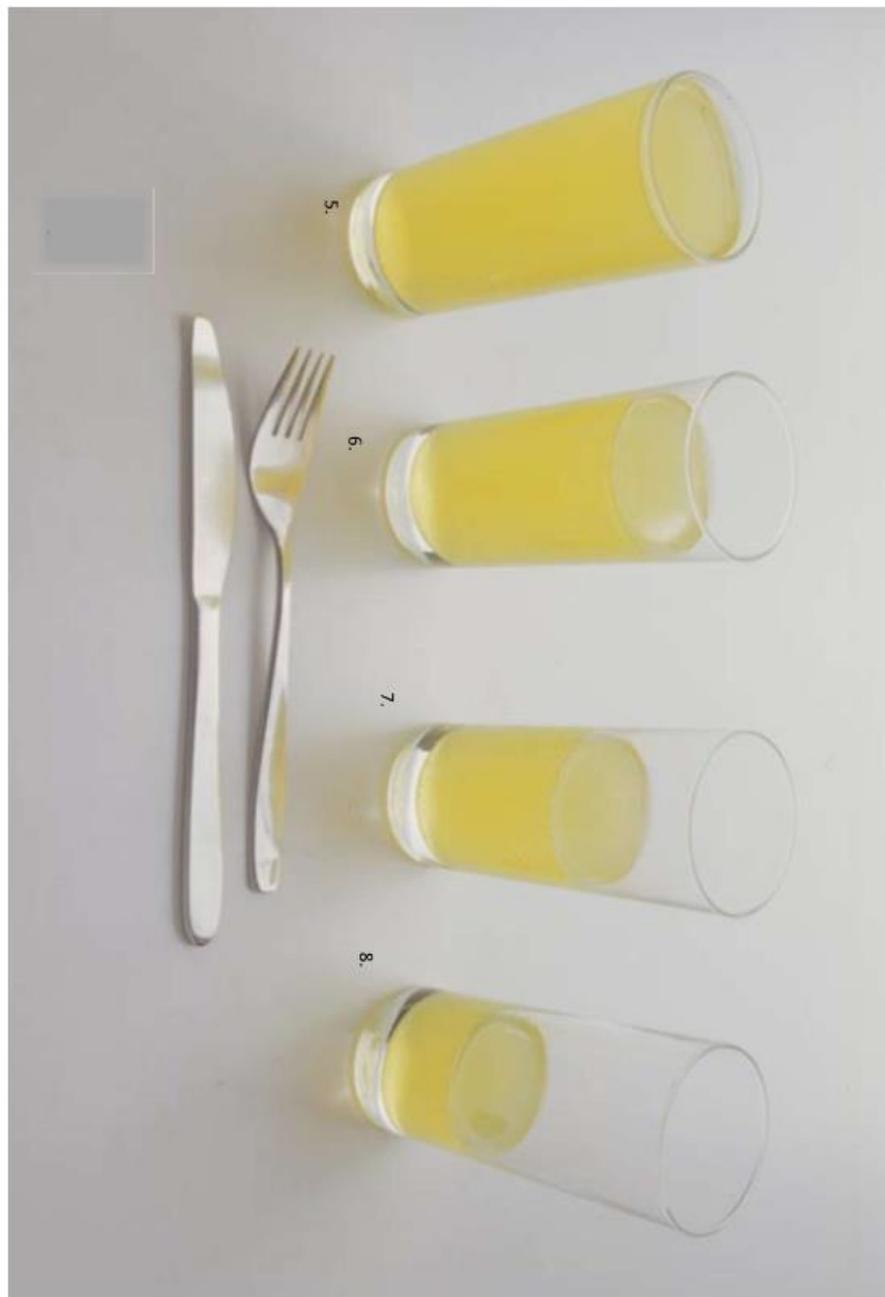
Drinks - Glasses of milk:



Drinks - Glasses of Juice: You could also use these for estimating water



Drinks - Glasses of Juice: You could also use these for estimating water



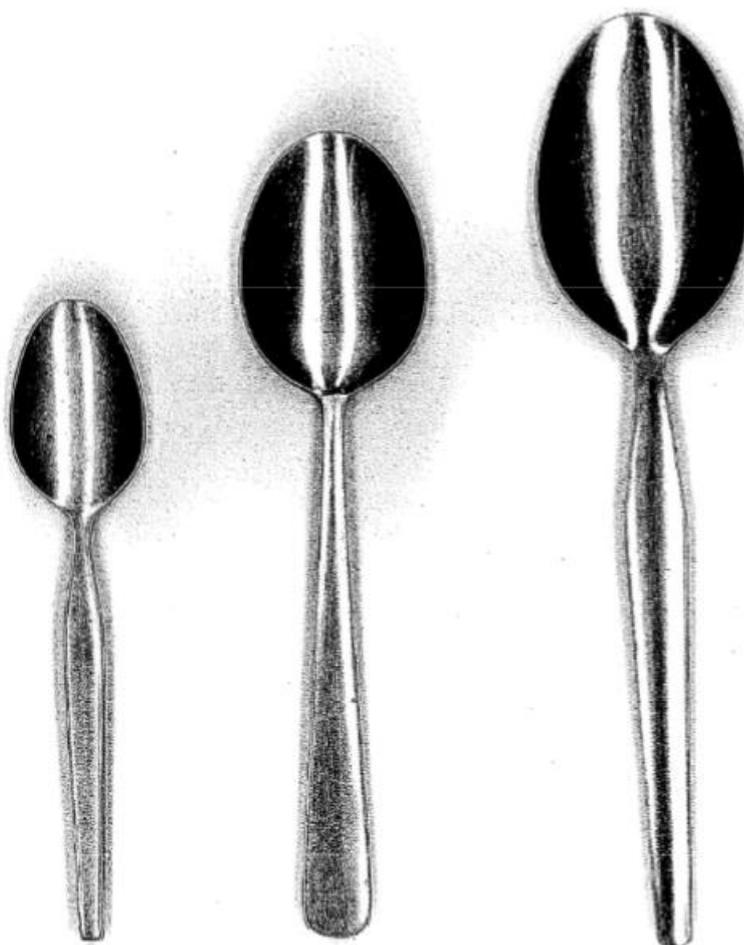
Drinks - Glasses of Juice: You could also use these for estimating water



Drinks - Glasses of Juice: You could also use these for estimating water



Spoon sizes:



Teaspoon
(tsp)

Dessertspoon
(dsp)

Tablespoon
(tbsp)

Appendix S: School Caterer Diary



School Catering Staff: School Breakfast Diary

School Name:	
Date:	
Your role within school breakfast:	

Before you start the food diary please answer the following questions about your school's free school breakfast:

1. Do you serve breakfast before or after the formal start of the school day?
2. Does the school use a house caterer, school contracted caterer, LA contractor caterer or other?
- 3) Is food prepared for school breakfast on or off site?
- 4) What are your opinions on the food and drink quality and choice served at school breakfast?
- 5) Do you know where food is sourced for school breakfast, e.g. locally sourced?
- 6) Do you serve the same or different foods daily for breakfast?
- 7) What food serving model does your school use for breakfast, e.g. open self-serve, individual portions?

Please continue on the next page...

8) What are kitchen facilities like at the school, e.g. fully/ partially equipped?

9) Where is school breakfast served each day?

10) What are your opinions on the dining arrangements for school breakfast, e.g. fit for purpose, size, serving points, and use of space?

11) Is there left over food and drink from school breakfast. If so, what is typically left over and how much?

13) What does the school do with left over food and drink from school breakfast?

14) How much waste is generated from school breakfast?

15) How do the school deal with waste from school breakfast?

Start of School Breakfast Food and Diary

This food diary should be completed by the school caterer responsible for preparing/ serving free school breakfast. The diary should be completed each day after school breakfast for one school week –Monday to Friday.

Each day you should record the types of foods and drinks served for free school breakfast including brand names where appropriate, amounts served in individual portions, preparation methods, leftovers and wastage.

In addition to this breakfast food and drink diary you will also be supplied with a plastic bag for you to retain and store any food and drink packaging from free school breakfast items. This will be collected with your food diary.

Day 1: Monday

Please complete the required information below:

Food/ Drink Type and Brand Name where possible	Amount Served in Individual Portions	Preparation Methods

Appendix T: Researcher Observation Schedule for Study 4

School:

Observational checklist to be completed by the observer:

Date	No. of children in attendance overall	Start and finish times

No. of staff and staff roles	Staff: Child ratio

Where is breakfast served in the school?

What time is breakfast served?

What food is served?

What is the food serving model?

How and where is the food eaten? e.g. with hands, cutlery, table, sitting on carpet etc.?

Is the environment where breakfast is served used for other purposes?

Describe the layout of the environment where school breakfast is served?

Are school breakfast consumers separated from non-breakfast consumers?

Are support staff or teaching staff responsible for children during school breakfast?

Who delivers and serves school breakfast?

Who clears away school breakfast and removes any waste?

Are there any activities available for children during school breakfast?

Do children serve themselves or are they served breakfast?

How long are children eating food for at school breakfast, e.g. from when food is served?

What happens when children are finished eating?

Is it apparent whether any children are rushed when eating school breakfast? e.g. due to lateness, due to assembly or class etc.

Do children assist in the serving or clearing away of waste during school breakfast?

Photograph checklist:

Environment where breakfast is served

Examples of food serving models

Examples of food

Photographs of food

Appendix U: Training PowerPoint for Study 4



What the research is about and how you can help:

- ▶ Most primary schools in Blackpool give their students a free breakfast.
- ▶ We would like to find out what children are eating in the morning at home, on the way to school and at school, and also at weekends.
- ▶ You can help us by filling in a morning food and drink diary for us each day for a week.
- ▶ We will use the information you provide to understand more about what children are eating and drinking in the morning.
- ▶ All the information you provide will be kept confidential
- ▶ Any questions?
- ▶ If you would like to take part in this important research fill in the consent form.



**TOP
SECRET**

healthy living

Do you want to help us with this important research?



Would you like to take part in this project? (Circle yes or no)

Yes No

Please give me some information if you would YES to take part.

My first name is... My last name is...

I am years old. I am in...
(Draw a circle around the right answer)

My date of birth is Day Got

My school is called... I am in year... My teacher's name is...
E.g. Year 5, Year 6, ...

Tick the box which you think best describes your ethnic background

<input type="checkbox"/> Asian / Asian British	<input type="checkbox"/> Black / African / Caribbean / Black British
<input type="checkbox"/> Indian	<input type="checkbox"/> African
<input type="checkbox"/> Pakistani	<input type="checkbox"/> Caribbean
<input type="checkbox"/> Bangladeshi	<input type="checkbox"/> Any other background
<input type="checkbox"/> Chinese	
<input type="checkbox"/> Any other background	

Mixed / multiple ethnic groups

<input type="checkbox"/> White and Black Caribbean	<input type="checkbox"/> White
<input type="checkbox"/> White and Black African	<input type="checkbox"/> English/Welsh/Scottish/Northern Irish/British
<input type="checkbox"/> White and Asian	<input type="checkbox"/> Irish
<input type="checkbox"/> Any other background	<input type="checkbox"/> Gypsy or Irish Traveller
	<input type="checkbox"/> Any other background

Sign here



Please tick YES if you would like to help us with this research

Now help us by telling us some information about you.

Filling in your food diary:

- ▶ Not a test - don't change the way you eat and drink!
- ▶ School diary for Monday to Friday - Home diary for weekend.
- ▶ Each day divided into 3 parts: At home, On the way to school, At school.
- ▶ Tell us about everything you had to eat and drink from waking up to before lunch.



What to write in your food and drink diary:

▶ **When:**

- At home, on the way to school or at school?
- Record the time when you ate or drank something.



▶ **Where:**

- E.g. bedroom, kitchen, sitting room, dining room, friend's or family member's house, car, bus/ tram, shop, takeaway, café, school canteen, classroom, playground.
- Tell us if you were sitting at a table or watching TV.

▶ **With Whom:**

- Who you were with when you were eating and drinking?
- E.g. alone, with family, friends, teacher, canteen staff etc.

What to write in your food and drink diary:

- ▶ **What:**
 - Give as much detail as you can. Include any extras like sugar, milk, spreads, sauces.
- ▶ **Brand:**
 - E.g. Heinz, Walkers, Hovis
- ▶ **Amount eaten:**
 - E.g. packet, number of individual items, slices, spoons, glass, cup or mug.
- ▶ **Cooking methods:**
 - E.g. grilled, baked, boiled, fried
- ▶ **Left overs**



Helping you describe the food and drink in your diary:

- ▶ Table at the beginning of your food diary contains information on common breakfast foods and drinks:
 - Description
 - Cooking and preparing
 - Amounts
- ▶ Pictures of breakfast foods and drinks portion sizes:
 - Cereals, milk on cereal, spreads, and drinks.
 - Use the numbers here to state how much you had to eat or drink.



Now let's fill in the first day together!

► Day 1 of your food and drink diary...



At home:

DAY 1: MONDAY

Part 1 - At home this morning

1) What time did you get up out of bed this morning?

2) Did you watch television at home this morning?
Please circle YES or NO

3) Did you have anything to eat or drink at home this morning?
Please circle YES or NO

4) What time did you have something to eat or drink at home this morning?

5) Who were you with when you had something to eat or drink at home this morning?

6) What were you doing when you had something to eat or drink at home this morning? e.g. watching TV, sitting at the kitchen table, playing on computer, doing homework.

7) What did you have to eat and drink at home this morning? Remember to eat at least including the DATE AND TIME the FOOD you ate/drank (use your diary food to help with this. PLEASE PRINT who if there were any ADULTS)

Write the time you got out of bed this morning.

Did you watch TV this morning? YES or NO

Did you have anything to eat or drink this morning at home? YES or NO

Write the time you had something to eat or drink at home this morning.

Tell us who you were with when you had something to eat this morning, e.g. parents carers, brother, sister, grandparents etc.

Tell us what you were doing when you had something to eat or drink at home this morning e.g. sitting at the kitchen table, in your bedroom watching TV, doing homework in the sitting room etc.

At home:

DAY 1: MONDAY
Part 1 – At home this morning

1) What time did you get up out of bed this morning?
[]

2) Did you watch television at home this morning?
Please circle YES or NO Yes No [] []

3) Did you have anything to eat or drink at home this morning?
Please circle YES or NO Yes No [] []
If 'No' please write into **Cell A5** *(What you ate/drank)*

4) What time did you have something to eat or drink at home this morning?
[]

5) Who were you with when you had something to eat or drink at home this morning?
[]

6) What else were you doing when you had something to eat or drink at home this morning? (e.g. watching TV, sitting at the kitchen table, playing on computer, doing homework)
[]

7) What did you have to eat and drink at home this morning? (Remember to see **cell A4** including the **cup and glass** for **drinks**, you also then look your diary tool to find with which **quantity** **category** and if there were any **additions**)
[]

This is where you tell us all about what you had to eat or drink at home this morning. You should write down:

- **WHAT** you had to eat or drink, including the type and brand of the food, e.g. *Asda Weetabix with semi-skimmed milk and sugar, Nestle Cookie Crunch Cereal with whole milk, toast with Warburton's white bread and Flora Margarine, a glass of Morrison's orange juice, cup of tea with milk and sugar etc.*
- **AMOUNT** you had to eat or drink. You can use your food diary tool to help with this. For example, if you had cereal look at the portion sizes in your diary tool and make a note of the number closest to the amount you had. You can also do this for the amount of milk you had on your cereal and spreads on bread or toast. For drinks you can make a note of the glass or cup size and the amount of drink you had in it.

At home:

DAY 1: MONDAY

Part 1 – At home this morning

1) What time did you get up out of bed this morning?

2) Did you watch television at home this morning?

3) Did you have anything to eat or drink at home this morning?

4) What time did you have something to eat or drink at home this morning?

5) Who were you with when you had something to eat or drink at home this morning?

6) What else were you doing when you had something to eat or drink at home this morning?

7) What did you have to eat and drink at home this morning? Remember to say what you ate and drank including the **COOKING METHODS/ PREPARATION**. The **LEFTOVERS** you ate check (use your diary just to help with this). **COOKING METHODS/ PREPARATION** and if there were any **LEFTOVERS**.

COOKING METHODS/ PREPARATION: You should also write about the way your food was cooked or prepared if you know. For example if you had hot food, was it fried, grilled, boiled or baked?

LEFTOVERS: Tell us if you had any leftovers, e.g. *I left the crusts on my toast, I left the milk in the bowl after I ate my cereal, I only drank half of my juice etc.*

More information about the foods and drink you had at home:

Please tell us more about what you had to eat and drink at home this morning:

1) If you had **any type of milk** (whole milk (3.5% fat), semi-skimmed milk (2% fat), skimmed milk (0% fat) or a milk alternative eg. soya, oat, almond):

Whole milk Semi-skimmed milk Skimmed milk

2) If you had **any type of cereal** (how much milk did you have on your cereal?)

None A little A lot A very lot

3) If you had **any type of cereal** did you sweeten with sugar, honey or syrup?

Yes, sugar Yes, honey Yes, syrup None did not have it

If you had any, how much?

4) If you had **any type of bread** what type of bread was it?

White Golden Wholemeal Brown 50/50 bread

Other Type

Large loaf or small loaf Large Small

If the bread was whole bought, how was it stored?

Fresh Frozen Dried Other

Name eg. Warburton's, Asda, M&S

Tell us what type of milk you had at home this morning by ticking the correct box or writing in the box for dairy free milk.

Tell us how much milk you had on your cereal by ticking one of the boxes.

Tell us if you sweetened your cereal with sugar, honey or syrup.

Tell here about the type of bread you had at home, e.g. was it brown, white, 50/50 etc. Was it a small or large loaf. Tell us the name and brand of the bread too.

More information about the foods and drink you had at home:

9. If you had porridge at home this morning, how thickly did you spread it?
With all milk With all water With milk and water Did not eat
Did you add sugar to your porridge?
With sugar With honey With salt Neither

11. If you had butter at home this morning, what brand was it?
E.g. Utterly Butterly, Lurpak, Flora

12. If you had butter at home this morning, how thickly did you spread it?
 1 2 3 4 5

13. If you had butter or margarine at home this morning, how much did you have?
A lot Some A little None did not drink

14. If you had you did not drink butter or margarine at home this morning, did you have it with sugar?
Yes No How many teaspoons in a mugcup?

15. If you had butter, margarine or spread, how thickly did you spread it?
Standard No added sugar (with no spread) Did not drink

Please record the full name/brand of the butter, margarine or spread that you used.
E.g. Utterly Butterly, Lurpak, Flora, e.g. I had 100g of a brand name spread.
If you had margarine or spread, did you add sugar, orange and pineapple spread, etc.
Yes No

If you had porridge at home this morning, tell us here about how you made it, e.g. with milk or water and did you add sugar or salt?

Give us more information here about the butter you had at home, e.g. what was the name/ brand, e.g. Utterly Butterly, Flora, Asda own brand etc.

If you had butter or margarine at home this morning tell us here about how thickly it was spread.

More information about the foods and drink you had at home:

6. If you had coffee or tea at home this morning, how much milk did you have? No milk 100ml or more 200ml or more 300ml or more 400ml or more 500ml or more 600ml or more 700ml or more 800ml or more 900ml or more 1000ml or more

7. If you had coffee or tea at home this morning, how much sugar did you have? No sugar With honey With milk With sugar With other sweeteners

8. If you had coffee or tea at home this morning, how much milk did you have? No milk 100ml or more 200ml or more 300ml or more 400ml or more 500ml or more 600ml or more 700ml or more 800ml or more 900ml or more 1000ml or more

9. If you had coffee or tea at home this morning, how much sugar did you have? No sugar With honey With milk With sugar With other sweeteners

10. If you had any fruit juice or any other soft or fizzy drinks this morning, tell us if they were standard or no added sugar/ diet drinks here. Write the name of the drink in the box below, e.g. Asda Pineapple Juice, Robinson's Orange Squash - no added sugar etc.

Standard No added sugar/ diet drinks Did not drink

11. If you had any fruit juice or any other soft or fizzy drinks this morning, tell us if they were standard or no added sugar/ diet drinks here. Write the name of the drink in the box below, e.g. Asda Pineapple Juice, Robinson's Orange Squash - no added sugar etc.

Standard No added sugar/ diet drinks Did not drink

Did you drink coffee or tea at home this morning? Tell us how much milk you had in your tea or coffee here.

Did you sweeten your tea or coffee with sugar?

Did you drink any fruit juice or any other soft or fizzy drinks this morning? Tell us if they were standard or no added sugar/ diet drinks here. Write the name of the drink in the box below, e.g. Asda Pineapple Juice, Robinson's Orange Squash - no added sugar etc.

On your way to school:

Part 2 – On your way to school

1) How did you get to school this morning?

Please circle one or more answers. For example, if you only walked to school you should circle 'walk', but if you got the bus and walked you should circle 'bus' and 'walk'.

Walk
 Cycle
 Bus
 Car
 Train

2) Did you have anything else to eat this morning on your way to school this morning?

Yes No If you answered 'No' move onto Part 3 - At school this morning

If you listed 'Yes' please tell us what you had to eat/drink on the way to school this morning by filling in the table. You can find information to help you describe the food and drink you had on pages 2-3.

3) What time did you have something to eat or drink on the way to school this morning?

4) Who were you with when you had something to eat or drink on the way to school this morning?

5) What were you doing when you had something to eat or drink on the way to school this morning?

6) What did you have to eat and drink on the way to school this morning? (Remember to say what including the name of the food, the amount you ate/drank, use your diary food to help with that and if there were any additions.)

How did you get to school this morning?

Did you have anything else to eat this morning on your way to school that you haven't already told us about?

What time was this?

Who were you with?

What were you doing, e.g. in the car, on the bus, outside the shop etc?

On your way to school:

Part 2 – On your way to school

1) How did you get to school this morning?

Please circle one or more answers. For example, if you only walked to school you should circle 'walk', but if you got the bus and walked you should circle 'bus' and 'walk'.

Walk Cycle Bus Car Train

2) Do you have a special item that you always take to school to eat or drink on the way to school this morning?

Yes No What is it?

If you listed 'Yes' please tell us what you had to eat or drink on the way to school this morning by filling in the table. You can find information if they you describe the food and drink you had on page 2-22.

4) What time did you have something to eat or drink on the way to school this morning?

5) Who were you with when you had something to eat or drink on the way to school this morning?

6) What were you doing when you had something to eat or drink on the way to school this morning?

8) What did you have to eat and drink on the way to school this morning? Remember to say what, including the type and brand. Be specific and also check how your diary has to help with that and if there were any leftovers.

This is where you tell us all about what you had to eat or drink on your way to school. You should write down:

- **WHAT** you had to eat or drink, including the type and brand of the food, e.g. *Coco pops Cereal Bar, Apple, Can of Diet Coke, Packet of Walker's Salt and Vinegar Crisps, Banana, Carton of Asda Apple Juice etc.*
- **AMOUNT** - write how many items you had and the type of packaging e.g. a small or large can, carton or bottle, a standard sized cereal or chocolate bar, a standard or sharing bag of crisps etc.
- **LEFTOVERS** - record any leftovers here too!

At school this morning:

Part 2 - At school this morning

1) Do you have anything to eat or drink at school breakfast this morning?
Please tick YES or NO.
Yes No [If you require the mandatory Question 2](#)

If you ticked 'Yes' please tell us what you had to eat/drink at school breakfast this morning below. (See your diary tool for help)

a) What did you have to eat and drink at school breakfast this morning? Remember to say WHAT including the NAME the AMOUNT you ate/drank see your diary tool to help with this and if there were any LEFTOVERS

2) Do you like the food and drink served at school breakfast this morning?
Please tick YES or NO.
Yes No

3) Do have anything to eat or drink between school breakfast ending and morning break time today that you haven't already told us about?
Please tick YES or NO.
Yes No [If you require the mandatory Question 2](#)

If you ticked 'Yes' please tell us what you had to eat/drink between school breakfast ending and morning break time today that you haven't already told us about. (See page 322 for help)

a) What did you have to eat and drink between school breakfast ending and morning break time today that you haven't already told us about? Remember to say WHAT including the NAME, the AMOUNT you ate/drank see your diary tool to help with this and if there were any LEFTOVERS

Did you have anything to eat or drink at school this morning. Tick YES or NO.

This is where you tell us all about what you had to eat or drink at free school breakfast this morning:

- **WHAT** you had to eat or drink, including the name of the food, e.g. *e.g. bagel, brown/ white/ fruit toast, apple pieces, yoghurt drink, milk, malt loaf etc.*
- **AMOUNT** you had to eat or drink. You can give the number of items, e.g. two half slices of toast, half or full bagel, a carton or cup of milk. You can use your food diary tool for help with this.
- **LEFTOVERS** - record any left overs here too!

At school this morning:

Part 3 - At school this morning

1) Did you have anything to eat or drink at school breakfast this morning?
Please tick YES or NO.
Yes No [Click HERE FOR Aids Guidance](#)

If you ticked 'Yes' please tell us what you had to eat/drink at school breakfast this morning.
(See your diary tool for help)

4) What did you have to eat and drink at school breakfast this morning? Remember to say amount including the name. The amount you ate/drank see your diary tool for help with this and in these notes [HERE](#).

2) Did you like the food and drink served at school breakfast this morning?
Please tick YES or NO.
Yes No

3) Did you have anything to eat or drink between school breakfast ending and morning break time today that you haven't already told us about?
Please tick YES or NO.
Yes No [Click HERE FOR Aids Guidance](#)

If you ticked 'Yes' please tell us what you had to eat/drink between school breakfast ending and morning break time today that you haven't already told us about. (See pages 322 for help)

4) What did you have to eat and drink between school breakfast ending and morning break time today that you haven't already told us about? Remember to say amount including the name. The amount you ate/drank see your diary tool for help with this and in these notes [HERE](#).

Did you like the food and drink served at school breakfast this morning? Tick YES or NO.

Did you have anything to eat or drink between school breakfast ending and morning break this morning? Tick YES or NO.

This is where you tell us all about what you had to eat or drink between school breakfast ending and morning break today:

- **WHAT** you had to eat or drink, including the name of the food, e.g. *e.g. bagel, brown/ white/ fruit toast, apple pieces, yoghurt drink, milk, malt loaf etc.*
- **AMOUNT** you had to eat or drink. You can give the number of items, e.g. two half slices of toast, half or full bagel, a carton or cup of milk. You can use your food diary tool for help with this.
- **LEFTOVERS** - record any left overs here too!

At school this morning:

3. What did you mostly do at morning break today?

Sit around Stand around Walked around Ran around

4. Do you have anything to eat or drink at break time today? Remember to say what you haven't already told us about.
Please tick YES or NO.
Yes No [Click here for more information](#)

5. What did you have to eat and drink at break time this morning? Remember to say what you haven't already told us about.
Please tick YES or NO.
Yes No [Click here for more information](#)

6. Do you have anything to eat or drink after morning break but before lunch at school today? Remember to say what you haven't already told us about.
Please tick YES or NO.
Yes No [Click here for more information](#)

7. What did you have to eat and drink after morning break but before lunch at school today? Remember to say what you haven't already told us about. The amount you've drunk (use your diary tool to help with that) and if there were any leftovers.

What did you mostly do at morning break today?

Did you have anything to eat or drink at break time today? YES or NO?

This is where you tell us all about what you had to eat or drink at free school breakfast this morning:

- **WHAT** you had to eat or drink, including the name of the food, e.g. *e.g. bagel, brown/ white/ fruit toast, apple pieces, yoghurt drink, milk, malt loaf etc.*
- **AMOUNT** you had to eat or drink. You can give the number of items, e.g. two half slices of toast, half or full bagel, a carton or cup of milk. You can use your food diary tool for help with this.
- **LEFTOVERS** - record any left overs here too!

At school this morning:

3) What did you mostly eat or drink today?

Se around Bread around Vegetables around Rice around

4) Did you have anything to eat or drink at school before lunch that you haven't already told us about? Please tick YES or NO.
Yes No

5) What did you have to eat and drink at break time this morning? Remember to say what including the amount you ate/drank how often you ate/drank to help with this and if there were any leftovers.

6) Did you have anything to eat or drink at school before lunch that you haven't already told us about? Please tick YES or NO.
Yes No

7) What did you have to eat and drink after morning break but before lunch at school today? Remember to say what including the amount you ate/drank how often you ate/drank to help with this and if there were any leftovers.

Did you have anything to eat or drink after morning break but before lunch time that you haven't already told us about? YES or NO?

This is where you tell us all about what you had to eat or drink at free school breakfast this morning:

- **WHAT** you had to eat or drink, including the name of the food, e.g. *e.g. bagel, brown/ white/ fruit toast, apple pieces, yoghurt drink, milk, malt loaf etc.*
- **AMOUNT** you had to eat or drink. You can give the number of items, e.g. two half slices of toast, half or full bagel, a carton or cup of milk. You can use your food diary tool for help with this.
- **LEFTOVERS** - record any left overs here too!

Keeping your information confidential:

- ▶ You have each been given a secret number, which is written on your diary each day.
- ▶ This secret number is used to identify you and to keep your name and the information you provide confidential.
- ▶ To make sure you get the right diary each day there is also a little piece of paper with your name on stapled to the front sheet of your diary.
- ▶ Once you have completed your diary each day you should take off the piece of paper with your name on and throw it away before you give your diary back to your teacher.
- ▶ This way we can make sure your name and information are kept confidential.



CONFIDENTIAL



Appendix V: Children's Debrief for Study 4



Lots of primary schools in Blackpool have school breakfast clubs like the one at your school. The food diaries you completed helped me to learn about the food children eat from in the morning.



Your food diaries are really important to us. I will tell people what children at your school and other schools in Blackpool said, so that people can understand more about how free school breakfast affects what children eat in Blackpool.



I made sure that your name was removed, so no one will know the information that you gave. I also locked away the food diaries in a safe place where only our team can get to them.

When I've finished finding out about school breakfast in Blackpool I will let you and your school know all the things I have found out. I will also be using the things you told me for my university work and in the future I will be publishing my work and talking about it to lots of people. I will never put your name on any of this information.



Don't forget, if you have any questions about the project you can ask your school and they will pass the question on to me so I can get back to you with an answer.

Thank you for all your help with this important project. You did a great job.

Appendix W: Overall School Demographics

Study ^d	School demographics ^a		School and local area demographics ^b			Indices of deprivation: total deprivation ^c (Rank: 1 - 32,844)
	Pupils on role ^(N)	School type	% Pupils entitled to FSM	% All people of working age claiming a key benefit	% White British	
1, 3	398	Voluntary Aided School	12.1%	17%	96.3%	10346
1	186	Pupil Referral Unit	48.4%	17%	94.9%	9927
1	53	Community Special School	51.5%	16%	93.9%	13995
1, 4	194	Voluntary Aided School	14.4%	21%	96.4%	9270
1	671	Academy Converter	38.5%	29%	96.41%	3561

(a) Information taken from: <http://www.education.gov.uk/edubase/home.xhtml>

(b) Information by ward taken from: <http://www.neighbourhood.statistics.gov.uk>

(c) All 32,844 neighbourhoods in England have been ranked on a range of deprivation topics including income, employment, health, education, crime and living environment, with the most deprived neighbourhood in England having a rank of 1, as of 2015

(d) Where schools participated in multiple studies, demographics are provided at the time of the first study

Appendix W: Overall School Demographics Continued

Study	School demographics ^a			School and local area demographics ^b		
	Pupils on role (N)	School type	% Pupils entitled to FSM	% All people of working age claiming a key benefit	% White British	Indices of deprivation: total deprivation ^c
1	228	Academy Converter	34.8%	44%	96.4%	188
1	451	Community School	63.2%	55%	88.0%	18
1	450	Voluntary Aided School	13.9%	16%	95.2%	7600
1	95	Community Special School	54.8%	15%	95.1%	10779
2, 3	453	Community Aided	61.8	34	94	957

(a) Information taken from: <http://www.education.gov.uk/edubase/home.xhtml>

(b) Information by ward taken from: <http://www.neighbourhood.statistics.gov.uk>

(c) All 32,844 neighbourhoods in England have been ranked on a range of deprivation topics including income, employment, health, education, crime and living environment, with the most deprived neighbourhood in England having a rank of 1, as of 2015

(d) Where schools participated in multiple studies, demographics are provided at the time of the first study

Appendix W: Overall School Demographics Continued

Study	School demographics ^a			School and local area demographics ^b		
	Pupils on role (N)	School type	% Pupils entitled to FSM	% All people of working age claiming a key benefit	% White British	Indices of deprivation: total deprivation ^c
2	486	Voluntary Aided	20.6	22	96.1	5029
2, 3	210	Voluntary Aided	20.0	24	94.9	3433
3	427	Community School	54.5	55	88.0	18
4	206	Voluntary Aided School	10.2	17	89.4	8302
4	674	Academy Converter	31.5	29	93.3	3561

(a) Information taken from: <http://www.education.gov.uk/edubase/home.xhtml>

(b) Information by ward taken from: <http://www.neighbourhood.statistics.gov.uk>

(c) All 32,844 neighbourhoods in England have been ranked on a range of deprivation topics including income, employment, health, education, crime and living environment, with the most deprived neighbourhood in England having a rank of 1, as of 2015

(d) Where schools participated in multiple studies, demographics are provided at the time of the first study

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