How Do Educators and Perceptions of Role and Policies Influence Healthy Eating-Active Living Environments for Preschool Children in Child Care

by

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A thesis submitted in partial fulfillment of the requirements for the degree of

Master of Science

in

Nutrition and Metabolism

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Abstract

The number of preschool children (ages 2-5 years) in child care in Canada has been increasing for the last 15 years. The preschool years represent an optimal phase for growth and development, so establishing healthy eating and physical activity behaviours is important. Child care educators have a unique opportunity to influence, promote and support the development of these healthy lifestyle behaviours.

An exploratory focused ethnography case study design was used to understand the perceptions and influence child care educators have regarding their role in promoting healthy eating and physical activity to preschool children in child care centres, including their knowledge of the Alberta Nutrition Guidelines for Children and Youth (ANGCY). Three child care centres in the Edmonton, Alberta area were chosen (1 *high performing* case and 2 *reference cases*). Data were collected through direct observation of meal and play times, key informant interviews, and researcher recorded field notes. Data analysis was guided by the principles of ethnography through coding, categorizing and identifying common themes. Overall, findings indicated not all child care educators were aware of the ANGCY. However, child care educators understood the importance of role modeling behaviours and the promotion of a healthy environment for the preschool children in their care. Furthermore, results indicated child care educator behaviours and caregiving styles have an important role in shaping the healthy environment and children`s eating behaviours.

These findings address gaps in the literature for establishing the influence and the role child care educators have on creating healthy eating and active living environments for preschool children in child care. These findings also address the need for other means of knowledge translation regarding the ANGCY to optimize awareness and uptake, and indicate new resources

and training for child care educators that may be required. Finally, these data will inform Alberta Health Services on further development of healthy lifestyle policy intervention and evaluation within child care centres.

Preface

The research conducted for this thesis is a part of the collaborative ongoing research between the Nibbles & Wiggles Research Team and Alberta Health Services, Nutrition Services (AHS-NS). Sheila Tyminski, a collaborator from AHS-NS, assisted with the recruitment of study participants. Under the supervision of Dr. Anna Farmer, I was responsible for the data collection, data analysis and literature review of this thesis. The research project, of which this thesis is a part, received research ethics approval from the University of Alberta Research Ethics Board on April 16, 2014 (Study ID: Pro00046733).

Acknowledgments

I am grateful for the amount of support I have received throughout the completion of this thesis. I would like to thank all of the staff at the three child care centres for sharing your time, your experiences and your expertise, because without them this thesis would not have been possible. I am certain everything you have shared with me throughout this study will have a positive impact on the environment and the children you take care of.

I would like to sincerely thank my supervisor, Dr. Anna Farmer, for your immense encouragement, support and patience while guiding me through this journey. From your mentorship, I have learned the true definition of hard work and dedication. Thank you for teaching me about myself, and pushing me further than I imagined possible. To my thesis committee, Dr. Geoff Ball and Dr. Valerie Carson, thank you for your expertise and suggestions throughout this study.

Thank you to my friends and family for helping me survive all the stress throughout this journey and never letting me give up. Ren, we've come a long way from the pot roast days, thank you for standing by me unconditionally. Mantha, thank you for always restocking the peanut butter in times of need and ensuring Brennan knew I was alive.

I would like to dedicate this thesis to my parents. Dad, your support and "kind" words of wisdom throughout this process have allowed me to achieve what I have thus far; thank you for always answering the phone regardless of when I called. Mom, you're the most important woman in my life and your love and support have made me who I am today. I hope this thesis is as beautiful and meaningful to you as the hardwood floors you would have rather installed in the house. Thank you, I love you, and I hope you are proud of me.

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List of Abbreviations

Alberta Health Services (AHS)

Alberta Nutrition Guidelines for Children and Youth (ANGCY)

Canadian Community Health Survey (CCHS)

Early Childcare Educator (ECE)

Eating Well with Canada's Food Guide (EWCFG)

The Alberta Nutrition Guidelines Outcomes (TANGO)

Chapter 1: Literature Review

1.1 Introduction

The purpose of this thesis was to understand how the child care centre environment and child care educators influence preschool children's (ages 2-5 years) eating, physical activity and to determine the perceptions of and adherence to the Alberta Nutrition Guidelines for Children and Youth (ANGCY) in three child care centres in the Edmonton, Alberta, Canada area. More specifically, the objectives of this study were to: (1) observe child care educators' behaviours and interactions with preschoolers' during meal and play times; (2) explore child care educators' perceptions of healthy eating and active living environments and their role in promoting healthy environments; and (3) measure child care centres adherence to the ANGCY recommendations on creating healthy food environments.

This chapter will provide a review of what is currently known about preschool children`s healthy eating and physical activity in child cares in Canada, child care serving styles and child care educator feeding behaviours, and adherence to the ANGCY in the child care setting. This chapter also reviews relevant determinants of health for the child care setting (e.g. eating, and physical activity, and sedentary habits) and the social and physical environments.

1.2 Background and Literature Review

In Canada, the number of overweight and obese children has been increasing steadily over the last three decades. In Alberta, 23-25% of preschool children attending child clinics were classified as overweight or obese (Alberta Health Services, 2010). The results of the 2009-2011 Canadian Health Measures Survey confirmed that children in Canada are

becoming increasingly overweight, despite increasing public health efforts (Roberts et al., 2012). Further research has indicated that one in every five children between the ages of two and five years of age was classified as overweight or obese (Shields, 2006). Although the overall levels of obesity remain relatively stable, there are certain ethnicities that have more severe forms of obesity. For example, Southeast Asian children had the lowest prevalence of overweight (12%) and obesity (5%), when compared to Caucasian children (18% overweight, 8% obese) (Shields, 2006). More troubling, vulnerable groups in Canada are consistently overrepresented in categories related to poor health. Aboriginal children were recorded as having the highest prevalence of overweight (21%) and obesity (20%) in Canada, a level that was 2.5 times greater than the national average (Shields, 2006).

Furthermore, the level of food insecurity amongst Aboriginal households is 28.2%, in comparison to the national average (12.6%). The household food insecurity suffered by Aboriginals in Canada has especially negative consequences on the children, as they are more vulnerable to the related negative nutritional outcomes (Egeland et al., 2010; Bell et al., 2015), a finding that is reflected in the relatively higher national overweight/obesity percentages (Shields, 2006). These results highlight the disparaging health equity issues present amongst Canada's most vulnerable populations.

The preschool years represent a critical period for development of healthy eating and physical activity behaviours, which can be extended into adulthood (Brisbois et al., 2012). Healthy eating and physical activity behaviours are known to be the best methods for obesity prevention in children (Waters et al., 2011). In addition to being an effective preventative measure of obesity, engaging in physical activity and decreasing sedentary

behaviours in the early years has been linked to a variety of other health benefits, such as motor skill and cognitive development (Timmons et al., 2012).

The child care environment is an important and relevant setting for health promotion. In 2011, nearly half of Canadian parents (46%) reported using some type of non-parental child care arrangement during the day (Sinha, 2014). In the first Canadian study to identify a relationship between child care arrangement and weight status, Geoffroy and colleagues reviewed different child care settings in Québec and concluded that children in centre-based child care, or care other than that of a parent, were more frequently overweight or obese (Geoffroy et al., 2013). However, as this was a cross-sectional study, the context and factors underlying the relationship between the environment of child care centres and the weight status of preschool children are not clear. Further in-depth research on the reciprocal relationships between the child care environment, child care educators and preschool children is warranted.

Researchers have conceptualized eating behaviour as a function of the social and physical environment (Story et al., 2002; Patrick and Nicklas, 2005). Specifically, the development of eating behaviours is influenced by several factors including: preference for and availability of particular foods, cultural values regarding food types, portion size, parental beliefs and practices, mealtime structure and feeding styles (Patrick and Nicklas, 2005). There is more to be known about healthy food environments in the child care setting, and it is particularly important that research is conducted in this field given that more children are spending time in child care centres.

With an increasing proportion of preschool children in child care, it is imperative to consider the potential influence that child care educators have on children's dietary intake, physical activity and sedentary behaviours in preventing overweight or obesity amongst children (Larson et al., 2010). If more children are spending time at child care centres, the eating and physical activity habits of preschool children, and the social and physical environment they are subjected to are determinants that would be greatly impacted. Despite limited literature in the area, more recent research suggests the nutritional quality of meals and snacks being served within child cares is poor, and activity levels of the children may not be sufficient (Erinosho et al., 2012; Reilly, 2010; Story et al., 2006).

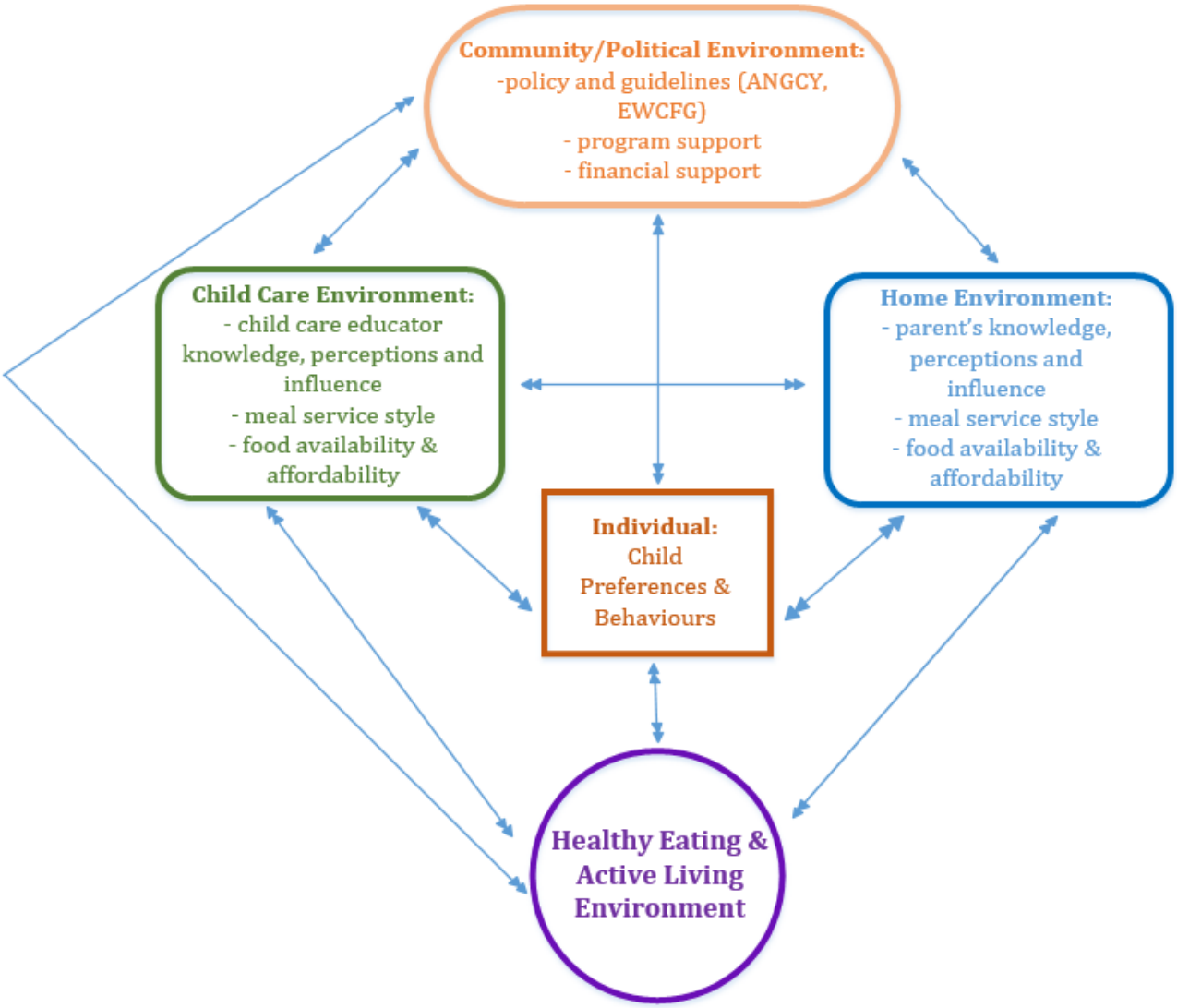
Furthermore, a systematic review reported that healthy eating and physical activity habits developed during preschool years can be carried into adulthood (Brisbois et al., 2012). Creating supportive social environments for children will foster overall healthy development in the areas of trust, self-esteem, emotional control, and positive relationship development (Health Canada, 2012). In this regard, social environments play an important role in creating healthy children who may then develop into healthy adults.

1.2.1 Socioecological Framework for Healthy Eating and Active Living Environments

There are a variety of factors that influence healthy eating and active living environments for preschool children. Healthy eating and active living environments are shaped and supported by a variety of overlapping influences, such as the home and child care environments (Bell et al., 2015), political influences through policy and guideline development, and the individual behaviours of the child. Socioecological models provide a framework for addressing the interactions between these influences (Bell et al., 2015) in order to broaden our understanding of

the various factors affecting the healthy eating and active living environments for preschool children. Figure 1.1, developed by the researcher (TS) conceptualizes some of the factors influencing this environment, which include individual behaviours, social and physical environmental influences from home and child care, and the guidelines and policies that aim to influence every day healthy decision making.

Figure 1.1. Socioecological Model for Healthy Eating and Active Living Environments



In order to optimize the health of children, it is important to have an understanding of the influences that affect their health behaviours and development, including the creation of healthy environments that offer the opportunity to eat healthy foods and engage in physical activity.

1.2.1.1 Individual Factors: Children's Diet Quality; Overconsumption of Nutrient-Poor Foods

One of the causative factors of overweight/obesity is an imbalance between energy consumption and energy expenditure, where the intake of energy exceeds the energy expended, causing an increase in weight (Hill et al., 2013). Research has indicated that a low intake of fruits, vegetables, milk and milk products, coupled with poor eating habits and a high intake of nutrient-poor snacks may play an active role (Dubois et al., 2007; Bell et al., 2015). Furthermore, foods such as potato chips, chocolate bars, candy and other processed foods high in fat, salt and sugar represent energy-dense (yet nutrient-poor) foods and lead to intakes of relatively low dietary quality.

In Canada, there are many contributing factors to increased calorie consumption amongst children that have been identified, such as an increased intake of fatty and processed foods, sugary drinks and increased portion sizes (Merrifield, 2007). It has been shown that 41% of calories from snacks consumed by Canadian children (aged 4 years or older) are composed of foods that are energy-dense, with high levels of sodium (salt), sugar and fats (Garriguet, 2004; Bell et al., 2015). Unhealthy snacking is a key source of "empty" calories, offering few nutrients beyond energy, and has been attributed to energy imbalances, particularly among low-income preschoolers, who are vulnerable to poorer diet quality and an increased level of obesity (Gubbels et al., 2009; Blake et al., 2014). There has

also been a decline in milk consumption amongst children (aged 4-9); many do not meet the Eating Well with Canada`s Food Guide (EWCFG) of two daily milk product servings (Garriguet, 2004; Bell et al., 2015). Moreover, research suggests regular sugar-sweetened beverage consumption by preschooler's in-between meals is positively related to being overweight (Dubois et al., 2007). It has been shown children with a higher consumption of sugar-sweetened beverages consume less milk (Bell et al., 2015). It is clear there is room for improvement in the diet quality of children that may be achievable by decreasing consumption of energy-dense foods and increasing consumption of fruits, vegetables, dairy and healthy grain products.

Children are consuming a limited quantity of nutrient-rich foods such as fruits and vegetables (World Health Organization, 2003). In Canada, results from the Canadian Community Health Survey indicate children are not consuming an adequate amount of fruits and vegetables to meet the recommendations in EWCFG (Garriguet, 2004). These factors further contribute to the poor health status of children. Poor food quality has been linked to health illnesses such as cardiovascular disease, diabetes, obesity, and other illnesses (Public Health Agency of Canada, 2013). Furthermore, research has indicated children who consume fewer than 5 servings of fruits and vegetables are significantly more likely to be overweight or obese (Shields, 2004; Bell et al., 2015). Increased intake of nutrient-poor food has been proven to correspond with an increased likelihood of being overweight and obese (Roberts et al., 2012). In that respect, there is evidence that individuals who are overweight are at a higher risk of developing chronic and life-threatening illnesses (Cleave et al., 2010), and individuals who have difficulty accessing fruits and vegetables are more likely to have obesity and chronic disease (Dubois et al., 2011; Bell et al., 2015). In order to support

healthy childhood development, it is critical that children have access to both nutritious and healthy food choices and opportunities to be physically active, all of which promote optimal growth and development.

1.2.1.2 Individual Factor: Children's Physical Activity and Sedentary Behaviour

Experts agree that children should participate in ample amounts of activity during early childhood (Canadian Society for Exercise Physiology, 2012). Specifically, children should accumulate at least 180 minutes of physical activity, at any intensity, throughout the day (Canadian Society for Exercise Physiology, 2012). The Canadian Physical Activity and Sedentary Behaviour Guidelines for the Early Years (0-4 years) recommends that preschool children should spend a limited amount of time engaging in sedentary behaviours during waking hours, and spend less than one hour per day engaging in activities such as watching television, or playing video games (Canadian Society for Exercise Physiology, 2012). Furthermore, experts recommend preschool-aged children participate in at least 180 minutes of physical activity throughout the day (Tremblay et al, 2012), and play should be in different environments, and involve the development of some type of motor skill (Canadian Society for Exercise Physiology, 2012).

Engaging in physical activity in childhood has many health benefits and is a well-known preventative measure for health risks. Examples of these health risks include overweight/obesity, and benefits including the promotion of children's emotional, social and psychological development and decreased sedentary behaviour (Timmons et al., 2012; Leblanc et al., 2012). Decreased levels of physical activity coupled with increased levels of sedentary behaviour have also been directly linked to lower levels of health and wellness

and an increased likelihood of being overweight or obese (Timmons et al., 2012). Furthermore, studies have shown a positive relationship between increasing physical activity levels and favourable measures of motor skill development, adiposity, bone and skeletal health, and aspects of cardio-metabolic health (Timmons et al., 2012). Therefore, it is clear physical activity levels in childhood have the potential to impact health status in adulthood (Timmons et al., 2012).

1.2.1.3 Social and Physical Environment: Child Care and Home Environment

Eating behaviours have been conceptualized as a function of the social and physical environments (Story et al., 2002), and eating patterns of children are strongly influenced by the characteristics of the social and physical environment (Patrick and Nicklas, 2005). It is important for children to have healthy foods accessible and available to them because they are more likely to eat healthy foods (Patrick and Nicklas, 2005).

It is well known that children are spending more time at child care establishments or being cared for by somebody other than their parent (Sinha, 2014). Given the rise in child care usage, upwards of 30 hours per week for 28% of Canadian children (Bushnik, 2006), and the percentage of overweight/obese children, understanding the influence child care centres have on healthy eating and active living environments for preschool children is important. In one of the first studies to make the connection, Geoffroy et al. found that children in centre-based child care, or care other than that of a parent, were more frequently overweight or obese (Geoffroy et al., 2013). Previous research has indicated a link between the type of child care arrangement (centre versus day home), and the risk of child

overweight or obesity (Benjamin et al., 2009); however, unlike the Geoffroy et al. study, children attending child care centres were not more likely to be overweight.

Another study conducted in Hamilton, Ontario indicated that physical environmental factors that hindered their ability to provide healthy food to children included the lack of availability of these foods and the child care educator perceptions that "children consume unhealthy foods at home" and that "healthy eating was not considered a priority by the children's parents" (Needham et al., 2007). Similar findings relating to the physical environment and children's activity levels have been reported as well. Studies have shown children who have access to equipment and permanent activity structures in play areas had higher instances of physical activity (Davison and Lawson, 2006). Furthermore, affordability and accessibility of play equipment, organized sports, and events may present as barriers to children obtaining adequate levels of physical activity. These findings indicated a clear connection between the physical environment and healthy behaviours exhibited by children and present the need for further research.

It has been shown that the eating habits of preschool-aged children are influenced by their responsiveness to environmental cues about food intake and therefore, it is clear social factors are influencing eating behaviours (Patrick and Nicklas, 2005). Feeding styles have been shown to have an influence on the food environment and healthful behaviours of preschool-aged children. There is ample literature demonstrating a relationship between parental feeding styles and children`s food intake. Based on Baumrind's well-established parental feeding styles framework, research has indicated that an authoritative feeding style has been linked to a higher intake of fruits and vegetables, and a lower intake of junk food (Gable and Lutz, 2000). Whereas, authoritarian feeding styles where parents restricted the

child's intake of a particular junk food, led to the child becoming fixated on the item and consume it even if full (Fisher and Birch, 2000). This area is explored further in section 1.2.5 below.

Parents and the home environment exert an important influence on healthy eating and active living environments for children. Research has shown parents, specifically, are a key factor in the development of food preferences, eating styles, patterns of food intake and activity levels that lead to shaping a child's weight and overall health status (Bell et al., 2015). In this regard, preschool-aged children are first introduced to their parent's definition of healthy eating, which may not align with EWCFG recommendations. Children are greatly influenced by role modeling behaviours at a young age, and therefore, healthy family meals are an important opportunity for parents to role model healthy eating behaviours to their children (Birch and Davison, 2001; Bell et al., 2015). Although exposing children to healthy eating and active living behaviours at home is idealistic, there are a lot of barriers that may prevent this from happening. Children living in lower income households may not have access to healthy food options, due to the lack of affordability of the product and may not have access to physical activity due to the lack of affordability of activities such as organized sporting and play equipment. In this regard, the only healthy food options and play equipment available to the child may solely be from the child care facility they attend. Furthermore, if parents are unable to access or afford healthy foods and activities for their children at home, they may not have the means to pay for quality child care that can offer children these foods and play equipment, posing another barrier to the healthy eating and active living environments for these children (Farmer, 2015).

There is evidence to support the notion that social and physical environments play a role in children's development of healthful behaviours. The relationship between parental and child care educator influences is an area where little is understood and is in need of further research. If parents encourage healthy eating in their home and child care centres promote healthy eating throughout the day, preschool children are then immersed in a supportive, healthy environment that may be optimal for healthy behaviour development.

1.2.1.4 Political Environment: The Alberta Nutrition Guidelines for Children and Youth

In June 2008, the Government of Alberta released the Alberta Nutrition Guidelines for Children and Youth (ANGCY). The guidelines were intended "to promote and achieve optimal growth, development, and overall health for children and youth" and were developed "in response to requests from individuals and organizations who work with children and youth for guidance to create supportive environments that enable healthy food choices" (Alberta Health and Wellness, 2008). Therefore, the guidelines were intended to promote and support the overall healthy development for Albertan children with a resource that made understanding nutritional recommendations easier.

The ANGCY was an initiative led by Alberta Health and Wellness, in partnership with the Ministries of Children's Services, Tourism, Parks and Recreation, Alberta Agriculture, Education and Municipal Affairs of the Alberta Government. This was one of the first initiatives that involved collaboration with several interprovincial sectors. Despite having interprovincial engagement, the ANGCY are not mandatory and are no longer available in print, being limited to web-based access (Alberta Health and Wellness, 2008).

On average, preschool- and school-aged children consume approximately one-third to two-thirds of all meals and snacks outside of the home in child care facilities or schools (Dietitians of Canada, 2008). In light of this, it is imperative to ensure preschool children have sufficient access to nutritious and healthy food choices both inside and outside of the home. One of the ANGCY goals is "to equip facilities and organizations with the tools they need to provide children and youth with healthy food choices in child care settings, schools, in recreation centres, at special events and in the community at large (Alberta Health and Wellness, 2008).

The ANGCY has four action recommendations for child care educators: (1) Child care facilities can provide healthy food, (2) Child care facilities can enhance access to a safe eating environment, (3) Child care facilities can create environments that support healthy food choices and, (4) Child care facilities can have a positive influence on the food provided by parents and guardians (Government of Alberta, 2012). These four recommendations provide a strong starting point for child care educators to potentially create a healthy food and active living environment for children in their care.

In 2012, a case study examined the awareness of and use of the ANGCY within child care centres in Alberta and discovered that child care educators needed more training on ways to support healthy eating environments for preschool children (Nikolopoulos et al., 2012). Furthermore, an American study determined the importance of understanding child care educators' perceptions regarding their role, responsibility and willingness to implement healthy eating and active living interventions (Lanigan, 2012; Dunn et al., 2006). Child care educators are in a unique position allowing them to directly influence both healthy eating

and physical activity, and therefore, having an awareness of their perceptions regarding these behaviours is key.

Given that Alberta was one of the first Canadian provinces to develop nutrition guidelines for children and youth, a thorough understanding of how child care educators perceive and use the guidelines within child care centres is important. Furthermore, having an appreciation of the influence child care educators have on the food environment may assist in establishing the manner in which the ANGCY are being used.

1.2.2 Healthy Eating and Active Living in Preschool Children

More than 70% of Canadian children aged four to eight years-old did not meet the minimum daily requirement for fruits and vegetables, while nearly 25% of their total calorie intake came from "other foods" (Garriguet, 2004). The results from the Canadian Community Health Survey indicate children are not consuming an adequate amount of fruits and vegetables to meet the recommendations in EWCFG (Garriguet, 2004). In Canada, there are very few studies that have examined the dietary quality and the consumption patterns of preschool children's diets within child care centres. Furthermore, there is little empirical work done to evaluate both the eating environment at the child care centre and at the home. Incorporating the particulars of the home food environment in this research is critical in getting a comprehensive understanding of the influences on preschool children's healthy eating environments.

Engaging in physical activity has many benefits and is a well-known preventative measure for health risks including overweight/obesity, and benefits including promotion of children's emotional, social and psychological development and decreased sedentary

behaviour (Timmons et al., 2013; Leblanc et al., 2012). A study conducted by Carson et al. found that only 15% of Canadian children between 3 and 4 years of age met the guidelines set out for physical activity and sedentary behaviour. More so, in Kingston, Ontario only 32% of children under the age of 2 years are meeting the sedentary behaviour guidelines (Carson et al., 2013). Pate et al. through direct observation have identified that children in child care centres engaged in moderate-to-vigorous-intensity for less than 3% of the day, while 80% of the day were periods of light-intensity physical activity or sedentary behaviour (Pate et al., 2008). These findings were mirrored in other studies conducted that determined children in child care rarely received more than 60 minutes of moderate-to-vigorous activity during their time at the child care centre (Reilly et al., 2006; Cardon and De Bourdeaudhuij, 2008).

Parents are important change agents influencing children's eating and physical activity behaviours (Faith et al., 2012). Parents play a vital role in shaping the active living environment and physical activity levels of their children at home. Parents may increase their child's physical activity level in a variety of ways, including increasing the availability and accessibility of play spaces and equipment children have access to (Ostbye et al., 2013). Furthermore, it has been shown that children who have two active parents exhibit higher physical activity levels than those with one, or no active parents (Ostbye et al., 2013). Given this finding, it is clear children's physical activity levels benefit from increasing physical activity opportunities at home and having a positive modeling influence. Parental role modeling has been identified as a means of increasing levels of physical activity in children, as they are more likely to encourage their children, or support their children's activity by taking them to events where they can be active (Fuemmeler et al., 2011). Moreover, research has shown a positive association between

authoritative parenting styles and increased moderate-to-vigorous-intensity physical activity in children (Oliver et al., 2011; Schmitz et al., 2002; Davids and Roman, 2014). These results are important considerations when comparing parental role modeling and caregiver role modeling within child care centres, as there is evidence children's behaviour are influenced when in the care of an adult role model.

Parents are capable of shaping healthy eating behaviours and home food environments in a variety of ways: making food choices for the family, acting as models for dietary choices and patterns, and using feeding practices to reinforce the development of eating behaviours they deem appropriate (Birch et al., 2007). In this regard, preschool-aged children are first introduced to their parent's definition of healthy eating, which may not align with recommendations from EWCFG. In Alberta, the child cares are required to at least follow EWCFG (Alberta Queen's Printer, 2008), and if not stricter food standards, such as the ANGCY. In child care centres where meals are fully provided, child care educators may face difficulty in introducing new, healthy foods to the children, when the same nutrition and food values are not being encouraged in the home environment. Parents have the ability to support healthy eating habits encouraged within child care centres, or jeopardize their child's healthy eating habits by sending mixed messages once the child is at home (Needham et al, 2007). If child care educators are encouraging a child to try a new vegetable, and the parent instructs the child that he or she is not required to do so, it may hinder the child care educator's ability to promote a healthy eating environment to that child and the rest of the children in their care. It is imperative that child care educators and parents work together in their efforts to encourage healthy eating amongst preschool children.

Parental influence on the healthy eating environment within child care centres is even greater at centres that only serve snacks to the children. In this case, all meals are eaten within the child care centre (breakfast, lunch, dinner – depending on the arrangement) is provided by the parents. In this case, parents are often encouraged to send children to child care with foods that align with the centre's nutrition policy, however, the affordability and the accessibility of healthy foods may present as a barrier in doing so, or the parents may simply not hold views similar to what is encouraged in the child care. For example, Québec is the only province in Canada to offer a universally subsidized child care program that includes a healthy feeding program, that costs parents between $7 - $50/day (Gouvernement du Québec, 2015). Given the affordability of the child care programs, child poverty in Québec has decreased by more than 50% (Public Service Alliance of Canada, 2013). The nutritional requirements of this program indicate child care centres must follow EWCFG, have their menus reviewed by a registered dietitian and produce policies or procedures that describe how they will provide high-quality meals and snacks to children and promote positive mealtime experiences (Child Care Canada, 2014). Preschool children from low-income homes attending licensed child care centres in Québec have better access to healthy foods with the removal of cost as a barrier.

Unlike Canada, the United States has several studies evaluating the nutritional quality of foods provided to children in child care facilities such as Head Start (Whitaker et al., 2009; Copeland et al., 2013). Head Start programs are those that provide education on health, nutrition, and parental involvement services to low-income children and families in the United States (Whitaker et al., 2009). Head Start programs are required to follow both federal performance standards and Child and Adult Care Food Program (CACFP) guidelines to provide meals and snacks to children that meet one-third to one-half of daily nutrient requirements (Larson et al.,

2010). In other surveys surrounding dietary intake of preschool children in child care facilities, preschool children consistently failed to meet the daily recommendations for grains as outlined by the food pyramid (Padget and Briley, 2005). A study in North Carolina of 20 child care centres found that nearly 60% of observed children were served sweetened beverages and sweetened snacks (i.e. cookies), and 50% of the milk was whole milk while 75% of meat consumed was high in fat (Ball et al., 2008). Many studies have shown that children in child care centres are served an insufficient amount of vegetables, whole grains, fruits and fibre (Ball et al., 2008; Padget and Briley, 2005). Furthermore, meals, particularly snacks, within child care centres have been found to lack fruits and non-starchy vegetables, and often contain unnecessary added sugars and fats (Copeland et al., 2013). There is ample evidence showing child care centres in the United States may not be providing preschool children with adequate food to meet their recommended nutritional requirements. Given that there is relatively little literature in this area regarding Canadian preschool children, reviewing studies conducted in the United States is likely a good indicator that children in Canada are also not meeting their nutritional requirements.

1.2.3 Child Care in Canada

The use of child care in Canada has been consistently increasing over the years. Children are spending much more time in child care provided outside of the home than they were 15 years ago (Bushnik, 2006). In 2011, nearly half of Canadian parents (46%) reported using some type of non-parental child care arrangement during the day, a slight increase from 42% in 1995 (Sinha, 2014; Bushnik, 2006). Approximately 54% of Canadian children

aged 6 months to 4 years were in some form of child care provided outside of the home by someone other than a parent or guardian (Sinha, 2014).

In 2011, approximately 40% of children in Alberta were enrolled in a non-parental child care arrangement, the majority being enrolled in a child care centre (Sinha, 2014). The 2011 Statistics Canada report indicated the use of child care centres increased to 33%, a 5% increase from 2003 (28%), and a 13% increase since 1995 (20%) (Sinha, 2014; Bushnik, 2006). In regards to full-time child care, 52% of children were spending more than 30 hours per week in a child care and as a result, preschool children in this setting are receiving one-half to two-thirds of their meals at the child care centre (Bushnik, 2006). Given the high percentage of children currently in the care of child care centres, it is imperative to consider the role and influence the environment has, and the influence child care educators have on the environment. Considering social and physical environments have been known to have an influence on the health behaviours of children, investigating this relationship is critical.

1.2.3.1 Child Care Centres and the Promotion of Healthy Behaviour

Child cares are an important setting for the promotion of healthy eating behaviours in the early years. Child care educators also have a significant role to play as agents of health behaviour change with children and their families. It is well known that practicing healthy eating behaviours during the preschool years is important in supporting optimal growth and development and ensuring overall health (Story et al., 2002). The preschool years are an essential time for the development of healthy eating behaviours, including learning to accept and eat a variety of healthy foods (Larson et al., 2010). With that being said, the environment where children first learn these habits must provide an ideal template

for development (Briley and McAllaster, 2011). Therefore, meals provided to preschool children should provide both nutrient-dense foods and a supportive environment for practicing skills and trying new foods (American Dietetic Association, 2011). Considering the increased number of preschool children being fed nearly half of their meals at child care facilities (Bushnik, 2006), and the increasing amount of time children are spending in child care centres (Sinha, 2014), child care educators have a unique opportunity to influence and promote healthy eating and active living behaviours.

Studies conducted in the United States identified areas of improvement relating to mealtime behaviours of child care educators and overlooked opportunities for promoting healthy eating behaviours (Ramsay et al., 2010; Freedman et al., 2010; Trost et al., 2009). Two studies from the Head Start health initiative program in the United States discovered that child care educators may support healthy eating by sitting with children at meals and eating the same foods (Whitaker et al., 2009; Gable et al., 2001). Role modeling of healthy behaviours through consuming the same healthy foods, encouraging children to try new foods, and educating children about healthy foods through conversation are recommended for child care educators (Nicklas et al., 2001). Research has indicated role modeling by child care educators is even more effective when they overtly display enthusiasm for eating the foods and the benefits that come from eating these foods (Nicklas et al., 2001).

Ramsay and colleagues found that mealtime conversations held between child care educators and preschool children were not supportive of healthy eating environments, and did not assist children in listening to their internal cues regarding hunger and satiation (Ramsay et al., 2010). Three other studies have found that despite the support of healthy eating from some child care educators, only 47% of child care educators offered nutrition

education for children by reading books or playing games with nutritional themes (Trost et al., 2009; Sigman-Grant et al., 2008; Freedman et al., 2010). Research has shown that child care educators understand and agree that the best opportunity for educating children on healthy eating behaviours is at mealtime (Nicklas et al., 2001); evidence suggests only 50% of child care educators make any comment regarding nutrition throughout the meal. (Nahikian-Nelms, 1997).

Evidence suggests that negative aspects of mealtime, which is affected by the environment, may facilitate unhealthful eating in children (Neelon et al., 2007). Research has identified a positive association between greater acceptance of new foods and when child care educators modeled healthy behaviour and encouraged the children through verbal comments (Hendey, 1999; Neelon et al., 2011). Child care educators are in a unique position to influence and encourage healthy behaviour development in preschool children (Neelon et al., 2011), and thus, further research on the perception of child care educators may affect the healthy food environment for preschool children is required.

The active living environment is an important component of quality child care (Neelon et al., 2011). Preschool children attending child care centres that encourage and provide more opportunities for physical activity receive more physical activity throughout the day than children in child care facilities who do not attend these centres (Bower et al., 2008). Although time outdoors has consistently been proven to be a stronger predictor of physical activity levels, simply increasing the amount of time children can engage in physical activity time may not be adequate enough for preschool children to gain benefits at the child care centre (Alhassan et al., 2007). Research has indicated children in child care centres are not moving enough. Furthermore, limited research has indicated caregiver styles

play a role in the promotion/involvement of children in physical activity, suggesting a positive relationship between authoritative parenting styles (encouragement, positive reinforcement, etc.) and physical activity (Davids and Roman, 2014). However, given the gaps in the literature describing the role and influence of the child care educator on activity levels, it is evident further investigation is required.

Child care centres also have a variety of opportunities to increase levels of physical activity in preschool children, yet research suggests these opportunities are not taken advantage of as activity levels in child care centres are relatively low (Reilly, 2010; Oliver et al., 2007). There is limited research describing the influence of child care educators on child activity levels. In 2009, a study of 96 child care centres observed child care educators offering few prompts for activity and often withholding activity as a form of punishment (McWilliams et al., 2009). Child care educators may be unaware of their responsibilities to promote physical activity in children and, thus, may unknowingly contribute to sedentary behaviour.

1.2.4 Child Care Serving Styles

Two commonly used serving styles amongst child care centres are family-style and pre-portioned meal service. Family-style meal service is characterized by allowing children to self-serve their desired amount of food to themselves, and having all menu items passed around simultaneously. Pre-portioned meals are characterized by the child care educator pre-portioning out each food item based on recommendations for the preschool age group, prior to giving the children their plates. Although family-style meal service has been thought to be ideal when serving preschool children in child care centres (Harnack et al., 2012; Nicklas et al., 2001), the

ANGCY promote pre-portioning out meals in order to satisfy all the requirements of EWCFG, while avoiding overindulgence (Alberta Health Services, 2008).

Currently within child care centres, traditional family-style serving behaviours are ideal when serving preschool aged children (American Academy of Pediatrics, 2011). It is recommended that meals within child care centres are served family-style, allowing children to recognize internal satiation cues to determine when they are hungry or full (Nicklas et al., 2001). Research suggests this approach will ensure the children are consistently being served controlled quantities of fruits and vegetables and energy-dense foods, a finding that was observed in this study (Harnack et al., 2012). Evidence suggests children were more likely to try new, healthy foods in greater frequency (69%) when served family-style, compared to having foods served pre-portioned (42%) (Sigman-Grant et al., 2008). Despite the potential advantages to this style of serving, allowing children to self-regulate consumption, it may lead to an over-consumption of energy-dense, low-quality foods. Harnack et al. support this notion by highlighting children's tendency to prefer the taste of more energy dense foods such as chicken fingers and tater tots, over less energy-dense fruits and non-starchy vegetables (Harnack et al., 2012).

An alternate serving technique used in child care centres involves pre-portioning food for the children. Pre-portioned meal service is consistent with the ANGCY recommendations, which suggests child care centres serve foods in age-appropriate portion sizes in order to reduce the likelihood of over indulgence. Research demonstrates that this approach will ensure children are consistently being served controlled quantities of fruits and vegetables and energy-dense foods (Harnack et al., 2012). However, the study conducted by Harnack et al (2012) found fruit and vegetable consumption was significantly

lower during the pre-portioned intervention, and energy intake was significantly higher compared to the traditional family-style serving (Harnack et al., 2012). It is important to note the findings from their study may not be corroborated, given the exploratory nature of their approach, and was limited by only comparing the two meal service styles with regards to influence on food intake of children. With that being said, other studies have indicated when caregivers pressure children to eat certain foods or a specific amount of food, it may be counterproductive in achieving higher intakes of healthy foods (Birch et al., 2003; Galloway et al., 2006; Harnack et al., 2012).

There is conflicting evidence regarding which meal service approach is ideal for preschool children in child care centres. In this regard, the manner in which child care educators serve food to children at mealtime may affect the diet quality of the children and have an impact on the food environment. Given the lack of Canadian data on meal service style, the evidence supporting family-style meal service in child care centres and the ANGCY recommendation of pre-portioned meal service, further research is required.

1.2.5 Child Care Educator Feeding Styles

There is limited research focused on the food-related behaviours of child care educators in the child care setting, and given the increased use of child care facilities and time spent within them, the relationship between child care educators and children may affect the food intake of preschool children (Hughes et al., 2007). In order to develop effective strategies targeting childhood obesity and the potential obesogenic child care environment, understanding feeding styles is an important consideration. Furthermore, it is well known that children develop eating behaviours, such as what, when, and how much to

eat in the early years of life by observing the eating behaviours of others, and direct experiences with food (Birch et al., 2007). For example, some studies showed that children's intake of fruits and vegetables and dairy are increased after observing adults eating those foods (Young et al., 2004; Birch et al., 2007). Feeding styles are one mechanism through which food preferences and consumption patterns can be shaped for children (Gable and Lutz, 2000). Feeding styles represent the approach taken by a parent or caregiver to either modify or maintain a child's behaviour with respect to eating (Patrick et al., 2005). The concept of feeding styles in the literature is based on Diana Baumrind's conceptualization of the different parenting styles: authoritarian, authoritative and permissive.

Parents have the ability to influence children's eating behaviour in a variety of ways, such as availability of healthy foods, modeling positive healthy food choices and patterns, and using feeding styles to reinforce healthful behaviour development (Birch et al., 2007). For example, parents who are concerned about the food their child is consuming may place restrictions on what and how much the child can eat of certain foods, or reward their child for eating healthfully (Birch et al., 2007). These practices, which are characteristic of Baumrind's authoritarian feeding style, have been linked to consequences such as the child's insatiable desire for "restricted foods", and overconsumption when those restricted foods are available (Faith et al., 2004; Birch et al., 2007). Similarly, it has been found that rewarding children for consuming healthy foods with less healthy foods led to a decrease in preference for the healthier options, indicating excessive parental control, regardless of intention, may have a negative impact on the development of healthy eating behaviour in children (Birch et al., 1984; Birch et al., 2007). This evidence highlights the potential negative effects of an

authoritarian feeding style, which has been linked to food rejection, picky eating, overeating and overweight children (Hughes et al., 2005; Birch et al., 2007).

An authoritarian approach to child development involves a caregiver who sets an absolute standard of conduct in an attempt to shape, control and evaluate the child's behaviours and attitudes (Baumrind, 1966). An authoritarian feeding style is generally classified by extensive external control on the part of the caregiver, such as restricting a child's intake of particular foods, and forcing the child to eat other foods (Hughes et al., 2007). In this regard, authoritarian feeding is characterized by highly restrictive behaviours and power-assertive directives in relation to eating; controlling the child's intake with little consideration for the child's food preferences or choices (Hughes et al., 2007; Patrick et al., 2005). Research has shown a negative association between an authoritarian feeding style and high fat and sugar intake of children (Pearson et al., 2009), a positive association with sugar-sweetened beverage and candy availability in the home, and a lower intake of fruits, vegetables and juices within child care centres (Gable and Lutz, 2000; Patrick et al., 2005). Furthermore, research has shown that restrictive control of foods high in fat and sugar resulted in the child becoming fixated on the "forbidden foods", and was more likely to consume them in greater amounts, even when feeling satiated (Fisher and Birch, 2000). However, preschool children may benefit from an authoritarian feeding style due to the control of intake, allowing for increased consumption of fruits and vegetables, and restrict the intake of high energy nutrient-poor foods (Fuemmeler et al., 2012). This approach is consistent with the notion that controlling children's food intake, through pre-portioning their meals, will ensure they are consistently being served controlled quantities of fruits and

vegetables and energy-dense foods (Harnack et al., 2012) while reducing the likelihood of overindulgence.

On the opposite end of the spectrum, a permissive caregiver behaves in an acceptant, non-punitive and affirmative manner towards the child's impulses, actions, and desires; not acting as an active agent responsible for shaping or altering the child's behaviour (Baumrind, 1966). In contrast to the authoritarian caregiver, there is no overt power used in an attempt to control the child, rather they allow the child to regulate their own behaviour (Baumrind, 1966). The permissive feeding style is characterized by the term "nutritional neglect", allowing the child to eat whatever they want in whatever quantities they want (Hughes et al., 2007). With a permissive feeding style, there is little to no structure provided, with choices simply being limited to whatever is available; there is no encouragement or support of the child's self-regulation, as little attention is paid to the child's behaviour (Patrick et al., 2005; Hughes et al., 2007). Research has shown permissive feeding styles are positively associated with increased intake of energy-dense nutrient-poor foods, increased sugar, fat and sugar-sweetened beverage intake (Hennessy et al., 2012). Given that children are predisposed to preferring sweet and salty, energy-dense foods, permissive feeding styles may hinder the child's healthy food preference, as caregivers tend to cater to the child's food preferences (Hughes et al., 2008; Birch and Anzman, 2010).

Furthermore, children are often fearful of unknown foods and reject trying new foods, especially during the preschool years; their predisposed preference for high fat, sugary, energy-dense foods may persist into adulthood, and potentially lead to poor diet quality and a greater risk of being overweight or obese (Birch and Anzman, 2010). Therefore, permissive feeding practices are not the ideal feeding style for preschool-aged

children, and child care educator involvement can potentially play a vital role in the development of healthful behaviours surrounding food.

Authoritative caregivers attempt to direct the child's behaviour and activities in a rational manner, using reasoning behind their rules; enforcing their perspective as an adult, but respecting the child's interests and special ways (Baumrind, 1966). Authoritative feeding behaviour is represented by a balance between authoritarian and permissive styles, characterized by encouraging the consumption of healthy foods, such as fruits and vegetables, but is also given some choices about eating options (Patrick et al., 2005). In this regard, authoritative feeding allows the caregiver to maintain adequate control of the child's eating through reasoning and involvement (Hughes et al., 2007). In this way, caregivers can assist children in eating by encouraging them to ask questions about food, explaining healthy properties of foods, helping them prepare the food, or praising the children for eating healthy food (Hughes et al., 2007). Research has indicated a positive association between authoritative feeding styles and increased fruit and vegetable availability, fruit and vegetable consumption, and dairy consumption (Kremers et al., 2003). Furthermore, children who are surrounded by caregivers displaying authoritative feeding styles had lower intakes of energy-dense, nutrient-poor foods (Hennessy et al., 2012). Caregivers who display authoritative feeding styles were more likely to make fruit and vegetables available, as well authoritative feeding had a positive association with getting the child to consume fruits, vegetables and dairy products, ultimately making the caregiver more successful at getting children to try and consume new and healthy foods (Patrick et al., 2005).

Authoritative feeding practices are supported as the ideal approach to use with preschool children in child care centres as recommended by the ANGCY. Within the

ANGCY, it is recommended that child care educators create a positive meal environment by making healthy foods appealing. In order to achieve this, it is recommended child care educators role model healthy eating behaviours, by introducing new and healthy foods to children and avoiding the use of food as a reward or punishment (Alberta Health Services, 2008). Furthermore, it is important to note the ANGCY promote serving children in age-appropriate portion sizes, identifying more with pre-portioned meal service, rather than family-style meal service.

It is clear that the feeding style displayed by caregivers plays an important role in the development of children's eating patterns, especially in the preschool years, and the focus of child care educators should be on displaying feeding styles that facilitate the intake of healthy foods and the development of healthy behaviours towards food.

1.2.6 Child Care Educator Training

Though there are limited studies available in Canada, it has been shown that child care educators face challenges in supporting healthy eating among preschool children (Needham et al., 2007). A study conducted in Hamilton, Ontario indicated that physical environment factors that hindered their ability to provide healthy food to children included lack of availability of these foods and child care educator perceptions that "children consume unhealthy foods at home" and that "healthy eating was not considered a priority by the children's parents" (Needham et al., 2007). This evidence highlights a need for greater understanding of what child care educators perceive their role to be in the promotion of healthy eating to children. If child care educators are unaware of their role in the promotion of healthful behaviours, there is a missed opportunity for creating an ideal food

environment. Furthermore, child care educators have expressed a need for training in relation to healthy snack ideas that consider time restrictions, food restrictions, availability of equipment, child preferences and cost (Farmer et al., 2014). Specifically, it has been suggested information regarding healthy portion sizes be delivered in the form of workshops, that way child care educators may view concrete food examples to demonstrate this important concept (Farmer et al., 2014).

Child care educators also require educational materials to support physical activity initiatives within child care centres, and should be trained on how to use these resources (Dunn et al., 2006). Knowing the child care setting and child care educators can reinforce healthy physical activity behaviour development, providing training and support in this area is critical. It is known that many child care educators lack training in both nutrition and physical activity (Dunn et al., 2006). Providing training, such as physical activity training, to child care educators has been shown to be an effective method for improving the overall quality of care preschool children are receiving, and increase their exposure to educational opportunities (Dunn et al., 2006; DeBord and Sawyers, 1996; Kontos et al., 1996). Similar sentiments were found in this study, as child care educators identified the need for more training related to physical activity. Specifically, child care educators expressed the need for training and educational materials such as games and activities they can incorporate in the physical activity portion of their day. Supporting child care educators who work in child care centres with smaller play spaces, both indoors and outdoors, is essential to ensure children in child care are receiving optimal amounts of quality physical activity.

Communication plays an integral role in the training and education for child care educators. In order for child care educators to be certain of their role, they require education

programs that address the issues they feel are the biggest barriers to support them in being positive healthy role models. Research suggests child care educators view communication and education of parents as an area that requires increased support (Farmer et al., 2014). There are many child care centres that have implemented strategies, such as multiple exposure to new foods, to encourage picky eaters to try new foods (Farmer et al., 2014). However, child care educators have expressed concern over the food environment in the home, suggesting parental education may assist in this issue, and also highlight their need for additional support in understanding the feeding relationship (Farmer et al., 2014). A concern child care educators have is discussing healthy eating with parents, as healthy eating can be considered a sensitive topic (Farmer et al., 2014), which may be due to parents' personal feelings of insecurity in this area (Johnson et al, 2013). Further training on how to communicate with parents regarding sensitive topics may be beneficial, and research has indicated workshops targeting child care educator's personal health increase in the ease in which they felt they could speak to parents regarding a child's eating behaviour (Farmer et al., 2014; Gosliner et al., 2010).

The dissemination of healthy behaviour information within child care centres is an area that may benefit from increased support. Research has indicated child care educators suggested workshops or meetings to facilitate knowledge translation within the centres, as directors are often in receipt of healthy eating information, but may require assistance in communicating it with their staff (Farmer et al., 2014). Evidence provided in the literature suggests further research be conducted in evaluating the training and education needs of child care educators.

1.3 Research Rationale

The extensive use of child care in Canada and the increasing prevalence of obesity amongst Canadian children indicate the need for a comprehensive understanding of the role of child care educators and the role of policy in influencing a healthy eating and active living environment for children in child care. In order to understand this interactive relationship, it is critical to gain an understanding of how the perceptions and behaviours of the child care educators influence the healthy eating and active living environment for children.

The ANGCY guidelines are not mandatory and, therefore, it is important to gain insight on how they are perceived by child care educators. Results of a survey confirmed it was imperative to understand child care educators' perceptions regarding their role, responsibility and willingness to implement healthy eating and active living interventions (Lanigan, 2012; Dunn et al., 2006).

The findings of this present study will contribute to ongoing research and the development of a comprehensive health framework for preschool children in child care centres, conducted by the Nibbles &Wiggles research team, of which Dr. Anna Farmer is the principal investigator. The ultimate goal of this framework is to improve the healthy eating and active living environment for preschool children in child care. Furthermore, the findings of this study will serve to fill gaps in the current literature regarding the interaction between child care educators and children in supporting and creating a healthy eating and active living environment for preschool children.

There is limited information on the perceptions of educators and how they influence healthy eating and active living environments for preschool children in child cares. Thus, there is a need to explore the interactions related to mealtime behaviours and adherence to the recommendations of the ANGCY within child care centres.

1.4 Research Question

How do the perceptions and behaviours of child care educators and policy influence the healthy eating and active living environments for preschool children in child care?

1.4.1 Objectives

1. Observe child care educators' behaviours and interactions with preschoolers' during meal and play time (Chapters 4 & 5).
2. Explore child care educators' perceptions of healthy eating environments and their role in promoting healthy environments (Chapter 3).
3. Explore child care educators' adherence to and knowledge of the ANGCY recommendations on creating healthy food environments (Chapter 3).

1.5 Summary

In this chapter, a review of the literature was provided to establish what is currently known about child care use in Canada, healthy eating and active living behaviours of preschool-aged children and the ANGCY and their role within child care centres. It is clear since the dissemination of the ANGCY in 2008, limited research has been done to establish

child care educator's perceptions of the guidelines and the influence this may have on the healthy eating and active living environments within child care centres.

Finally, this chapter provided a brief overview of Baumrind's feeding styles framework, and the role feeding styles may have on influencing preschool children's eating behaviours. With the increasing use of child care centres, child care educators are in an ideal position to influence healthy behaviour development in preschool children, and this is why understanding their perceptions of this role, and the influence they have, requires further investigation.

Chapter 2: Methods

2.1 Overview of Methods

The purpose of this study was to determine the child care educators' perceptions of and adherence to the Alberta Nutrition Guidelines for Children and Youth (ANGCY), and to observe the interactions between the child care educators and the preschool children at meal and play times. There were two phases involved in selecting and working with the child care centres. The first step involved selection and negotiation of entry into the child care centres. The second step included multimodes of data collection through direct observations of interactions between child care educators and preschool children at meal and play time with validated observational tools, and key informant interviews with five child care staff at each child care centre. Adherence to and perceptions of the ANGCY were assessed through the analysis of key themes identified in the key informant interviews, the direct observations and the field notes collected by the researcher.

Upon selection of the three cases, entry into each of the child care centres was gradual during the first step of the study and is explained further below. Data analyses were characterized by the principles of ethnography through the use of coding and identifying categories and emerging themes (Cruz and Higginbottom, 2013).

2.2 Case Study Design

This exploratory case study is a focused ethnography using three cases with multiple sources of data. Exploratory studies focus on the collection, analysis and interpretation of data by observing human behaviour (Boodhoo and Purmessur, 2009). Case studies are used to collect descriptive data through the intensive examination of an event in a particular organization,

group or setting (Boodhoo and Purmessur, 2009). In this regard, case studies are ideal when collecting varying sources of data, such as observational data, interview data and field notes (Siggelkow, 2007). Case analysis can be powerful and used to fill gaps in existing bodies of literature (Siggelkow, 2007). Furthermore, case studies are particularly useful for studying complex phenomena (Boodhoo and Purmessur, 2009), such as the influence of behaviours on an environment. An exploratory case study design, specifically, is an appropriate approach for understanding contextual factors and processes involved in adopting a specific innovation (Yin, 2009). The main advantage of using case studies is that they can identify how things occur in practice (Boodhoo and Purmessur, 2009) and, therefore, can be useful for examining processes underlying behaviour or policy adoption within a child care setting.

Ethnography can be described as *"*a form of social and educational research that emphasizes the importance of studying at first-hand what people do and say in particular contexts. This usually involves fairly lengthy contact, through participant observation in relevant settings, and/or through relatively open-ended interviews designed to understand people's perspectives" (Hammersley, 2006). Ethnographies focus on word and observation data to study human behaviour and cultures. They use fieldwork, participant observation, in-depth interviews as well as other techniques to provide a descriptive study of human behaviour in different societies and cultures (Boodhoo and Purmessur, 2009).

One of the main reasons for using an ethnographic approach in this study is that it is an appropriate qualitative methodology for reviewing and understanding existing behaviours and processes over time (Boodhoo and Purmessur, 2009). Furthermore, a focused ethnography is an appropriate choice for this inquiry as it enables understanding of the interrelationship between people and the society in which they live (Cruz and Higginbottom, 2013).

In response to gaps in the literature regarding the influence of child care educators on the healthy eating, active living environments for preschool children, an exploratory case methodology using a focused ethnography was used to understand this relationship. A multiple case design was used to explore one high performing case and two comparison cases, with an intensive case analysis undertaken within each case. Multiple case study designs are often used when there is more than one case study in different settings and as an exploratory approach for gaining an in-depth understanding of processes involved in specific innovations (Miles and Huberman, 1994).

2.3 Justification of Focused Ethnography Case Study Design

The three cases used in this study were chosen based on participation in The Alberta Nutrition Guidelines Outcomes (TANGO) study (Downs et al, 2010). In the TANGO study, 488 child care centres in Edmonton, Alberta were surveyed based on awareness of the ANGCY, their intent to use them, and uptake of the guidelines (Downs et al., 2010). The three child care centres that participated in this study were chosen from the TANGO pool in order to ensure child care centres were aware of the ANGCY. Other inclusion criteria are discussed in the sampling section below. The researcher determined the high performing case based on results and definitions used in the TANGO study. Specifically, the high performing case was selected from the 'early adopters' as identified by the TANGO study, and defined as child care centres that had "implementation strategies initiated within one year of receiving the guidelines" (Nikolopoulos et al., 2012).

Data collection was guided by the principles of ethnography and characterized by intensive short-term field visits and extensive use of audio recording technologies (Knoblauch,

2005; Madden, 2010). Direct observation, field notes, and interview data were coded and triangulated, enhancing the credibility and rigour of the data (Yin, 2009; Krefting, 1990).

2.3.1 Sampling and Inclusion and Exclusion Criteria

The three child care centres in this study were selected purposefully, through the use of inclusion and exclusion criteria. In order to participate in the study, the inclusion criteria for the child care centres were: (1) to have knowledge of, or adhere to, the ANGCY, (2) to have preschool-aged children (aged 2-5 years), (3) to provide all meals and snacks in order for direct observation to be possible, (4) to be located in or around the Edmonton, Alberta area, and (5) to grant consent and interest in completing to the duration of the study and all of its components. Two of the three child care centres were located within the City of Edmonton (urban), and one child care centre was located in a rural area outside of Edmonton. The rural case was selected based on its proximity to the City of Edmonton while maintaining characteristics of a rural dwelling; a population of 1000 people or less (Statistics Canada, 2011).

For the purpose of case comparisons, two of the three child care centres served meals "family-style", while the other served pre-portioned plates to the children. The definition of family-style meals was characterized by allowing the children to select which foods they consumed and in what quantity (Nicklas et al., 2001). Pre-portioned meals were characterized by child care educators portioning out each food item, prior to giving the children their plates (Harnack et al., 2012). Within child care centres, it is recommended that meals be served family-style, allowing children to recognize internal satiation cues to determine when they are hungry or full (Nicklas et al., 2001). Using different styles of meal service as a selection criterion allowed

for a comparison between the two meal serving styles and an assessment of child care educator interactions with the children at mealtime.

2.3.2 Recruitment and Negotiation of Entry

The research team began with 10 child care centres selected from the TANGO study, based on the inclusion criteria (Downs et al, 2010). The researcher contacted all 10 of the child care centres by telephone and email; four agreed to participate and the remaining child care centres declined due to the time commitment. Before the researcher was able to narrow down the four eligible child care centres to the desired three cases, one of the child care centres elected to not participate in the study due to the high time commitments. Once the child care centres were selected, they were first contacted via email (Appendix A), followed by an informal meeting with the centre directors and researchers (TS, APF). The meetings were held to provide them with the study information, ensure they met the inclusion criteria and ensure their full participation until study completion. Once confirmation was obtained from the three child care centres, the director and each participating child care educator were taken through a formal process of consent (Appendix B).

Recruitment of child care educators for the interviews was sought through the distribution of study information sheets, and verbal notification from the researcher (TS) and child care centre director. In this regard, the researcher was permitted to spend time in the child care centre to speak to child care educators regarding the study and answer any questions they may have had in regards to participating. Upon receiving all the appropriate information, interested child care educators approached the director or the researcher regarding their agreement to participate. In order to gain broad perspectives, child care educators were chosen based on their position held at

the child care centre in order to mimic the power hierarchy of each centre, and diversity of roles based on selection process developed in a related study (Nikolopoulos et al., 2012).

2.4 Description of Observational Tools

2.4.1 Mealtime Observational Tool

Observational data were collected systemically with the use of an observational tool designed by the Yale Rudd Centre for Food Policy and Obesity, and modified by the researcher. Although these tools are available to the public through the Yale Rudd Centre for Food Policy and Obesity website, the researcher sought and obtained permission for its use in this study. The observational data collected during the mealtime were recorded on the observational tool *Meal Observation Tool Part 2: Eating and Serving Behaviours* (Yale Rudd Centre for Food Policy and Obesity, 2013) a validated tool that researchers may utilize while observing child care educator interaction with children during the meal period (Appendix C). The tool developers ensured the validity of the tool through survey development, 45-minute semi-structured interviews with child care centres and direct observations. Validity was measured by calculating the proportion of responses in exact agreement, or with agreements greater than 80%, indicating a strong agreement (Henderson et al., 2011). The mealtime observational data collected included: the specifics of the visits such as date, time, length of observation period, number of staff, number of children, and characteristics of the meals provided. A key component, and the main justification for using this specific observational tool, was it allowed for the researcher to observe the interactions between the child care educators and the children during the entire meal period. The tool provided space for the researcher to record a verbal comment made by the child care educator, who the comment was

directed to (including the physical characteristics of the child(ren)), and the justification for the comment (to encourage eating, to encourage children to try new food, etc.). The tool consisted of 5 items and took the researcher the entire observation period to complete (45 minutes – 1 hour 15 minutes). The 5 items in this tool included: (1) background environment, (2) time, (3), drinking water, (4) feeding behaviours, and (5) staff comments (record food or eating-related comments made to children by caregivers) (Appendix C).

2.4.2 Physical Activity Observational Tool

The observational data collected during play time was recorded on the observational tool *Physical Activity Observation* (Yale Rudd Centre for Food Policy and Obesity, 2013) a validated tool created by the Yale Rudd Centre for Food Policy and Obesity that researchers may utilize while observing child care educator interaction with children during the physical activity period (Appendix D). The tool developers ensured the validity of the tool through survey development, 45-minute, semi-structured interviews with child care centres and direct observation. The validity was measured by calculating the proportion of responses in exact agreement, or with agreements greater than 80%, indicating a strong agreement (Henderson et al., 2011). The physical activity observation data collected included: the physical characteristics of the play environment, including whether the children were indoors or outdoors; the types of activities, games and equipment provided to the children during this time; the length of the play time; and the time increments of moderate to vigorous play and sedentary behaviour. The activity level (low, moderate, vigorous) was subjectively determined by the researcher. The observational data also included: the interactions between child care educators and children, specifically verbal cues, play instruction, physical activity encouragement or discouragement, involvement in games,

safety instructions, and physical activity messages relayed. The tool provided space for the researcher to record verbal comments made by child care educators, who the comment was directed to (including the physical characteristics of the child(ren)), and the justification for the comment (to increase or decrease physical activity, relay safety information, etc.). The tool consisted of 4 items and took the researcher the entire observation period to complete. The 4 items in this tool included: (1) play time, (2) play equipment, (3), drinking water, and (4) staff behaviour (Appendix D).

2.4.3 Modification of the Observational Tools

Modifications to both of the observational tools were made by the researcher during the observation period. Despite the usefulness of each tool, in order to address all aspects of the research questions, the researcher began observing and recording interactions between the child care educators and the preschool children during the meal and play time. These observations included: verbal cues, body language, eating and play behaviours, and interactions between child care educators and fellow staff present during the meal and play time. Adapting these tools was intended to develop a more comprehensive assessment of the child care centre environments. Furthermore, the researcher used the observation tools for 5 observation periods, rather than the 1-day observation of which it was validated. The researcher (TS) and supervisor (AF) determined the observation period would be extended to 5 days of observation at each centre due to the results being collected. The researcher administering the observation tool noticed changes in child care educator behaviour after the third observation, and therefore, continued to observe until a plateau was reached and there were no further observable changes in the pattern of the behaviour (around day 4 or 5, depending on the centre). Specifically, the researcher determined saturation when no

new behaviour or commentary was being offered by child care educators, and consistent behaviour was therefore being observed.

In order to ensure the reliability of the observation tool, both the researcher and the research assistant (mealtime: MH; physical activity: LC) were present at the same observation period and independently completed the observation using the same tool. The observation tool completed during this observation period was then analyzed and compared against one another in order to determine the reliability of the method. In this way, the researcher was confident in the tools ability to provide necessary data, and capable of being duplicated with similar results by another researcher.

2.4.4 Development of the Interview Guide

The interview guide for this study was designed to assess specific themes or topics during an interview to ensure the researcher obtained all necessary information from the participants to achieve the goals of the study. In this study, the researcher developed a semi-structured interview guide that included 12 questions and probes (Appendix E). The 10-30 minute key informant interviews aimed to address 5 key areas: (1) knowledge of the ANGCY, (2) definition of healthy eating, (3) perceived role in the promotion of healthy eating to preschool children, (4) definition of physical activity, and (5) perceived role in the promotion of physical activity to preschool children. Examples of questions that aimed to address the 5 key topic areas are displayed in Table 2.1 below.

Table 2.1. Main themes and example questions addressed in the interview guide

Main Themes	Example of Interview Question
Knowledge of the ANGCY	Have you heard about the Alberta Nutrition Guidelines for Children and Youth? • How did you first hear about the guidelines?
Definition of healthy eating	What does healthy eating mean to you?
Perceived role in promoting healthy eating	What do you think your role is in promoting healthy eating to children?
Definition of physical activity	What does being physically active mean to you?
Perceived role in promoting physical activity	Do you participate in physical activity with the children? How so? • Do you lead the physical activity the children are engaged in? How so?

2.5 Data Collection

Data collection was guided by the principles of ethnography and characterized by short-term observation periods, key informant interviews with child care educators at each child care centre with the use of audio recording technology, and researcher recorded field notes. Multiple data sources were used to enhance the richness, confirmability, and rigour of the data (Yin, 2009; Patton, 2002).

2.5.1 Meal and Physical Activity Observations

Direct observation of mealtime behaviours was carried out for 5 days during lunch time hours (11:00 am – 12:30 pm) at each child care centre. Although the protocol for the observation tool only required one day of observation, it was deemed necessary by the researcher to observe each child care centre for 5 days. By observing each child care centre for 5 days, the researcher

would be able to gain saturation of themes, which was not possible after only one day of observation. Depending on the child care centre, saturation was reached on day 4 or day 5 of observation.

Observation periods were completed at each child care centre within a two-week period of the initial observation date. Some observation sessions were either completed consecutively or days apart in order to decrease as much bias as possible, given the child care centres required notice. Observation periods varied between child care centres, depending on the length of the lunch period. Observation periods for mealtime ranged between 45 minutes and 1 hour and 15 minutes; a total of 26.5 hours of observation hours were completed across all three cases. Two of the three child care centres had more than one classroom with preschool-aged children; therefore, 5 direct mealtime observations were carried out per classroom at each of the two centres. Case 1 had 18 children in the junior preschool room (ages 2-3) and 14 children in the senior preschool room (ages 4-5), Case 2 had 16 children in the junior preschool room (ages 2-3) and 19 children in the senior preschool room (ages 4-5); Case 3 had 14 preschool children in one classroom (ages 2-5). In order to ensure consistency, each preschool classroom at all three child care centres was observed for the same period of time, and during the same meal.

Direct observation of play time was carried out for 5 days at each child care centre. Observation periods for play time ranged between 25 minutes and 50 minutes; a total of 9.75 hours of observation were completed across all three centres. Two of the three child care centres had more than one classroom of preschool aged children, however, both preschool classrooms had play time activities together and thus, no additional observations were required. In order to avoid bias, visits to the child care centres would ideally have been unannounced; however, all three child care centres required notification and therefore this was not possible.

By giving an advanced notice to the site, it may have impacted the child care educator's behaviour or the lunch menu being served on that day. In order to reduce this challenge and the likelihood of bias, the researcher was able to give child care centres a 24-hour notice, leaving them little time to make these changes. The Ethical approval for this study was obtained from the University of Alberta Research Ethics Board.

2.5.2 Field Notes

The collection of field notes was vital in gaining a comprehensive understanding of the complete environment that was being investigated. Throughout the data collection process, field notes were written about specific interactions of participants and their environments. This was done in order to assist the research throughout the data analysis process and establishing a complete picture of the child care environment.

To ensure consistency, the researcher ensured particular elements of the environment were collected during every observation period. Field notes collected throughout the observation process included: the interaction of the child care educators with the preschool children at mealtime, such as verbal cues, body language, eating behaviours, and interactions between the child care educators and fellow staff present during mealtime. The objective of the field notes was to enhance the data collected by the observation tool and were comprised of: exact menu items served during lunch, general attitudes of child care educators, behaviour of child care educators during mealtime, their personal thoughts expressed about the food being served, and any additional nutrition education messages relayed to the children throughout the observation period. This data will serve to inform how the behaviour of the child care educators influences the food environment.

The observational data and field notes also included interactions between child care educators and children, and specifically on verbal cues, play instruction, physical activity encouragement or discouragement, involvement in games, safety instructions, physical activity messages relayed, and child care educator interactions with each other.

2.5.3 Key Informant Interviews

Key informant interviews at each child care centre were audio recorded and guided by a developed semi-structured interview protocol. In order to explore each topic to saturation, questions were open-ended and included probes. A total of 5 interviews were conducted at each child care centre (n = 15), and key informants were chosen based on their position held at the centre. At each child care centre, the interviews included the centre director, assistant director, senior child care educators and junior child care educators, in order to fully explore topics throughout the power hierarchy at each centre, and to achieve a diversity of job roles. The length of the face-to-face interviews ranged from 10-30 minutes. The interview questions addressed the participant's views of healthy eating and active living, how they felt their child care centre represented and offered healthy meals and activities for the children, their perceptions and beliefs about the ANGCY and their use within the centre, their role, and responsibility in representing healthy eating and active living to the children, and how they best demonstrate healthy eating and active living during meal and play time.

Interviews were conducted by the researcher at each of the child care facilities. The researcher worked with the facilities director in order to determine which child care educators would be interviewed. Prior to being interviewed, each participant was given an information sheet regarding the study and the risks and benefits of participating were explained by the researcher.

Interested participants were then asked to sign a confidentiality agreement, ensuring their privacy and interview answers remain confidential. At the beginning of each interview, the audio recording was started and the researcher asked each participant to clarify that they had read and signed the confidentiality agreement and understood they may opt out of the study at any time. Once the participant verbally confirmed they understood the terms of the study, the researcher began progressing through the interview guide with the participant. If the participants gave one word or short answers, the researcher had a series of probes to use in order to invoke greater depth in participant response. Interviews were conducted to the point of theme saturation at each child care centre.

The audio recorded interviews with key informants were transcribed and coded. During the interview, the researcher documented non-verbal cues such as body language and these notes were used in conjunction with the transcribed data to enhance the interpretation of results.

2.6 Data Analysis

Data analysis was guided by the principles of ethnography through coding, categorizing and identifying common themes (Lofland et al., 1971). The thematic analysis allows researchers a method of identifying, analyzing and reporting patterns within data (Braun and Clarke, 2006). Thematic analysis is appropriate for analyzing ethnographic studies that seek to discover meanings using interpretations, as it allows the researcher to summarize key features within the data (Fereday and Muir-Cochrane, 2006).

NVivo software (version 9; QSR International, Doncaster, Victoria, Australia) was used to manage and organize the qualitative data. All data were organized by child care centre and

further broken down based on emerging themes and classification of behaviour observed. This was done by identifying common themes within each child care centre, comparing themes across all three centres where the researcher reorganized and further categorized subthemes. Direct observations of the meal and play time, field notes, and interview transcripts were coded separately and triangulated to enhance the credibility of the findings. All data sources were analyzed separately for each child care centre, analyzed together for each child care centre, and then compared amongst each child care centre in order to increase the reliability of the findings and decrease researcher bias (Patton, 2002; Yin, 2009).

In order to ensure reliability, credibility and trustworthiness of the key informant interview data, the researcher ensured verbatim transcripts of the interviews were completed soon after the key informant interviews were conducted. Furthermore, upon completion of the key informant interviews, the researcher had a short reflective period, in order to memo or to record any other observations that were pertinent to the study. This included memo-ing on body language and overall comfort level of the participants, and how the researcher felt the participant's overall attitude was once the interview was completed. The researcher ensured transcriptions of the key informant interviews took place within a week from the time the interviews were conducted. The data analysis process was iterative and comprehensive. In order to ensure credibility was maintained throughout the entire analysis of the interview data, the researcher listened to the interviews, assessed the initial transcripts and continually compared these to the notes that were memoed.

Similar strategies to ensure credibility, validity, and trustworthiness of the observational data were also employed by the researcher. In order to confirm the reliability of the research tool, both the researcher and the researcher assistant (MH) completed the

same observation period, independently. At the end of the observation period, the researcher and the research assistant had a debriefing session where they went over the different components of the tool to ensure they were using it the same way and achieving similar outcomes. Furthermore, the researcher ensured the debriefing process continued after each observation period, allowing for reflections and memo-ing of the observation period. Throughout the analysis, the researcher continually examined each observation, compared it to others collected from the *same* child care centre, and observations collected from the *other* child care centres, to ensure every area was being explored.

2.6.1 Triangulation of Data Sources

Triangulation of the different data sources collected was done in order to develop a rich and comprehensive understanding of the data and the environment from which it came. By comparing the different data sources against themselves, and one another, was done in order to explain emerging themes and phenomena identified by the researcher and the credibility of the findings (Leech and Onwuegbuzie, 2007). In this study, observational data, interview data, and researcher recorded field notes were compared and analyzed together in order to further develop conclusions about the emerging themes. For example, in the analysis, the researcher made note of key informants describing their belief that role modeling behaviour was a key aspect of promoting health behaviours to children. The researcher had recorded observations of these key informants demonstrating healthy modeling behaviours to the children during mealtime, and also had recorded field notes describing further positive behaviour. In this example, analyzing the key informant interview data, observation data and field note data separately allowed the researcher to

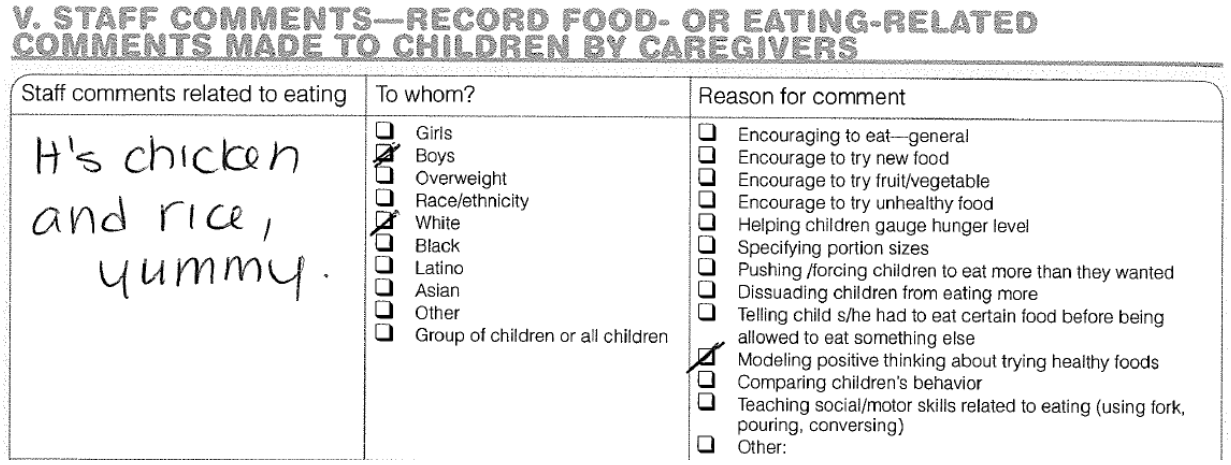
deduce that role modeling was a key feature in the promotion of health behaviours within these child care centres, as it had appeared independently in all three data sources. These results were more credible, confirmable and reliable once they were analyzed together to produce a common theme. As research has suggested, triangulation of data can assist in explaining attitudes and behaviours by enhancing the contextual data related to the area being studied (Shenton, 2004). In regards to role modeling, comparing all three data sources allowed the researcher to gain a comprehensive understanding of the meaning behind "role modeling", and its importance within child care centres, as child care educators presented aspects of this concept in all three data sources collected.

2.6.2 Observational Data and Field Notes

Direct observation and field note data were coded and triangulated, enhancing the credibility and rigour of the data (Yin, 2009; Krefting, 1990). In order to ensure the reliability of the observational tool, both the researcher and a research assistant (MH) were present at the same observation period and independently completed the observation using the same tool. The observation tools completed during this observation period were then analyzed and compared against one another in order to determine the validity of the method. Comments the child care educators made throughout the meal and physical activity observation period were recorded and the justification for the comments were determined by the researcher. The justifications for the comments made were determined by the classification system outlined in each of the observation tools. The researcher analyzed all observations recorded from each child care centre and classified each comment made by child care educators. Comment classifications were then tabulated for each case and compared separately, together and compared for reliability. An

example of this is displayed in Figure 2.1 below.

Figure 2.1. Example of child care educator comment, to whom it was directed, and the options for researcher classification



V. STAFF COMMENTS—RECORD FOOD- OR EATING-RELATED COMMENTS MADE TO CHILDREN BY CAREGIVERS

Staff comments related to eating	To whom?	Reason for comment
H's chicken and rice, yummy.	☐ Girls ☑ Boys ☐ Overweight ☐ Race/ethnicity ☑ White ☐ Black ☐ Latino ☐ Asian ☐ Other ☐ Group of children or all children	☐ Encouraging to eat—general ☐ Encourage to try new food ☐ Encourage to try fruit/vegetable ☐ Encourage to try unhealthy food ☐ Helping children gauge hunger level ☐ Specifying portion sizes ☐ Pushing /forcing children to eat more than they wanted ☐ Dissuading children from eating more ☐ Telling child s/he had to eat certain food before being allowed to eat something else ☑ Modeling positive thinking about trying healthy foods ☐ Comparing children's behavior ☐ Teaching social/motor skills related to eating (using fork, pouring, conversing) ☐ Other:

* Case 2, P1, 08/15/2014.

After completion of each observation period, the researcher compared field notes taken throughout the observation period to determine their usefulness to the analysis. Field notes relating to child care educator behaviour that was not capable of being captured by the observational tool was recorded in each instance. Examples of this behaviour included: ignoring the children, speaking to other staff members instead of interacting with the children, offering children excessive amounts of food, and related behaviour. Throughout the analysis of the observation data, the collected field note data was referred to in order to gain further context of the meal and play time environment.

2.6.3 Key Informant Interviews

Key informant interviews were transcribed by the researcher and a transcription assistant

(LC) and transcripts were kept in a password-protected computer in a locked office. The objective of the transcription analysis was to identify common indicators and themes mentioned throughout the interviews. Notes taken throughout the interview process were incorporated into the data analysis after transcription. Incorporating non-verbal cues in the analysis allowed for deeper meaning and understanding of the data (Lofland et al., 1971). This was done systematically by the researcher after participants answered each question. If the participants seemed comfortable, based on a subjective opinion by the researcher, answering the question, a check mark was placed next to that question. If the participants seemed uncomfortable answering any question, the researcher simply marked a small x by the question and identified what behaviour the participant was exhibiting. For example, if a participant had a hard time answering a question and began shifting in their seat, this was noted by the researcher. Interview recordings were transcribed closely after the interviews were conducted in order for information to be documented as accurately as possible. The interview data were transcribed and organized by the researcher and a transcription assistant (LC). Once the interviews were transcribed by both the researcher and the transcription assistant, data were validated by listening to the audio recording of the interviews and comparing them against the transcripts to ensure accuracy. There were no discrepancies found between the audio recordings and the transcripts.

Interviews from each child care centre were reviewed by the researcher in order to identify major themes. The interview guide was separated into two parts: healthy eating and active living. When identifying themes, the researcher focused on each part of the interview separately, once all interviews at each child care centre were coded, the researcher would look at overall themes of each interview as a whole. Upon identification of major themes of

each interview separately, all interviews from one child care centre were compared and analyzed in order to deduce common themes from that specific site. Once the researcher identified common themes from each site individually, the researcher then compared themes from all three child care centres as a group. All codes and themes identified by the researcher were discussed and analyzed by other members of the research team in order to limit bias and ensure a comprehensive analysis was complete (LC, APF).

Chapter 3: Child care educator perceptions of their role in promoting a healthy eating environment within child care centres

3.1 Introduction

The preschool years are a sensitive period in a child's life where they learn and develop behaviours, preferences, and patterns related to food and eating (Nicklaus, 2009). It is well known that practicing healthy eating behaviours during the preschool years is important in supporting optimal growth and development and ensuring overall health (Story et al., 2002). The preschool years are an essential time for the development of healthy eating behaviours, including learning to accept and eat a variety of healthy foods (Larson et al., 2010). With an increasing number of children spending time in child care (Sinha, 2014), child care educators have a unique opportunity to influence and promote healthy eating behaviours. Given the limited research about the knowledge and beliefs of child care educators regarding their role in the promotion of healthy eating behaviours, and their potential influence on preschool children's eating behaviours, it is clear further research is warranted. Understanding child care educators' perceptions of healthy eating environments, and their role in promoting that to children is critical in further supporting them through guideline development and future training.

The Government of Alberta released the Alberta Nutrition Guidelines for Children and Youth (ANGCY) in 2008 to promote and support the overall healthy development for Albertan children in schools, recreational and child care centres. The ANGCY has four recommendations specific to child care centres highlighting the importance of creating healthy food environments for preschool children which are: (1) provide appropriate time and space to eat, (2) create a positive meal environment by making healthy foods appealing, (3) serve foods in age-appropriate portion sizes, (4) introduce new foods in small amounts, and provide multiple

occasions for children to try them (Alberta Health and Wellness, 2008). Despite best intentions, the release of the ANGCY to child care centres was through passive-dissemination, relying on child care centre directors to promote the information to their staff. Research has shown that many prevention and change efforts are based on the assumption that increasing awareness and knowledge of a problem will result in a positive behaviour change (Lanigan, 2012). However, studies have indicated this assumption may not be accurate, with empirical evidence suggesting a top-down program design that relies heavily on child care centres director to fuel the initiative, rather than address existing beliefs and attitudes of the child care educators (Lanigan, 2012; Ward et al., 2008). Research has also suggested child care educators identified a lack of sufficient knowledge, training, and appropriate curriculum within the child care centres as barriers in promoting a healthy environment within the centres (Lanigan, 2012; Taveras et al., 2006).

In 2012, a case study by one of the authors of this research found that child care educators needed more training on ways to support healthy eating environments for preschool children (Nikolopoulos et al., 2012). An earlier survey reported it is important to understand child care educators' perceptions regarding their role, responsibility and willingness to implement healthy eating and active living interventions (Lanigan, 2012; Dunn et al., 2006). Child care educators are now in a unique position that allows them to directly influence both healthy eating and physical activity directly and therefore their perceptions regarding what constitutes as these behaviours is key. Although there is limited research in this area, previous studies have noted child care educators can feel uncertain about managing a child's food intake and addressing weight or health issues (Lanigan, 2012; Lumeng et al., 2008). Other studies have reported that child care educators believe their responsibilities included monitoring children's

food intake, and determining how much they should eat and what types of foods they should be eating (Freedman et al., 2010). In this regard, exploring child care educators' perceptions of their role in promoting healthy food environments, and barriers to doing so, is an important area requiring further investigation.

There are limited studies that have explored child care educators' perceptions of their role in the promotion of healthy eating environments within child care centres. Given the increased amount of time preschool children are spending within child care centres (Sinha, 2014), and the opportunity child care educators have to assist in developing lifelong health behaviours of the preschool children in their care (Geoffroy et al., 2013), establishing the perceptions of their role in the promotion of health behaviours is critical. The purpose of this study was threefold: 1) to explore child care educators' perceptions of healthy eating environments within their child care centres, 2) identify their perceived role in the promotion of healthy lifestyles to the children and 3) explore their knowledge of the ANGCY recommendations on creating healthy food environments.

3.2 Methods

3.2.1 Study Design

To address current gaps in the literature regarding child care educator perceptions and influence on healthy eating environments in child care centres, an exploratory focused ethnography case study design was utilized to explore three cases; one high performing and two reference child care centres. Case analysis can be used as powerful examples to fill the gaps in existing bodies of literature (Siggelkow, 2007), and are particularly useful, for studying how things occur in practice (Boodhoo and Purmessur, 2009), understanding the influence of

behaviours on an environment and, therefore, can be useful for examining the behaviour change of staff or the effects of policy within a child care setting.

Multiple sources of data were collected including interviews and field notes, which were analyzed to ensure the rigour and confirmability of the data (Patton, 2002). Data collected from key informant interviews and field notes were transcribed, coded and triangulated to enhance the credibility of the findings (Patton, 2002; Yin, 2009).

3.2.2 Sampling

Three child care centres in the Edmonton, Alberta area were purposefully selected from the participation list generated by the TANGO study, consultation with Alberta Health Services, Nutrition Services (Downs et al., 2010) and inclusion and exclusion criteria. In order to participate in the study, the inclusion criteria for each child care centre had : (1) to have knowledge of, or adhere to, the ANGCY; (2) to have preschool-aged children (aged 2-5 years), (3) to provide all meals and snacks in order for direct observation to be possible, (4) to serve their meals to the children in one of two ways: pre-portioned meal service or family-style meal service and (5) to have granted consent and interest in completing the duration of the study and all of its components. Due to the purposeful method of selection, child care centres were a mix of profit and not-for-profit.

3.2.3 Access and Recruitment

Directors from three child care centres met with the research team to gain study information, confirm their interest in participating in the study, and ensure they met the inclusion criteria. Once confirmation was obtained from the three child care centres, the director and each

participating child care educator were taken through a formal process of consent. Child care educators at each facility were recruited through the dissemination of information sheets and verbal notification by the centre director and directly by the researcher. In this case, the researcher was given permission by the centres' director to speak directly with child care educators to inform them of the study and answer any questions they may have regarding their participation. In order to gain a comprehensive perspective, child care educators were chosen based on their position held at the child care centre in order to mimic the power hierarchy of each centre and diversity of roles (Nikolopoulos, 2012).

3.2.4 The Interview Guide

The researcher developed a semi-structured interview guide that included 12 questions and probes (Appendix E). The 10-30 minute key informant interviews aimed to address 5 key areas: 1) knowledge of the ANGCY, 2) their definition of healthy eating, 3) their perceived role in the promotion of healthy eating to preschool children, 4) their definition of physical activity, and 5) their perceived role in the promotion of physical activity to preschool children. Examples of questions that aimed to address the 3/5 key topic areas discussed in this paper are displayed in Table 3.1 below.

Table 3.1. Interview Guide Main Themes and Example Questions

Main Themes	Example of Interview Question
Knowledge of ANGCY	Have you heard about the Alberta Nutrition Guidelines for Children and Youth? • How did you first hear about the guidelines?
Definition of healthy eating	What does healthy eating mean to you?
Perceived role in promoting healthy eating	What do you think your role is in promoting healthy eating to children?

3.2.5 Data Collection

Data collection was guided by the principles of ethnography and characterized by short-term field visits and the use of audio recording technology (Madden, 2010). Data were collected through key informant interviews with staff at each child care centre and researcher recorded memos. Multiple data sources were used to enhance the richness, confirmability, and rigour of the data (Yin, 2009; Patton, 2002). Key informant interviews and researcher recorded memos were coded and triangulated, enhancing the credibility and rigour of the data (Yin, 2009; Krefting, 1990). Key informant interviews and researcher memo data from each child care centre were first analyzed separately, together and then compared across all data sources in order to increase the reliability of the findings and limit research bias (Patton, 2002).

Key informant interviews at each child care centre were audio recorded and guided by a semi-structured interview protocol. In order to explore each topic to saturation, questions were open-ended and included probes (Appendix E). The researcher deemed a topic question to be saturated in an interview when no new information was being given after using the structured

probes, and participants were repeating answers they had already given. Five interviews were conducted at each of the three child care centres; 15 interviews in total. The researcher determined which child care educators would act as key informants based on their position held within the child care centre. In order to fully explore topics and achieve a diversity of information, key informants interviewed were based on the power hierarchy within the child care centre and included: centre director, assistant director, senior child care educators and junior child care educators. The face-to-face interviews ranged from 10-30 minutes and the interview questions addressed: 1) views of healthy eating, 2) views of how the child care represented and offered healthy meals and activities for the children, 3) perceptions and awareness of the ANGCY, 4) perceptions of the use of the use ANGCY within the child care, 5) role and responsibility in representing healthy eating to the children, and 6) how they best demonstrate healthy eating during mealtime.

Interviews were conducted by the researcher (TS) at each of the child care facilities. The researcher worked with the facility's director in order to determine which child care educators would be interviewed. Prior to being interviewed, each participant was given an information sheet regarding the study and the risks and benefits of participating were explained by the researcher. Interested participants were then asked to sign a confidentiality agreement, ensuring them their privacy and interview answers remained confidential. At the beginning of each interview, the participants verbally confirmed they understood the terms of the study. If the participants gave one word or short answers, the researcher had a series of probes to use in order to invoke greater depth in participant response. Interviews were conducted to the point of theme saturation at each child care centre.

In addition to the interview data, the researcher recorded memos throughout the interview period. The memos were used to clarify participant responses, and in some cases, recorded body language in order to enhance the data collected by the interviews alone. The researcher systemically recorded body language based on perceptions of comfort or discomfort of the research participant. For example, if the researcher asked a question that the participant had a hard time answering, the researcher recorded their body language if they showed obvious signs of discomfort. In the same regard, if the researcher progressed through the interview guide and the participant had no problems answering the questions, the researcher would make a note of the participant's general comfort level throughout the interview.

3.2.6 Data Analysis

NVivo software (version 9; QSR International, Doncaster, Victoria, Australia) was used to manage and organize all qualitative interview data. Key informant data was organized by child care facility and later categorized by themes. Notes taken throughout the interview process were incorporated into the data analysis after transcription. Incorporating non-verbal cues in the analysis will allow for deeper meaning to the data (Lofland et al., 1971). Interview recordings were transcribed closely after the interviews were conducted in order for information to be documented as accurately as possible. The interview data were transcribed and organized by the researcher and a transcription assistant (LC). Transcripts were validated by listening to the audio recording of the interviews and comparing them against the transcripts to ensure accuracy. There were no discrepancies found between the audio recordings and the transcripts.

The researcher reviewed interviews in order to identify major themes. Themes were identified within individual interviews and across interviews. Upon identification of major

themes of each interview separately, all interviews from one child care centre were compared and analyzed in order to deduce common themes from that specific site. Interview data were analyzed separately for each child care centre, analyzed together for each child care centre, and then compared amongst each child care centre in order to increase the reliability of the findings and decrease researcher bias (Patton, 2002; Yin, 2009).

3.3 Results and Discussion

3.3.1 Description of Child Care Centres

The child care centres were accredited, urban and rural child care facilities that varied in size and location. Characteristics of the three child care centres studied can be found in Table 3.2.

Table 3.2. Description of Child Care Centres (cases)

	Case 1	**Case 2**	**Case 3**
Type of Child Care	Non-profit, Urban	Non-profit, Urban	Private, Rural
Child Care Size	94 full-time children 32 preschool children	64 full-time children 22 part-time children 35 preschool children	30 full-time children 14 preschool children
Ratio of Child Care Educator to Child	1:9 CCE:children (observed)	1:9 CCE:children (observed)	1:7 CCE:children (observed)

*CCE denotes child care educator

Description of Case 1: Case 1 was a non-profit, urban child care centre located in Edmonton, Alberta, Canada. At the time of observation, there was a total of 94 children who attended the

child care facility, 32 of which were preschool children between 2-5 years of age. The 32 preschool children were separated into two different rooms in the child care centre, with 18 children in the junior preschool room (ages 2-3), and 14 children in the senior preschool room (ages 4-5). Each preschool room had 2-3 child care educators watching and interacting with the children throughout the day, a ratio of 1:9 child care educators to children. The child care centre employed a separate kitchen staff that was not involved in caring for the children. The centre director and assistant director were in charge of daily operations and had limited daily interactions with the children. The children at the child care centre were fed breakfast, lunch and a snack every day, which was provided by the facility. Dietary quality of the meals is reported elsewhere (Farmer et al., 2016).

Description of Case 2: Case 2 was a non-profit, urban child care centre located in Edmonton, Alberta, Canada. At the time of observation, there was a total of 64 full-time children and 22-part time children enrolled at the facility, of which 35 were preschool children. The 35 preschool children were separated into two different rooms in the child care centre, with 17 children in the junior preschool room (ages 2-3), and 18 children in the senior preschool room (ages 4-5). Each preschool room had 2-3 child care educators watching and interacting with the children throughout the day, a ratio of 1:9 child care educators to children. The child care centre employed a separate kitchen staff, however, one of the employees would often fill in for child care educators if breaks needed to be covered and therefore had a limited, but active role caring for the children. The centre director and assistant director were in charge of daily operations and administration and had limited daily access with the children.

The centre director was highly motivated and implemented professional development days for the staff on a monthly basis, and ensured all in-centre nutritional policies were followed

and enforced. The children at the child care centre were fed breakfast, lunch and a snack every day, which was provided by the facility.

Description of Case 3: Case 3 was a private, rural child care centre located 30 kilometers outside of Edmonton, Alberta, Canada. At the time of observation, there was a total of 30 full-time children enrolled at the facility, of which 14 were preschool children (ages 2-5). Each preschool room had 2 child care educators caring for the children throughout the day, a ratio of 1:7 child care educators to children. The child care centre employed a cook who had limited daily interactions with the children. The centre director and assistant director were responsible for centre operations and administration; however, the assistant director had a moderate interaction with the children on a daily basis and often filled in for child care educators. The centre director had limited daily interactions with the children. The children at the child care centre were given breakfast, lunch, and a snack every day, which was provided by the facility.

3.3.2 Key Informant Interview Data

A total of 15 interviews were conducted at each child care centre. Key topics and key themes identified in the interviews are detailed below in Table 3.3.

Table 3.3. Themes identified from key informant interviews with child care educators

Main Interview Themes	Case 1	Case 2	Case 3
ANGCY	2/5 CCE interviewed knew of the guidelines**	5/5 CCE interviewed knew of the guidelines	3/5 CCE interviewed knew of the guidelines**
Healthy Eating	Portion control, balanced diet, following food groups, fruits and vegetables	Balanced diet, following food groups, healthy environment (atmosphere, enjoyment of food)	Balanced diet, following food groups, fruits and vegetables
Their Role (Promoting Healthy Eating)	Role modeling, educating (via conversation), encouragement (via trying new things), positive reinforcement	Role modeling, healthy environment, educating (via conversation), encouragement (via positive reinforcement)	Role modeling, educating (via conversation), encouragement

*CCE denotes child care educator
*CCE's who had not heard of the ANGCY in these two cases had knowledge of Eating Well with Canada's Food Guide

3.3.2.1 Knowledge of the ANGCY

In June 2008, the Government of Alberta released the Alberta Nutrition Guidelines for Children and Youth (ANGCY). The need for these guidelines is intended "to promote and achieve optimal growth, development, and overall health for children and youth" to create supportive environments that enable healthy food choices" (Alberta Health and Wellness, 2008). Upon entrance into this study, each child care centres director indicated they had knowledge of the ANGCY, an inclusion criterion to participate in the research project.

Case 2 had the highest level of knowledge of the ANGCY, with each child care educator responding they had indeed heard of the guidelines and heard of them through the child care centre they were currently working in. During the interview with the child care centre's director and assistant director, the researcher was shown a hard copy of the ANGCY that was kept in a binder in the administrative office and she was told there was also a copy of the ANGCY located in the staff room.

"I have heard [about the guidelines] …as they were being developed, and uh, we improved our child care program a lot with them, and through feedback over the years, it's been an on-going process" - P3, Case 2, 09/11/14

Awareness of the ANGCY was evident to the researcher and having a visible copy of the guidelines promoted child care educators to use the resource. Memos recorded by the researcher highlighted upon completion of the interview, three of the five child care educators interviewed pointed out the hard copy of the ANGCY, indicating a level of awareness:

"Yes, I have heard of the guidelines…through working here"- P1, Case 2, 09/11/14

"I first learned about the guidelines through the centre, and through schooling´- P2, Case 2, 09/14

The outcomes of Case 2 were not surprising to the researcher, given the strong leadership qualities displayed by the upper management, who also acted as the health champions for the child care centre. Research has indicated strong leadership within an organization supports desired practices by fostering a positive culture within the organization, and leading by example (Farmer et al., 2014; Downs et al., 2011).

Furthermore, health champions have previously been found to play a significant role in the adoption of nutrition guidelines within schools (MacLean et al., 2010), and have been shown to play a significant role in the adoption of the ANGCY (Farmer et al., 2014).

In contrast, child care educators working in Case 1 and Case 3 were less aware of the ANGCY and some had no knowledge of them at all. Only two out of the five child care educators interviewed in Case 1 and three out of the five child care educators interviewed in Case 3 had any knowledge of the ANGCY. Despite a lack of knowledge of the ANGCY, all child care educators indicated they had knowledge of the Eating Well with Canada's Food Guide (Health Canada, 2011). Of note, the researcher did not notice a physical copy of the ANGCY located at either one of these child care centres, which may highlight the importance of having the visibility of the ANGCY to help support knowledge dissemination initiatives and to increase the awareness of the ANGCY across child cares in Alberta. Furthermore, the researcher noted the involvement of the child care centres' upper management in Case 1 and Case 3 to be significantly less than in Case 2 specifically regarding their leadership and health championing qualities. In this regard, child care educators in Case 1 and Case 3 did not possess the same access to the ANGCY and were not offered the same encouragement to pursue knowledge of the guidelines. In this regard, child care educators in Case 2 were observed to have the most idealistic behaviour when interacting with the children during meal and play time, supporting the creation of a healthy eating and active living environment.

Despite having an awareness of the ANGCY, it was recorded in the interviews and memoed by the researcher that none of the participants who indicated knowledge of the guidelines could specifically identify any of the four action recommendations , but indicated

that they agreed with them. However, it was noted in the researcher's memos recorded upon completion of the interviews that participants looked slightly confused when specifically asked about the action recommendations, despite previously indicating they agreed with them. This may be due to participants agreeing with what they thought the researcher wanted to hear, rather than answered based on actual knowledge. This was memoed in each case, including Case 2, where child care educators had a physical copy of the ANGCY in two places within the centre, indicating that visibility of the guidelines may help to increase awareness of the ANGCY as a whole, but did not increase awareness of the specific details tailored to child care centres. Specifically, visibility of the guidelines may have increased knowledge of their awareness, but not have increased knowledge of the details, such as the 4 action recommendations. The results of this research indicate a lack of understanding of the specific components of the ANGCY, such as the four action recommendations set out for child care centres, and highlights a need for a more hands-on approach to increasing knowledge within child care centres.

Critical to their knowledge and understanding of the ANGCY, the researcher noted that the child care centre director and assistant director in Case 2 acted as the centre's health champion, ensuring all child care educators working at the centre were not only aware of the ANGCY, but had a copy accessible to them in more than one location in the centre. This is in contrast to the directors at the other two child care centres, where one director was not aware of the ANGCY and the other did not fully act in a health champion role. This finding indicates the importance of the power structure in child care centres and the importance of buy-in from those in a position of power at the child care centres. This research clearly indicates a need for further investigation into the relationship between the power hierarchy

of child care centres and the relationship child care educator's perceptions of their role versus how they actually interact with the children on a daily basis. Furthermore, increased training and education on how to put policy into practice may be beneficial to promote healthy eating environments within child care centres.

3.3.2.2 Child Care Educator Description of Healthy Eating

It is well known that practicing healthy eating behaviours during the preschool years is important in supporting optimal growth and development and ensuring overall health (Story et al., 2002). The preschool years are an essential time for the development of healthy eating behaviours, including learning to accept and eat a variety of healthy foods (Larson et al., 2010). This research highlights the important role child care educators have on influencing healthy behaviour development amongst preschool children, and therefore understanding their perceptions of what healthy eating is, and what their role is in its promotion, is critical.

When specifically asked to define what healthy eating meant to them, the most common theme brought up by child care educators at each of the child care centres was the importance of following the four food groups of Eating Well with Canada's Food Guide. One participant eloquently defines healthy eating as:

"Healthy eating means to me, getting your food groups in, uh, the proper amount of servings per food group, well, or as close as you can encourage, and just an opportunity to eat healthy foods at each meal or snack." – P3, Case 2, 09/11/2014

Similar to the thoughts echoed in the above quote, child care educators in all three cases stated that healthy eating was a result of following a balanced diet, in relation to following each of the

food groups. In this regard, many child care educators stated the aspect of a balanced diet was evident when there was fruit and vegetable consumption daily. Some child care educators also mentioned having appropriate amounts of whole grains, but the majority of child care educators when speaking of a balanced diet specifically mentioned fruit and vegetable consumption. The following comment highlights the degree to which most of the child care educators interviewed explained what a balanced diet meant to them.

"To me, it means starting your day off with something nutritious – that's very, very important. Um, keeping a balance of a diet, with lots of fruit and vegetables…" - P5, Case 1, 07/03/2014

Despite child care educators from all three child care centres generally having similar views of what healthy eating is, the researcher noted that only child care educators in Case 2 included healthy environment into their description of healthy eating. This is interesting to note, as including healthy environment into the actual description of what healthy eating is may highlight a deeper understanding of their role in promoting a healthy lifestyle to children. For example, the following answer was given by one of the participants in Case 2 when asked to define healthy eating:

"Healthy eating to me means healthy food, healthy environment, healthy relationship with- with food, understanding the nutritional requirements from the body with food." – P1, Case 2, 09/11/2014

In this particular case, child care educators working at this child care centre were the only ones that had all heard of the ANGCY and coincidently the only child care educators to include healthy food environments and a healthy relationship with food in their overall understanding of what healthy eating is. As previously discussed, the child care centres' director and assistant

director provided strong leadership and acted as health champions for their staff, an arrangement previous research has shown to foster positive knowledge brokering, a positive environment, and aid in the adoption of guidelines (Farmer et al., 2014). It may be speculated that the positive environment created by the centre's upper management plays a role in the knowledge translation and learning of child care educators working in Case 2. This result may highlight the importance of the role the child care centre's director plays within the organization, whether they are championing the ANGCY and promoting healthy environments within their centre for their staff, and the role that plays in the adoption of the guidelines. It is clear such trends and observations warrant future an in-depth investigation.

3.3.2.3 Child Care Educator Description of Their Role in Promoting Healthy Eating

It is well known that practicing healthy eating behaviours during the preschool years is important in supporting optimal growth and development and ensuring overall health (Story et al., 2002). The preschool years are an essential time for the development of healthy eating behaviours, including learning to accept and eat a variety of healthy foods (Larson et al., 2010). This research highlights the important role child care educators have on influencing healthy behaviour development amongst preschool children, and therefore understanding their perceptions of what healthy eating is, and what their role is in its promotion is critical.

When the researcher posed the question to child care educators interviewed what they felt their role was in promoting healthy eating to children, all child care educators indicated some type of role modeling behaviour as being their most important role in this regard.

"We model it, we encourage them to try each- each food, uh, that's served to them. We don't force them to do it but we encourage them… Or, you know, if they say they don't like it, we say,

"oh, have you ever tried it? Maybe just have a little bite and see if you like it." We encourage, and through modeling…" – P2, Case 2, 09/11/2014

This behaviour is consistent with the ANGCY recommendations for child care centres, as the child care educators were able to create a positive meal environment by making healthy foods appealing. Other research has indicated positive associations between this type of behaviour by child care educators (verbal encouragement to try new foods) and an increased consumption of those foods (Hendy and Raudenbush, 2000).

"Uh, well, we talk about, um, the different food groups, and how they help your body. Like when we're having, um, a snack or lunch, we'll talk about what milk does for you, what, uh, your vegetables do for you, and how you should eat your vegetables because they're gonna help you, to make your body healthy and grow big and strong like your mommy and daddy [laughs]." – P3, Case 3, 06/13/2014

In this regard, child care educators appeared they were aware of the positive impact positive reinforcement and role modeling have on the child's food consumption. These findings support previous research that suggests role modeling and authoritative behaviour exhibited by child care educators was associated with increased consumption of the food being promoted (Hughes et al., 2007). Furthermore, child care educators were aware that children were more likely to try new foods if they were eating it as well, indicating a level of trust children place in child care educators.

"I eat what they eat. So whatever they have for lunch… snack… I will sit and eat with them while they're eating… if they see you eating it, then they'll have no problem, or they'll be more likely

to- to eat it themselves. Because then they trust that it's good food, if you're eating it." – P1, Case 1, 07/03/14

Child care educators often responded positively regarding their role as models to the children, expressing how being a role model to the children made them feel good.

"I try to encourage them to eat vegetables as much as I possibly can and fruit. Um, I'm personally a very picky eater as well, as I mentioned, so for me it's easy to- to show them that I can eat fruits and vegetables and it's- it's simple. And it's cute 'cause when I notice them, when I notice that I eat the vegetables, they'll sit there and I've noticed them copying me and it makes me feel really, really good [laughs]." - Case 1, P3, 07/03/2014

Overall, the findings of this research indicated child care educators understand the perceived importance of their behaviour, specifically when it comes to role modeling a healthy lifestyle, and the promotion of a healthy food environment and healthy food consumption by preschool children in child care centres. Child care educators appeared to understand that encouraging healthy food consumption amongst preschool children in the child care centres by sitting with the children, role modeling the type of desired behaviour, and interacting with them throughout the meal period had a perceived positive effect on the healthy food environment. As previous research has shown, child care educators that pair role modeling with verbal encouragement about the foods being served or trying new foods, have had greater success in getting children to consume the healthier foods (Hughes et al., 2007). As highlighted by this and previous research, this specific type of role modeling may have a larger positive effect on food intake among preschool-aged children (Hughes et al., 2007). These findings support previous research that suggests role modeling and authoritative behaviour exhibited by child care

educators was associated with increased consumption of the food being promoted (Hughes et al., 2007).

3.4 Limitations

As with most studies there are limitations, and given the exploratory nature of the case study, and the use of key informant interviews, interview data results may have been based on what key informants thought the researcher wanted to hear, rather than on actual knowledge. Furthermore, given the qualitative nature of this study, results may not be generalizable to all child care centres. One of the strengths of this is there was an in-depth understanding of the uniqueness of each child care environment through multiple sources of data that were collected. Furthermore, it is important to indicate drawbacks of using key-informant interview data, as child care educators may have answered the questions based on what they thought the researcher wanted to hear.

3.5 Conclusions

The findings of this study indicated child care educators understand that their behaviours and styles may have an impact on the healthy eating environment and health behaviours of children within the child care centres. Child care educators were acutely aware of their responsibility in promoting healthy eating to the children. Role modeling, verbal affirmation, and positive reinforcement were important in achieving a healthy eating environment, especially when encouraging children to try new and healthy foods. Child care educators promoted aspects of the ANGCY or Eating Well with Canada's Food Guide such as high fruit and vegetable consumption, portion control and eating a balanced diet as being very important and found

opportunities to promote healthy eating. However, there is room for improving the awareness of the ANGCY due to the lack of awareness and knowledge displayed by some child care educators, which may, in turn, enable them to better support healthy food environments for the children in their care.

3.6 Implications for Research and Practice

Future studies should concentrate their research on evaluating the dissemination of information within and across child care centres and the effect of training on child care educators. There are clear gaps between the implementation of the ANGCY and practice that occurs in child care centres. Although the ANGCY recommendations for child care centres are evidence-based, resources on how to implement these ideal behaviours in practice should be provided. There is also a critical need to examine the flow of information within and across child care centres, and to identify better training mechanisms and missed training opportunities so resources such as the ANGCY do not go unheard of within child care centres. There is a pertinent need for future investigation and training development in the child care environment, as it is clear child care educators play a vital role as change agents in the lives of preschool children where healthy habit development is optimal. Despite limitations, the results obtained from this research may be used as a foundation for future studies to build upon, and potentially result in the development of training for child care educators.

Chapter 4: More Peas Please! Child care educators authoritative feeding styles encourage positive eating behaviours in preschool children in child cares

4.1 Introduction

Children are spending much more time in child care provided outside of the home than they were 15 years ago (Bushnik, 2006). In 2011, nearly half (46%) of Canadian parents reported using some type of non-parental child care arrangement during the day, a slight increase from 42% in 1995 (Sinha, 2014; Bushnik, 2006). It is well known that practicing healthy eating behaviours during the preschool years is important in supporting optimal growth and development and ensuring overall health (Story et al., 2002). Establishing healthy eating behaviours, including learning to accept and eat a variety of healthy foods is essential during the preschool years (Larson et al., 2010). Therefore, meals offered to preschool children should provide both nutrient-dense foods and a supportive environment for practicing skills and trying new foods (American Dietetic Association, 2005). Given children are being fed nearly half of their meals at child care facilities, child cares have a unique opportunity to influence and promote healthy eating behaviours (Nikolopoulos et al., 2012).

In early childhood, parents and child care educators have a strong influence on children's eating and physical activity behaviours. There is abundant research focusing on the way parental feeding styles shape or change preschooler's eating behaviours (Hughes et al., 2007; Patrick et al., 2005; Gable and Lutz, 2000). For instance, parental feeding styles are one mechanism through which food preferences and consumption patterns can be shaped for children (Gable and Lutz, 2000). One popular framework that was developed nearly fifty years ago continues to be used to categorize parental feeding is Diana Baumrind's conceptualization of four different parenting styles: authoritarian, authoritative,

permissive/indulgent and permissive/neglectful (Baumrind, 1966). Many studies on parenting style and children's eating behaviours have used this framework; however, Patrick et al (2005) and Hughes et al (2007) adapted Baumrind's framework to categorize child care educators' caregiving styles in the child care setting. Through this work, they extended Baumrind's definitions of authoritarian, authoritative, permissive/indulgent and permissive/uninvolved child care educator styles to those exhibited by child care educators.

Notably, Hughes et al (2007) identified key behaviours and verbal cues directed at the children by the child care educators and examined the impact on children's food consumption. Examples of authoritarian behaviour included showing disapproval for not eating, and forcing children to eat, while sample authoritative behaviour included asking children to try new foods and explaining the benefits of eating a particular food (Hughes et al., 2007). Furthermore, indulgent behaviour was classified by behaviour such as giving or offering seconds, while uninvolved behaviour was categorized by behaviour that included ignoring or being indifferent towards the children (Hughes et al., 2007). The results of their responses provided important descriptive information about specific feeding behaviours exhibited by child care educators in the child care environment, and indicated an association between feeding behaviours and the food consumption of the children (Hughes et al., 2007). Given these results, it is clear an association between child care educator feeding styles and food consumption of children and warrants more analysis.

4.1.1 Influence of Caregiver Feeding Style on Children's Food Consumption

An authoritarian approach to child development involves a child care educator who sets an absolute standard of conduct in an attempt to shape, control and evaluate the child's behaviours and attitudes (Baumrind, 1966). An authoritarian feeding style is generally classified by extensive external control on the part of the child care educator, such as restricting a child's intake of particular foods, and forcing the child to eat other foods (Hughes et al., 2007). Research has indicated that restrictive control of foods high in fat and sugar resulted in the child becoming fixated on the "forbidden foods", and was more likely to consume them in greater amounts, even when feeling satiated (Fisher and Birch, 2000). In contrast to the authoritarian feeding style, a permissive child care educator does not overt power in an attempt to control the child, rather they allow the child to regulate their own behaviour (Baumrind, 1966). With a permissive feeding style, there is little to no structure provided, with choices simply being limited to whatever is available; there is no encouragement or support of the child's self-regulation, as little attention is paid to the child's behaviour (Patrick et al., 2005; Hughes et al., 2007). In comparison, authoritative feeding behaviour is represented by a balance between authoritarian and permissive styles, characterized by encouraging the consumption of healthy foods, such as fruits and vegetables, but is also given some choices about eating options (Patrick et al., 2005). Research has shown caregivers that display authoritative feeding behaviours resulted in increased child consumption of dairy and vegetables (Patrick et al., 2005). In this regard, authoritative feeding allows the child care educator to maintain adequate control of the child's eating through reasoning and involvement (Hughes et al., 2007). Child care educators who displayed authoritative feeding styles were more likely to make fruit and

vegetables available and were more successful at getting children to try and consume new and healthy foods by using a positive approach (Patrick et al., 2005). Clearly, feeding style displayed by child care educators directly influenced children's eating patterns, especially in the preschool years, and thus feeding styles that facilitate the intake of healthy foods and the development of healthy behaviours towards food should be encouraged.

In June 2008, the Government of Alberta released the Alberta Nutrition Guidelines for Children and Youth (ANGCY) "to promote and achieve optimal growth, development, and overall health for children and youth" to create supportive environments that enable healthy food choices" (Alberta Health and Wellness, 2008). One of the four ANGCY recommendations for child care centres highlights the importance of creating healthy food environments for preschool children are: (1) provide appropriate time and space to eat, (2) create a positive meal environment by making healthy foods appealing, (3) serve foods in age-appropriate portion sizes, (4) introduce new foods in small amounts, and provide multiple occasions for children to try them and, (5) avoid using food as a reward or punishment (Alberta Health and Wellness, 2008). Clearly, the ANGCY promotes an authoritative approach by child care educators when interacting with children at mealtimes (#1-4), and discourage authoritarian behaviour (#5).

There is limited research focused on food-related behaviours of child care educators in the child care setting. Given the increased use of child care facilities and time spent within them, the relationship between child care educators and children may affect the food intake of preschool children (Hughes et al., 2007). Few studies have explored whether the influence of child care educator feeding styles are similar to parental feeding styles. In this study, researchers focused on child care educator's behaviours and interactions with preschool children throughout the mealtime period in child cares. The purpose of this study was to explore child care educator

interactions with preschool children throughout the meal period and their influence on the healthy food environment.

4.2 Methods

4.2.1 Theoretical Framework

In this study, we used Hughes et al (2007) adapted version of Baumrind's framework of authoritarian, authoritative, permissive/uninvolved and permissive/indulgent caregiver styles to those exhibited by child care educators (Table 4.1).

In order to extend the definition of child care educators, Hughes et al (2007) developed a 22-item measure for observing feeding behaviours amongst child care educators. This measure documented specific feeding behaviours across eating occasions and further specified behaviours across five food groups (fruit, vegetable, dairy, entrée, and starch) (Hughes et al., 2007). These behaviours were then categorized into the four feeding styles based on their conceptual similarity to the items from the 22-item measure; authoritarian, authoritative, indulgent and uninvolved (Hughes et al., 2007).

Table 4.1. Characteristics of the four caregiving styles as defined by Baumrind's framework

Authoritarian	Authoritative
e.g. extensive external control (high use of restrictive behaviours)	e.g. adequate control (helping children eat, praising them for eating)
Permissive (Indulgent)	**Permissive (Uninvolved)**
e.g. little use of control (giving the child seconds)	e.g. "nutritional neglect" – the child is encouraged to eat whatever he or she wants, in whatever quantities

4.2.2 Study Design

To address current gaps in the literature regarding child care educator interactions with children and supporting healthy eating and active living environments, an exploratory focused ethnography case study design was utilized to explore three cases; one high performing and two reference child care centres. Case analysis can be used as powerful examples to fill the gaps in existing bodies of literature (Siggelkow, 2007) and are particularly useful for studying how things occur in practice (Boodhoo and Purmessur, 2009), the influence of behaviours on an environment and can, therefore, be useful for examining behaviours or policies in a child care setting.

In keeping with a focused ethnography design, multiple sources of data were collected and analyzed to ensure rigour, confirmability, consistency and reliability of the data (Patton, 2002). Data collected from direct observation and field notes were transcribed, coded and triangulated to enhance the credibility of the findings (Patton, 2002; Yin, 2009). Observational data and field notes were compared first within each case, with field notes being used to enhance the findings

from the observation tool. Observation and field note data were then compared across all three cases in order to draw meaningful comparisons.

4.2.3 Sampling

Three child care centres in the Edmonton, Alberta area were selected from the participation list generated from the TANGO study (Downs et al., 2010); all had given approval for future contact. In order to participate in the study, the inclusion criteria for each child care centre included: 1) to have knowledge of, or adhere to, the ANGCY, (2) to have preschool-aged children (aged 2-5 years), (3) to provide all meals and snacks in order for direct observation to be possible, (4) to be located in the greater Edmonton area (including rural sites) and, (5) to have centres grant consent and interest in completing the study and all of its components. Due to the purposeful method of selection, child care centres were both for-profit and not for profit.

4.2.4 Access and Recruitment

Three child care centres were contacted and the research team held an informal meeting with the child care centre directors to provide them with study information and ensure they met the inclusion criteria. Once confirmation was obtained from the three child care centres, the director and each participating child care educator were taken through the informal and written consent process.

4.2.5 Data Collection

Data collection was guided by the principles of ethnography and characterized by short-term field visits (Madden, 2010). Data were collected through direct observation of child care

educator interactions with children during the meal period and documentation of field notes.

Observational data were collected systemically during mealtime with the use of *Meal Observation Tool Part 2: Eating and Serving Behaviours,* a validated tool researchers may utilize while observing child care educator interaction with children during the meal period that was modified by the researcher (Yale Rudd Centre for Food Policy and Obesity, 2013) (Appendix C). The mealtime observational data collected included: the specifics of the visits such as date, time, the length of observation period, the number of staff, the number of children, and characteristics of the meals provided. Observational data also included the interaction of the child care educators with the preschool children at mealtime, such as verbal cues, body language, and eating behaviours, and interactions between the child care educators and fellow staff present during mealtime. The researcher also recorded verbal comments made by the child care educator, who the comment was directed to (including the physical characteristics of the child(ren)), and the justification for the comment (to encourage eating, to encourage children to try new food, etc.). Comments made by child care educators throughout the meal observation period were recorded.

In order to ensure the reliability of the observation tool, both the researcher and a research assistant (MH) were present at the same observation period and independently completed the observation using the same tool. The observation tool completed during this observation period was then analyzed and compared against one another in order to determine the reliability of the method.

Direct observation of mealtime behaviours was carried out for 5 days during lunch time hours (11:00 am – 12:30 pm) at each child care centre. Two of the three child care centres had

more than one classroom with preschool aged children; therefore, 5 direct observations were carried out per classroom at each of the two centres.

In addition to the observational data, field notes were taken at each child care centre throughout the mealtime observation period. The field notes were used to enhance the data collected by the observation tool and were comprised of: exact menu items served during lunch, general attitudes of child care educators, behaviour of child care educators during mealtime, their personal thoughts expressed about the food being served, and any additional nutrition education messages relayed to the children throughout the observation period.

4.2.6 Data Analysis

Direct observations of mealtime and field notes were coded separately and methodologically triangulated to enhance the credibility of the findings. All data sources were analyzed separately for each child care centre, analyzed together for each child care centre, and then compared amongst each child care centre in order to increase the reliability of the findings and decrease researcher bias (Patton 2002; Yin 2009). Direct observation and field note data were coded and triangulated, enhancing the credibility and rigour of the data (Yin, 2009; Krefting, 1990). Triangulation of the data sources was completed by comparing the results and recorded findings of the observation tool to the researcher recorded memos. Once observational data had been analyzed, the researcher consulted recorded field notes from the observation periods in order to gain a more comprehensive understanding of the environment during that observation period. This was completed for all observations conducted in all three cases. In doing so, the researcher was able to add greater context to the food environment, and gain a more comprehensive understanding of the atmosphere within the child care centre and

amongst child care educators.

NVivo software (version 9; QSR International, Doncaster, Victoria, Australia) was used to manage and organize the qualitative data. All data were organized by child care centre and further broken down based on emerging themes and classification of behaviour observed. In order to ensure the reliability of the observation tool, both the researcher and a research assistant (MH) were present at the same observation period and independently completed the observation using the same tool. The observation tools completed during this observation period were then analyzed and compared against one another in order to determine the validity of the method.

The classification of the child care educator comments was recorded when the comment was made and classification of the comment was left to the discretion of the researcher. Comment justifications were then classified according to Baumrind's framework as being authoritarian, authoritative, permissive/indulgent or permissive/uninvolved in nature by the researcher, based on work completed by Hughes et al. (2007). All recorded comments made by child care educators were classified. Frequencies of the comments were tabulated for each case, and compared within each case and then compared across all three cases. This allowed the researcher to determine a quantitative value for which types of comments were being used most within each case and then an overall total to determine which case was using more authoritarian, authoritative or indulgent comments when speaking with the children. Once child care educator's comments and meanings were compared across the three cases, the researcher was able to tabulate a numerical value highlighting which cases exhibited the greatest frequency of authoritarian, authoritative, permissive/indulgent and permissive/uninvolved behaviour.

4.3 Results and Discussion

4.3.1 Description of Child Care Centres

The child care centres were accredited, urban and rural child care facilities that varied in size, location, and meal serving style. Characteristics of the three child care centres studied can be found in Table 4.2.

Table 4.2. Description of Child Care Centres (cases)

	Case 1	**Case 2**	**Case 3**
Type of Child Care	Non-profit, Urban	Non-profit, Urban	Private, Rural
Child Care Size	94 full-time children 32 preschool children	64 full-time children 22 part-time children 35 preschool children	30 full-time children 14 preschool children
Ratio of Child Care Educator to Child	1:9 CCE:children (observed)	1:9 CCE:children (observed)	1:7 CCE:children (observed)
Meal Serving Style	Family-style meals**	Pre-portioned meals***	Family-style meals

*CCE denotes child care educator
** Family-style meal service: children to self-serve their desired amount of food to themselves, and having all menu items passed around simultaneously.
***Pre-portioned meal service: CCE portion out food to children prior to serving their meal

Description of Case 1: Case 1 was a non-profit, urban child care centre located in Edmonton, Alberta, Canada. At the time of observation, there was a total of 94 children that attended the child care facility, 32 of which were preschool children between 2-5 years of age. The 32 preschool children were separated into two different rooms in the child care centre, with 18 children in the junior preschool room (ages 2-3), and 14 children in the senior preschool room (ages 4-5). Each preschool room has 2-3 child care educators watching and interacting with the

children throughout the day, a radio of 1:9 child care educators to children. The child care centre employs kitchen staff not involved in caring for the children. The child care`s director and assistant director are in charge of daily operations and have limited daily interactions with the children. The children at the child care were fed breakfast, lunch and a snack every day, which was provided by the facility. All meals at the child care were served family-style; child care educators retrieved bulk portions of the daily meal from the kitchen and placed baskets on the table with each item for children to serve themselves.

Description of Case 2: Case 2 was a non-profit, urban child care centre located in Edmonton, Alberta, Canada. At the time of observation, there was a total of 64 full-time children and 22 part-time children enrolled at the facility, of which 35 were preschool children. The 35 preschool children were separated into two different rooms in the child care centre, with 17 children in the junior preschool room (ages 2-3), and 18 children in the senior preschool room (ages 4-5). Each preschool room had 2-3 child care educators watching and interacting with the children throughout the day with a ratio of 1:9 child care educators to children.

The child care employed a separate kitchen staff, however, one of the employees would often fill in for a child care educator if breaks needed to be covered and therefore had a limited, but active role in watching the children. The child care's director and assistant director are in charge of daily operations and administration and have limited daily access and interaction with the children. The child care`s director is highly motivated and implemented monthly professional development days for the staff and ensured all in-centre policies are followed and enforced.

The children at the child care were fed breakfast, lunch and a snack every day, which was provided by the facility. All meals at the child care were served to the children in pre-fixed

portions. The child care educators would retrieve bulk portions of the daily meal from the kitchen, and portioned out each menu item with a measuring cup, based on portion recommendations made by the ANGCY and EWCFG. The pre-portioned plates were then distributed to each child by the child care educator.

Description of Case 3: Case 3 was a private, rural child care located just outside of Edmonton, Alberta, Canada. At the time of observation, there was a total of 30 full-time children enrolled at the facility, of which 14 were preschool children (ages 2-5). Each preschool room had 2 child care educators watching and interacting with the children throughout the day with a radio of 1:7 child care educators to children. The child care employed a cook and had limited daily interactions with the children. The child care's director and assistant director were responsible for child care operations and administration; however, the assistant director had a moderate interaction with the children on a daily basis and often filled in for child care educators. The child care director had limited daily interactions with the children.

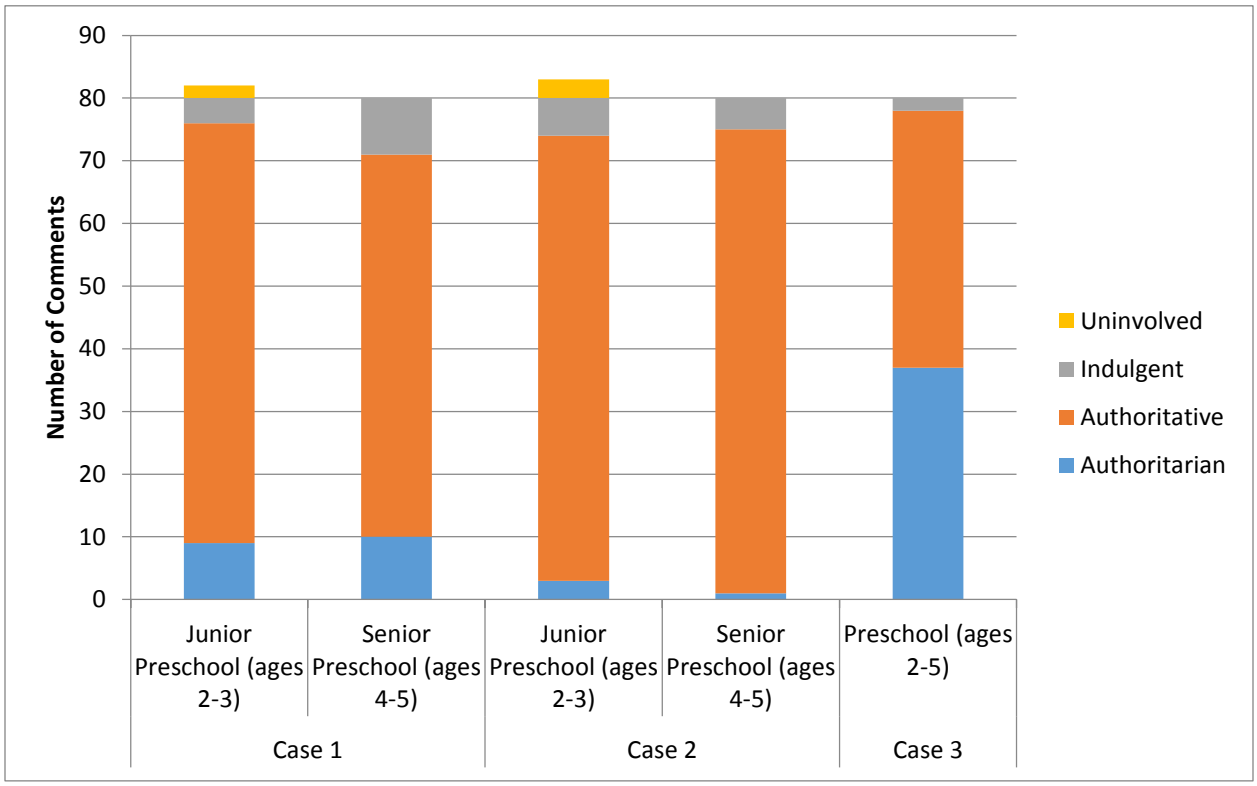
The children at the child care were given breakfast, lunch, and a snack every day, which was provided by the facility. All meals at the child care centre were served to the children family-style. The child care educators received bulk portions of the daily meal from the kitchen and placed each menu item in dishes on the table for the children to serve themselves.

4.3.2 Mealtime Observational Data

There was a total of 16 child care educator comments recorded per mealtime observation period, over five sessions, for a total of 80 comments per child care room at each of the cases. Case 1 and Case 2 had a 1:9 ratio of child care educators to children, while Case 3 had a 1:7 ratio of child care educators to children. Two of the cases had more than one operating preschool room

at their facility and therefore, Case 1 and Case 2 had a total of 160 mealtime comments recorded, while Case 3 had 80 mealtime comments recorded. Each comment was analyzed and classified as being authoritative, authoritarian, permissive/indulgent or permissive/uninvolved based on Baumrind's framework. Descriptive statistics of caregiving style in each preschool room for the cases is outlined in Figure 4.1.

Figure 4.1. Meal Serving Style Observations: Classification of comments made by child care educators to children throughout the mealtime observation period



*The combined 11 indulgent behaviour incidences observed during mealtime at Case 2 were recorded because child care educators asked the children if they wanted more to eat without the children indicating they were hungry. This is defined by Baumrind (1966) and Hughes et al. (2007) as being indulgent behaviour. However, unlike the indulgent behaviour recorded in Case 1 and Case 3, the child care educators were only offering children more fruits and/or vegetables, not unhealthy foods.

4.3.2.1 Child Care Educator Mealtime Behaviour

The findings of the current research demonstrated that authoritarian and authoritative caregiving styles were observed more often than other feeding behaviours. Child care educators working at a facility that promoted family-style serving (Case 1 and Case 3) were more likely to engage in both authoritarian and permissive/indulgent behaviour than child care educators working at a facility that served pre-portioned meals (Case 2). Authoritative behaviour was most often exhibited by child care educators in Case 2 in comparison to the other two cases; however, child care educators in Case 1 did resort to using authoritative behaviour with the children during the meal period than any other type of behaviour. These findings are not surprising, as current literature depicts similar patterns within child care centres (Hughes et al., 2007).

The preference for, and benefits of, taking an authoritative approach to feeding young children is widely supported in the literature (Hughes et al., 2007; Patrick et al., 2005) and is considered the ideal feeding style for preschool aged children. As outlined in the ANGCY, the authoritative behaviour is ideal when creating and supporting a healthy food environment for children within child care centres and explicitly states to avoid using authoritarian behaviour with preschool children. Previous research has shown that restrictive control of foods high in fat and sugar resulted in the child becoming fixated on the "forbidden foods", and was more likely to consume them in greater amounts, even when feeling satiated (Fisher and Birch, 2000). The results of this research highlighted the importance of understanding the relationship between child care educators' behaviour in child care centres and their influence on the food environment for preschool children in child care. Differences between authoritarian and authoritative behaviour styles and children's food consumption have been identified in the research, highlighting an association between each style and children's consumption of food.

Permissive Child Care Educator Behaviour. Permissive/indulgent feeding behaviour is not an ideal feeding style as it is characterized by little structure or support being offered to children. In this instance, child care educators do not offer encouragement or positive reinforcement to children when trying new or healthy foods, or the children's self-regulation as they often fail to monitor the child's behaviour (Hughes et al., 2007).

Positive and negative indulgent behaviours were observed in this study. In Case 2, more indulgent comments were recorded throughout the observation; however, it is noteworthy that these indulgent comments mainly were positive rather than commonly used negative ones. On the one hand, the researcher observed that child care educators in Case 2 offered the children additional servings of only fruits and vegetables, which denotes positive indulgent behaviour. For example, the researcher observed one child care educator get up half way through the meal period with a plate of vegetables and had every child take another vegetable from the plate to try:

"*Cucumbers and tomatoes, which one would you like? Cucumber? Thank you!"* - Case 2, P1, 11/12/2014

It appeared that preschool children in Case 2 compared to the other cases were consuming greater amounts of fruits and vegetables when they were being offered in this way. However, further research specifically monitoring the interactions between child care educators and children's consumption patterns would be needed to be certain if this had a significant impact on dietary intake. While on the other hand, the indulgent behaviours recorded in Case 1 and Case 3 were exemplar negative behaviours. By allowing the children to over-indulge in energy-dense nutrient-poor foods, the child care educators more accurately depicted the true meaning of indulgence as a negative behaviour.

In all three cases the researcher observed several occasions where child care educators were uninvolved with children at mealtimes resulting in negative consequences. The researcher noted there were times when uninvolved child care educators were engaged in conversations discussing weekend plans or general gossip, rather than speaking with the children, that children's consumption of energy-dense nutrient-poor foods increased. For example, the researcher noted one child consumed 5 grilled cheese sandwiches for lunch and had neglected to take any fruits or vegetables while child care educators spoke with each other instead of interacting with the children. With a permissive feeding style, there is little to no structure provided, with choices simply being limited to whatever is available; there is no encouragement or support of the child's self-regulation, as little attention is paid to the child's behaviour (Patrick et al., 2005; Hughes et al., 2007). This example may seem benign on its own but if this type of neglect happens frequently, the consequences of uninvolved behaviour at mealtimes is significant for family-style service. When family-style meal service was used, coupled with uninvolved child care educators, opportunities for indulgent behaviours occurred more often than when pre-portioned meal service was used. This finding highlights the potential for overindulgence opportunities being created for the children, depending on the type of meal service being used and the level of child care educator involvement. Research has shown permissive feeding styles are positively associated with increased intake of energy-dense nutrient-poor foods (Hennessy et al., 2012); a finding that was observed in this study, however, next steps should include specifically measuring the food intake in the child care setting

It is noteworthy that although the highest incidence of uninvolved child care educator behaviour was observed in Case 2, the children were unable to over indulge during the meal period due to their food being pre-portioned for them. The uninvolved behaviour exhibited by

child care educators in all three cases identified missed opportunities for child care educators to positively influence and demonstrate healthy eating behaviours to the preschool children in their care. This is a potentially novel and important finding for the Canadian child care setting. This finding indicates a relationship between child care educator feeding style, the type of meal service offered at the child care centre, and the consumption patterns of preschool children. This finding is consistent with previous research that suggests children eat more when more food is available (Fisher et al., 2003; Hughes et al., 2007), and when permissive/indulgent or permissive/uninvolved behaviour is exhibited by the child care educator (Hughes et al., 2007). Therefore, the type of food being served and the food environment are important considerations for future research. Therefore, permissive/indulgent and permissive/uninvolved feeding practices are not the ideal feeding style for preschool aged children, and further education and training of child care educators may be required to prevent these feeding behaviours from continuing.

Authoritarian Child Care Educator Behaviour. Authoritarian feeding behaviour is characterized by the use of highly restrictive behaviour and extensive control on the eating environment (Hughes et al., 2007). Child care educators in Case 3 (Figure 3.1) exhibited the highest amount of authoritarian behaviour directed at the children throughout the mealtime observation period compared to the other cases. Unlike the authoritarian behaviour observed in Case 1 and Case 2, the authoritarian behaviour observed at Case 3 was observed mainly as a negative approach to feeding. On several occasions, child care educators were observed using the threat of discipline as a means of encouraging food consumption among children, an action that goes against the recommendations made by the ANGCY. The researcher observed child care

educators speaking to the children in a highly authoritarian manner, as highlighted in the following comment:

"Mantha you have to eat. You will be in trouble."* – Case 3, P2, 08/14

*pseudonyms are used in order to protect the privacy of participants

Research has shown that there can be both positive and negative consequences to using an authoritarian approach. Preschool children may benefit from an authoritarian feeding style due to the control of intake, by allowing for increased consumption of fruits and vegetables, and restrict the intake of high energy nutrient-poor foods (Fuemmeler et al., 2012). However, the researcher did not observe an increased consumption of fruit or vegetables or a decrease in consumption of energy-dense nutrient-poor foods, highlighting a negative consequence of the authoritarian approach. Although this consequence may be due to the fact they were using a family-style meal service, an approach not often used with authoritarian feeding styles. However, child care educators held some form of control over the amount of food children were eating, by telling the child to remove food, or physically removing food from the child's plate. Despite utilizing an authoritarian approach, child care educators missed the opportunity to teach children about adequate food control and healthy eating behaviour development.

Moreover, it was observed in Case 3 that child care educators fully enforced the centre's rule of not wasting food, and often forced children to eat everything that was on their plate, regardless of whether the child had explicitly stated that they were no longer hungry. The researcher recorded comments such as,

"Yes you still need to eat more – you have to eat what you take" – Case 3, P1, 09/14

The researcher noted that children who did not finish everything that was on their plate were forced to remain at the table with their food in front of them, excluding them from activities such as story time and the beginning of the napping period. Given the high degree of control and restriction that is usually associated with an authoritarian feeding style, it was observed that child care educators spoke to the children in an authoritarian tone, but did not explicitly regulate the food consumption, which may be a result of the centre's family-style meal service. Child care educators were strict at the beginning of the meal period, often demanding children to put food back to ensure there was enough for every child, negative and sarcastic comments, such as the following were recorded:

"Are you kidding me? Are you kidding me? This is for everyone!"- Case 3, P1, 08/14

However, they neglected to stop children from additional servings of the meal items as the observation period continued.

In regards to Case 1, both the senior and junior preschool rooms utilized a family-style meal service. Despite having similar serving styles, the researcher observed authoritarian behaviour bring used more frequently in the senior preschool room in comparison to the junior preschool room. As described, the child care educators in the senior preschool room were more authoritarian in nature and required the children to pass the food dishes around and serve themselves at least one thing from each menu item, fruits and vegetables included. Child care educators controlled the children's consumption throughout the family-style meal service by limiting the amount of food put in the dishes for the children to take, and required them to eat fruits and vegetables and put back energy-dense nutrient poor foods. The researcher observed:

"No, you cannot take more fries put them back. I want to see vegetables on your plate, take a carrot"- Case 1, P1, 10/14

As observed in Case 1, the child care educators ensured every preschool child was consuming at least one fruit or vegetable during the meal and ensured there was no over indulgence by limiting the food during the family-style service. In this way, the child care educators were capable of controlling the children's intakes throughout the meal, which gives merit to previous studies that found a positive correlation between a higher degree of control and an increase in fruit and vegetable consumption in preschool children (Fuemmeler et al. 2012). Furthermore, this may be viewed as a teachable moment, giving child care educators the opportunity to positively affect healthy eating development in the children.

Authoritative Child Care Educator Behaviour. An authoritative feeding style is characterized by adequate control of the food environment, and using positive reinforcement as a means of encouraging and helping the children to eat (Hughes et al., 2007). Authoritative feeding behaviour can be represented by a balance between authoritarian and permissive styles, often displayed by encouraging the consumption of healthy foods, such as fruits and vegetables, but is also given some choices about eating options (Patrick et al., 2005). Child care educators in Case 2 exhibited the highest degree of authoritative behaviour compared to Case 1 and Case 3 (Figure 3.1). Despite serving food to the children on pre-portioned plates, child care educators often gave the children choices in regards to what fruits or vegetables they wanted to eat during the meal:

"Chester would you like cucumbers or tomatoes today? You should try the cucumbers, they are my favourite!"*- Case 2, P2, 10/14

*pseudonyms are used in order to protect the privacy of participants

The researcher observed that by allowing the children to choose which fruits and vegetables they wanted to consume during the meal period, coupled with the encouragement from the child care educators, they were more willing to try new healthy foods. Similar to other research findings, it was observed that children ate more when food was encouraged (Hughes et al. 2007). This finding was extended to an increased consumption of fruits and vegetables, as the researcher noted preschool children in Case 2 were the only preschool children between all three cases that actively requested more fruit or vegetables during the meal observation period.

Child care educators in Case 2 used authoritative behaviour to increase the children's interest in trying new healthy foods through encouragement and education. Child care educators often modeled healthy behaviour to the children by sitting with the children throughout the meal, consuming the same foods as the children throughout the meal, and actively engaging the children in conversations about the food they were eating.

"That's my favourite kind of cheese, yum it's so good – you might like it too!"- Case 2, P1, 08/14

This behaviour is consistent with the ANGCY recommendations for child care centres, as the child care educators were able to create a positive meal environment by making healthy foods appealing. The researcher observed more children trying new healthy foods throughout the meal observation period in Case 2 than in the other two cases. These findings support previous research that suggest role modeling and authoritative behaviour exhibited by child care educators was associated with increased consumption of the food being promoted (Hughes et al., 2007). Furthermore, child care educators increased the children's exposure to new fruits and vegetables on a regular basis, allowing children to sample small portions of the new food to see if they liked them. For example, sliced cucumbers were offered during 3 separate observation periods and

child care educators encouraged children to try just one slice on each occasion. This authoritative behaviour is idealistic when introducing new foods to young children (Hughes et al., 2007).

Research has shown child care educators who display authoritative feeding styles were more likely to make fruits and vegetables available. Furthermore, authoritative feeding had a positive association with getting the child to consume fruits, vegetables and dairy products, ultimately making the child care educator more successful at getting children to try and consume new and healthy foods (Patrick et al., 2005), a finding that is mimicked in this study. These results indicate child care educators should focus on displaying feeding styles that facilitate the intake of healthy foods and the development of healthy behaviours towards food, such as the authoritative behaviour exhibited in this case.

Similarly, child care educators in Case 1 exhibited a high degree of authoritative behaviour throughout the meal observation period (Figure 4.1). Child care educators often encouraged the children to try new fruits and vegetables:

"It's always good to try new things, try some peas!"- Case 1, P2, 07/14

However, the response from the children was not as positive as the children in Case 2, although this could be due in part to the nature of the meal serving style which was not controllable by the child care educators. Given the children were able to serve themselves throughout the meal, child care educators were not successful in getting children to try new fruits and vegetables by simply encouraging the children to do so. Furthermore, child care educators were not strict with the children regarding the quantity of food taken and often did not notice when children would over indulge in the less healthy menu items. With that being said, child care educators were very successful in getting children to try new fruits and vegetables when the

behaviour was modeled in front of them. For example, one of the child care educators was able to encourage four children to try hummus by sitting with them and encouraging them to try it, and eating it with them. Given this behaviour was exhibited in Case 2 as well, it is clear that role modeling, coupled with authoritative behaviour in the form of encouragement, may have a strong impact on the food intake among preschool children.

Overall, the findings of this research indicate authoritative behaviour exhibited on behalf of the child care educators has a role in the promotion of the healthy food environment and healthy food consumption by preschool children in child care centres. The type of meal service offered by the child care may play a crucial role, in conjunction with child care educator feeding behaviour, in shaping healthy eating habits of preschool children. Encouraging healthy food consumption amongst preschool children in child care centres by sitting with the children, role modeling the type of desired behaviour, and interacting with them in an authoritative manner may need to be further encouraged amongst child care educators in order to promote healthy behaviours towards food.

4.4 Limitations

The current research examining child care educator behaviour and caregiving style is exploratory in nature and has a few limitations. Since this was an exploratory case study, only a few cases were selected for observation, therefore, the findings may not be generalizable to all child care centres. However, the purpose of a case study design is to gain an in-depth understanding of the uniqueness of each child care environment, and this was a strength of the study. Another limitation is derived from the feedings styles used to classify the child care educators. Not all permissive/indulgent behaviours are negative and the tool did not

accommodate for recording positive behaviours in the indulgent category. For example, child care educators who offered children more fruits or vegetables were classified as engaging in the indulgent behaviour, when in fact, the behaviour observed was positive and not negative. Despite these limitations, the results obtained from this research may be used as a foundation for future studies and potentially inform training for child care educators.

4.5 Conclusions

The findings of this study indicated that both child care educator behaviours and caregiving styles had a positive or negative impact on the healthy eating environment and health behaviours of children within child care centres. These findings indicate a deeper understanding of the direct impact child care educator's behaviours and caregiving styles have on the healthy food environment are needed to fully understand this unique relationship and if there are long term health effects that may result.

4.6 Implications for Research and Practice

There is a clear gap between how child care educators perceive their behaviour and the actual behaviour that they are exhibiting with the children. The development of a self-assessment tool for child care educators to determine their own behaviour within the centre, followed by appropriate training, may be useful for increasing awareness and practical knowledge for child care educators on optimal ways to interact with children through the meal period. There are clear gaps between the ANGCY recommendations and best practices in the child care setting. Although the ANGCY recommendations for child care centres are solidly based, there is a lack of resources on how to implement these ideal behaviours in practice. There is a critical need for

future investigation around training as it is clear child care educators play a vital role as change agents in the lives of preschool children in developing healthy lifestyle habits.

Chapter 5: The role of child care educators' verbal commands during play time and their influence on the active living environments for preschool children in child care centres

5.1 Introduction

The use of child care in Canada has been consistently increasing over the years. Children in Alberta are spending roughly 40% of their time in some form of child care arrangement (Sinha, 2014). Although it is well known that practicing healthy living behaviours during the preschool years is important in supporting optimal growth and development (Story et al., 2002), there is less literature regarding the impacts of physical activity during this development period (Timmons et al., 2007). Children should participate in ample amounts of activity during early childhood (Canadian Society for Exercise Physiology, 2012) as it has many benefits; it is a well-known preventative measure for health risks including overweight/obesity, promotes children's emotional, social and psychological development, and leads to decreased sedentary behaviour (Timmons et al., 2012; Leblanc et al., 2012). Considering the estimated number of children under the age of 5 who are overweight has reached 42 million worldwide (World Health Organization, 2015), physical activity levels amongst preschool children should be an increasing priority to promote healthy growth and development.

Physical activity amongst preschool children is defined as any bodily movement generated by skeletal muscles that result in energy expenditure above resting levels (Caspersen at al., 1985; Timmons et al., 2012). Physical activity can occur both indoors and outdoors, and can be structured (i.e. games with rules, swimming lessons, etc.), or unstructured opportunistic play (i.e., playing in the park) (ACT Government, 2016). Sedentary behaviours can be defined as those that involve little physical movement while children are awake, such as sitting or reclining,

and can involve activities such as: watching television, playing video games, etc. (Canadian Society for Exercise Physiology, 2012).

In 2012, Canada released the Canadian Physical Activity Guidelines for the Early Years (aged 0-4 years) and the Canadian Sedentary Behaviour Guidelines for the Early Years (aged 0-4 years), the first-ever Canadian documents of their kind (Canadian Society for Exercise Physiology, 2012). It is recommended in these guidelines that caregivers should limit the amount of time preschool children spend engaging in sedentary behaviours during waking hours, and should accumulate at least 180 minutes of physical activity throughout the day (Tremblay et al, 2012). Furthermore, the guidelines recommended limiting screen time to under 1 hour per day for preschool children and physical activity should take place in different environments and involve the development of motor skills. Furthermore, it is explicitly stated that caregivers should encourage children to progress to at least 60 minutes of energetic play (increasing vigorousness of activity) by the age of 5 years (Canadian Society for Exercise Physiology, 2012). The health benefits of engaging in physical activity throughout childhood are well documented (Timmons et al., 2007; World Health Organization, 2015) however, further research is needed for the effects in preschool aged children.

Preschool children attending child care centres that encourage and provide more opportunities for physical activity, outside and indoor activities, engage in more physical activity throughout the day (Bower et al., 2008). However, it has been established that children in child care centres are not moving enough. Through direct observations, Pate et al. identified that children in child care centres engaged in moderate-to-vigorous-intensity physical activity for less than 3% of the day, while 80% of the day were periods of light-intensity physical activity or sedentary behaviour (Pate et al., 2008). These findings were mirrored in other studies conducted

that determined children in child care rarely received more than 60 minutes of moderate-to-vigorous-intensity physical activity during their time at the child care centre (Reilly et al., 2006; Cardon and De Bourdeaudhuij, 2008). Although time outdoors has been consistently proven to be a stronger predictor of physical activity levels, by simply increasing the amount of time allotted for physical activity may not be adequate enough for preschool children to gain physical activity benefits at the child care centre (Alhassan et al., 2007).

Given the increased time children are spending within child care (Sinha, 2014), and research indicating physical activity in childhood can lead to healthy adult behaviours (Standage et al., 2012), child care educators are presented with an opportunity to influence health behaviour development in preschool children. Although there is very limited research describing the role and influence of the child care educator on preschool children activity levels, there are data suggesting parenting style may affect this behaviour.

The commonly accepted parenting styles are based on Baumrind's framework suggesting authoritarian, authoritative and permissive parenting styles are associated with different behaviour outcomes for children (Baumrind, 1966). Research has shown a positive association between authoritative parenting styles and increased moderate-to-vigorous-intensity physical activity in children (Oliver et al., 2011; Schmitz et al., 2002; Davids and Roman, 2014). This research is similar to studies indicating a positive correlation between authoritative caregiver style and healthy food consumption (Hughes et al., 2007), which may suggest authoritative parenting be ideal for positive health behaviour development.

Although there is research to suggest parenting style plays a role in physical activity participation in children, there is limited research on the role of caregivers or child care educators

influence on this participation in preschool children in the child care setting. One study has indicated that caregiver styles play a role in the promotion/involvement of children in physical activity suggesting a positive relationship between authoritative parenting styles and physical activity (Davids and Roman, 2014). Given the use of Baumrind's parenting styles framework in the areas of preschool nutrition and healthy eating behaviours (Hughes et al., 2007), it is reasonable to suggest a similar extension of the framework may be used to investigate child care educator role in the promotion of physical activity behaviours in preschool children in the child care setting. This study aimed to observe child care educator interactions with preschool children throughout the physical activity period and explore their influence on the active living environment.

5.2 Methods

5.2.1 Theoretical Framework

Given other research has allowed for extrapolation of parental behaviour influence on children behaviour to be extrapolated to caregivers; such as studies conducted by Hughes et al (2007) and parental feeding styles, it is not unrealistic to apply the same principles to physical activity behaviours. In this study, we used Hughes et al (2007) adapted version of Baumrind's framework of authoritarian, authoritative, permissive/indulgent and permissive/uninvolved caregiver styles to those exhibited by child care educators (Table 5.1). Unlike studies examining feeding behaviour, this study did not focus on permissive/indulgent behaviours towards children in relation to physical activity. In a feeding sense, the permissive/indulgent behaviour is characterized by offering children more to eat when they do not request it, or allowing the

children to eat as they please. These trends are not similar in relation to physical activity, as it is encouraged for children to engage in as much as they can.

Table 5.1. Child care educator caregiving styles as adapted from Baumrind's framework

Authoritarian	**Authoritative**
e.g. extensive external control (high use of restrictive behaviours)	e.g. adequate control (helping children eat, praising them for eating)
Permissive (Indulgent)	**Permissive (Uninvolved)**
e.g. little use of control (giving the child seconds)	e.g. "nutritional neglect" – the child is encouraged to eat whatever he or she wants, in whatever quantities

*Indulgent behaviours are not looked at in relation to physical activity

5.2.2 Study Design

In order to fill the current gaps in the literature regarding child care educator interactions with preschool children during physical activity time, an exploratory focused ethnography case study design was utilized to explore three cases; one high performing and two reference child care centres. Multiple sources of data were collected from direct observation and field notes to ensure results were consistent, and reliable.

5.2.3 Sampling

Three child care centres in the Edmonton, Alberta area were selected from the participation list generated from the TANGO study of those who granted consent to be contacted further (Downs et al., 2010). In order to participate in the study, the inclusion criteria for each child care centre included: 1) have knowledge of, or adhere to, the ANGCY, (2) have preschool-

aged children (aged 2-5 years), (3) provide all meals and snacks in order for direct observation to be possible, (4) located in the greater Edmonton area (including rural sites) and, (5) centres must have granted consent an interest in completing the duration of the study and all of its components. Due to the purposeful method of selection, child care centres were a mix of profit and not-for-profit.

5.2.4 Recruitment and Negotiation of Entry

Three child care centres were contacted and the research team held an informal meeting with the child care centre directors to provide them with study information and ensure they met the inclusion criteria. Once confirmation was obtained from the three child care centres, the director and each participating child care educator were taken through a formal process of consent.

5.2.5 Data Collection

Data collection was guided by the principles of ethnography and characterized by short-term field visits (Madden, 2010). Data were collected through direct observation of child care educator interactions with children during physical activity time and researcher recorded field notes.

5.2.5.1 Description of Physical Activity Observation Tool

The observational data collected during play time was recorded systemically with the observational tool *Physical Activity Observation*, obtained from the Yale Rudd Centre for Food Policy and Obesity at Yale University in New Haven, Connecticut (Yale Rudd Centre for

Food Policy and Obesity, 2013) (Appendix D). This validated observation tool is intended to be administered by the researcher and although this tool is available to the public through the Yale Rudd Centre for Food Policy and Obesity Website, the researcher sought and obtained permission for its use. The observational tool included a list of options for recording information on: interactions between child care educators and children, specifically verbal cues, play instruction, physical activity encouragement or discouragement, involvement in games, safety instructions, and physical activity messages relayed. The tool also provided space for the researcher to record a verbal comment made by the child care educator, who the comment was directed to (including the physical characteristics of the child(ren)), and the justification for the comment (to increase or decrease physical activity, relay safety information, etc.).

5.2.5.2 Modification of the Physical Activity Observation Tool

During the initial observation period, the tool was slightly modified by the researcher to expand on the recorded observations. These modifications included writing down further observations, such as verbal cues, body language, and interactions between the child care educators and fellow staff during the physical activity time. These modifications were done to ensure a complete picture of the physical activity environment was being captured by the researcher in a systemic manner.

In order to ensure the reliability of the observation tool, both the researcher and a research assistant (LC) were present at the same observation period and independently completed the observation using the same tool. The observation tool completed during this observation period was then analyzed and compared against one another in order to determine the reliability of the method. The findings of the current study will compare observation and field note data to the

conclusions drawn from the existing parenting styles framework and the observed behaviours collected by the physical activity observation tool.

5.2.5.3 Physical Activity Observation Tool

Direct observation of play time was carried out for 5 days at each child care centre. The physical activity observations tool place between September 2014 – December 2014 and ranged between 25 minutes and 50 minutes for a total of 9.75 hours. The two child care centres that had more than one classroom of preschool aged children combined preschool classroom play time activities together, and therefore, no additional observations were required. In order to ensure the validity of the tool, the researcher was accompanied by a research assistant (LC) for an observation period, where they each completed the tool separately. Once the observation period was over, the research and assistant had a debriefing session to confirm the correct and consistent use of the tool and compared results.

5.2.5.4 Researcher Recorded Field Notes

In addition to the interview and observational data, the researcher recorded field notes throughout the observation periods. Field notes included: general attitudes of the child care educators throughout the physical activity, interactions between child care educators during the physical activity and any personal thoughts regarding the physical activity the researcher may have heard. The field notes recorded throughout the play time observation period were used to enhance the data collected by the observation tool.

5.2.6 Data Analysis

Direct observations of play time and field notes were coded separately and methodologically triangulated to enhance the credibility of the findings. The data sources were analyzed separately for each child care centre, analyzed together for each child care centre, and then compared amongst each child care centre in order to increase the reliability of the findings and decrease researcher bias (Patton 2002; Yin 2009). Direct observation and field note data were coded and triangulated, enhancing the credibility and rigour of the data (Yin, 2009; Krefting, 1990). The thematic analysis allows researchers a method of identifying, analyzing and reporting patterns within data (Braun and Clarke, 2006). Thematic analysis is appropriate for analyzing ethnographic studies that seek to discover meanings using interpretations, as it allows the researcher to summarize key features within the data (Fereday and Muir-Cochrane, 2006). The researcher triangulated the data sources by comparing the results and recorded findings from the observation tool to the memos recorded throughout the observation period. The researcher consulted recorded field notes from the observation periods in order to gain a more comprehensive understanding of the environment during that observation period, once all observation data was analyzed. This process was done for all observations collected amongst the three cases. This allowed the researcher to add greater context to the physical activity environment and gain a more comprehensive understanding of the active living environment at each child care centre as a whole.

NVivo software (version 9; QSR International, Doncaster, Victoria, Australia) was used to manage and organize the qualitative data. All data were organized by child care and further broken down based on emerging themes and classification of behaviour observed. Once all the observation data had been analyzed, the comments made by child care educators throughout the

active place observation period were recorded. The justifications for the comments were determined by the classification system suggested in the observation tool (Appendix D). The classification of the child care educator comments directed toward the children during the play time observation period were recorded by the researcher when the comment was made, and the classification of the comment (Appendix D) was left to the discretion of the researcher.

Comment justifications were then classified according to Baumrind's framework as being authoritarian, authoritative, or permissive/uninvolved in nature by the researcher, based on work completed by Hughes et al. (2007). All recorded comments made by child care educators were classified. Frequencies of the comments were tabulated for each case and compared within each case and then compared across all three cases. This allowed the researcher to determine a quantitative value of which types of comments were being used most within each case and then an overall total to determine which case was using more authoritarian, authoritative or permissive/uninvolved comments when speaking with the children (Figure 5.1).

5.3 Results and Discussion

5.3.1 Description of Child Care Centres

The child care centres were accredited, urban and rural child care facilities that varied in size, location, and meal serving style. Characteristics of the three child care centres studied are detailed in Table 5.2, and further described below. Further, characteristics of the play environment are listed below in Table 5.3.

Table 5.2. Description of Child Care Centres (cases)

	Case 1	Case 2	Case 3
Type of Child Care	Non-profit, Urban	Non-profit, Urban	Private, Rural
Child Care Size	94 full-time children 32 preschool children	64 full-time children 22 part-time children 35 preschool children	30 full-time children 14 preschool children
Ratio of Child Care Educator to Child	1:9 CCE:children (observed)	1:9 CCE:children (observed)	1:7 CCE:children (observed)
Description of Play Environment	Large outdoor area Small indoor area	Small outdoor area Larger indoor area	Very large outdoor area Small indoor area

*CCE denotes child care educator

Table 5.3. Description of the Play Environment

	Case 1	Case 2	Case 3
Outdoor Play Area	Large open space - mediocre room to run freely	Small open space - little room to run freely	Very large open space - a lot of room to run freely
Outdoor Equipment	1. Stationary play structures: - balancing surfaces, climbing structures, sandbox, slides, swing set, tunnels 2. Mobile equipment - sand and water toys, balls, basketball hoop, jumping equipment, push/pull toys, riding toys (bikes), stacking structures	1. Stationary play structures: - climbing structures, sandbox, slides 2. Mobile equipment - balls, push/pull toys, riding toys (bikes), sand and water toys	1. Stationary play structures: - balancing surfaces, climbing structures, rocking and twisting toys, sandbox, slides, swing set, tunnels 2. Mobile equipment - sand and water toys
Indoor Play Area	Small space - little room to run freely	Gross motor room (~450 sqft) - moderate room to run freely	Small space - little room to run freely
Indoor Equipment	Mobile equipment: - balls, puzzles, building toys	Mobile equipment: - balls, push/pull toys, basketball hoop, riding toys, sand/water toys	Mobile equipment: - building toys, puzzles

Description of Case 1: Case 1 was a non-profit, urban child care centre located in Edmonton, Alberta, Canada. At the time of observation, there was a total of 94 children that attended the child care facility, 32 of which were preschool children between 2-5 years of age. The 32 preschool children were separated into two different rooms in the child care, with 18 children in the junior preschool room (ages 2-3), and 14 children in the senior preschool room (ages 4-5).

Each preschool room has 2-3 child care educators watching and interacting with the children throughout the day, a ratio of 1:9 child care educators to children. The preschool children at this child care had their play-time together, which were outdoors for all 5 observations. The child care had a large outdoor playing area for the children and had playground equipment, including climbing structures, slides, bikes, balls, sand toys and plenty of space for the children to run freely (Table 5.3). There was little room for the children to run freely inside of the facility, however, each of the preschool rooms had enough room for the children to play with puzzles, toys and other activities that involved limited movement.

Description of Case 2: Case 2 was a non-profit, urban child care located in Edmonton, Alberta, Canada. At the time of observation, there was a total of 64 full-time children and 22 part-time children enrolled at the facility, of which 35 were preschool children. The 35 preschool children were separated into two different rooms in the child care centre, with 17 children in the junior preschool room (ages 2-3), and 18 children in the senior preschool room (ages 4-5). Each preschool room had 2-3 child care educators watching and interacting with the children throughout the day, a ratio of 1:9 child care educators to children. The preschool children at this child care had their play-time together, and due to increasingly cold weather conditions, only 3/5 observations were conducted outdoors, and the final 2 observations were collected indoors. The child care has a small outdoor playing space for the children that include climbing structures, slides, a sand pit, balls and other toys; however, there is very limited space for the children to run freely (Table 5.3). There was little room for the children to run freely inside their designated classrooms; however, the child care had a gross motor room (roughly 450 sqft) that the child care educators may use with the children. The gross motor room was a fairly large space where children had room to run, dance, play games and play with the sporting equipment provided.

Description of Case 3: Case 3 was a private, rural child care located 20 kilometers outside of Edmonton, Alberta, Canada. At the time of observation, there was a total of 30 full-time children enrolled at the facility, of which 14 were preschool children (ages 2-5). Each preschool room had 2 child care educators watching and interacting with the children throughout the day, a ratio of 1:7 child care educators to children. All observation periods were conducted outside. The child care had a very large outdoor playing space for the children that included climbing structures, slides, swings, and sand pit, and roughly one acre of land for the children to run freely (Table 5.3). The majority of the physical activity the children received was in the form of outdoor play, with indoor play limited to bad weather days. The indoor space did not have enough room for the preschool aged children to run freely, however, included enough space for the children to participate in organized play, such as yoga, dance classes, puzzles and other games.

There was a distinct difference in the play environment between the three cases. Case 1 had a large outdoor play area for the children that included both stationary play structures and mobile equipment. However, given the urban setting of the child care centre, there was little room for the children to run freely, and their ability to run indoors was limited due to the size of the classrooms. In contrast, Case 2, which was also an urban setting, had a very small outdoor play area for the children, yet still had play structures and equipment available. However, Case 2 had a gross motor room inside of their facility (~450 sq ft), which allowed children a little extra space to run and play. In this regard, child care educators in Case 1 and Case 2 may have been more motivated to encourage increased physical activity behaviours in their children, as the researcher observed the children were more likely to be sedentary when there was less area to run freely. This was an observation made by the researcher; in order to develop an association,

further researcher examining exact physical activity levels in children in relation to the physical environment would be required.

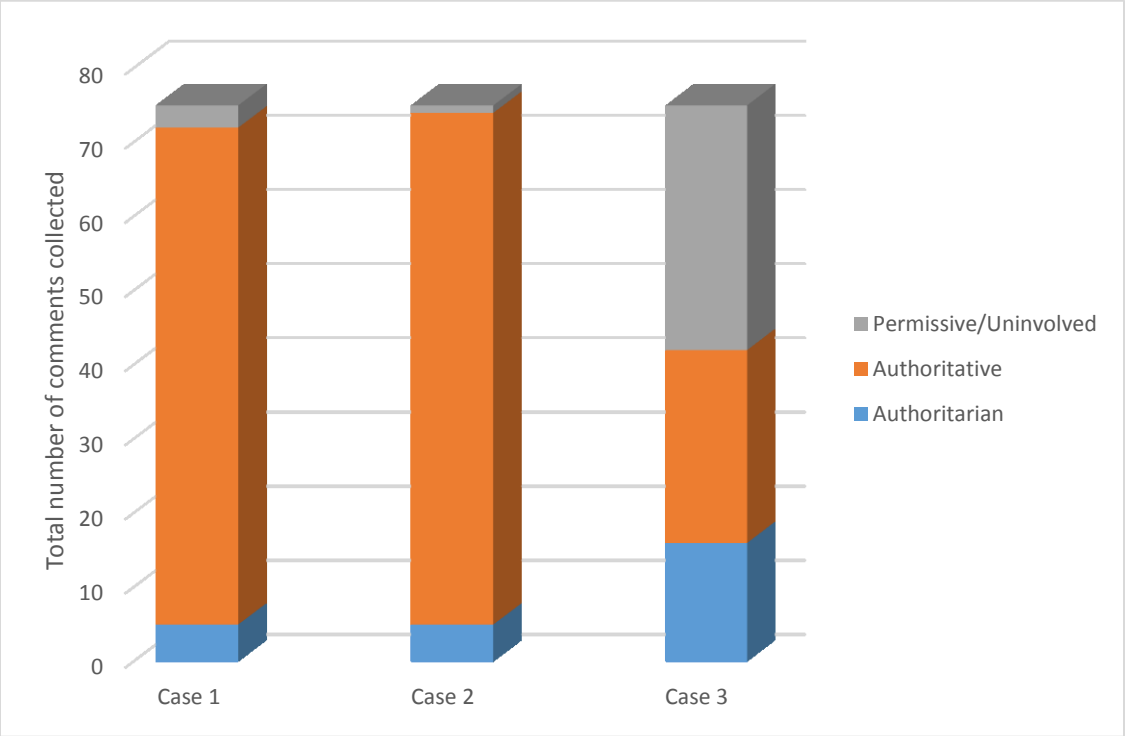
5.3.2 Physical Activity Observational Data

The tool provided space for the researcher to record 15 verbal comments made by child care educators throughout the observation period. There was a total of 15 play time observation child care educator comments recorded per physical activity observation period, for a total of 75 comments collected per child care throughout the entire 5-day observation period.

A total of 75 comments were recorded for each preschool room at the child care centres. Although Case 1 and Case 2 each had two preschool rooms, the children played together during activity time, and therefore, the case totals are the same as Case 3.

As displayed in Figure 5.1, Case 2 had the highest observed instances of the ideal authoritative behaviour, while Case 3 exhibited the highest observed instances of authoritarian and permissive behaviour directed towards the children during physical activity time. In this regard, child care educators in Case 2 were observed promoting and encouraging increased play, engaging in activities, and interacting more positively with the children during the play time observation period. In contrast, child care educators in Case 3 were observed engaging with children if it were for the purpose of delegating rules, instructing the children to decrease play levels, or taking away play time as a means of punishment, characteristics that represent an authoritarian approach. These results are described in further detail below.

Figure 5.1. Physical Activity Style Observations: Classification of comments made by child care educators to children throughout the play time observation period



5.3.3 Child Care Educator Behaviour (Physical Activity)

Authoritative Child Care Educator Behaviour. An authoritative caregiver style is characterized by adequate control of the environment, providing positive encouragement for the child by setting clear boundaries, allowing the child to express independence and open communication (Hennessy et al., 2010). The behaviours of the child care educators varied across cases. Child care educators in Case 2 exhibited the highest amount of authoritative behaviour towards the children during play time, closely followed by child care educators in Case 1. Child care educators in Case 1 and Case 2 were observed to be more actively engaged with the children during the play time observation period. In comparison, child care educators in Case 3 were the

least likely to use authoritative behaviour with children during the play time observation period. It is important to note, Case 3 had the largest outdoor play space of the three child care centres, and therefore had more room for the children to run freely and engage in more vigorous play. However, the researcher observed the authoritative behaviours displayed by the child care educators in Case 1 and Case 2 to have a positive effect on the play levels of the children during the observation period, and the authoritarian behaviours of the child care educators in Case 3 were not observed to have the same effect on the children. These observations are supported in the literature, as research has found a positive relationship between authoritative parenting styles and physical activity, specifically; children were observed having an increased interest in physical activity (Davids and Roman, 2014). It is important to note that in this study, these results were based on observations made by the research and in order to be certain of an association, studies using accelerometers or other methods to directly measure activity levels of the children would be needed.

Child care educators at Case 2 actively engaged with the children during the physical activity observation period, offering encouraging words to children who were participating in physical activity. During one of the outdoor play-times, the researcher observed child care educators relaying comments such as the following to the children, in hopes of encouraging continued physical activity:

"Great job! You went down very fast!"- Case 2, P2, 10/14

Authoritative behaviour is characterized by encouragement and continued support on the part of the caregiver, with research showing positive results in children's physical activity when they receive positive feedback, praise, and support on the part of the caregiver (Kimiecik and

Horn, 2011). Similar to the behaviour observed during play time at Case 1, the child care educators at Case 2 supported and encouraged children throughout the physical activity period:

"Get him, get him! Now you're it, run!"- Case 1, P1, 09/14

Role modeling healthy behaviours is a characteristic of good authoritative behaviour on the part of a caregiver when engaging with young children. Child care educators in Case 2 exhibited ideal authoritative behaviour throughout the meal period and continued this behaviour throughout the physical activity observation as well. The researcher observed the child care educators actively participating with children during play time, and encouraging more sedentary children to engage in moderate-to-vigorous intensity activity:

"Who wants to play tag? I'm it!" – Case 2, P1, 10/14

The researcher noted the children had a positive response to play encouragement from the child care educators, with more children participating in physical activity and engaging in less sedentary behaviour when the child care educators participated in the activity as well. The positive increase in the level of physical activity by the children was also observed in Case 1 when child care educators took a more active role during the play time:

"Let's get the ball and play together!"- Case 1, P2, 10/14

The researcher observed children responding positively to healthy role modeling behaviours of the child care educators throughout the entire physical activity observation period. Overall, it was observed by the researcher that there were more children engaged in moderate-to-vigorous-intensity physical activity (characterized by behaviours such as running, actively playing with balls or sports games, etc.) when child care educators assumed an active role in the

physical activity period and carried this behaviour on longer when child care educators ceased participation in the activity. It is clear that the authoritative behaviour exhibited resulted in a positive response from the children during their physical activity period.

As in other studies (Oliver et al., 2011; Schmitz et al., 2002; Davids and Roman, 2014), this research observed a positive relationship with authoritative styles and increased physical activity among the children. Child care educators have an opportunity to encourage children to be active in a positive way by being engaged and positive role models.

Authoritarian Child Care Educator Behaviour. An authoritarian caregiver style is characterized by high control of the environment, attempting to control children's behaviour through restrictive rules and obedience, with little consideration of the child's needs (Hennessy et al., 2010). Child care educators in Case 3 exhibited the highest amount of authoritarian behaviour directed at the children throughout the physical activity observation period. In comparison, child care educators at Case 1 and Case 2 were observed displaying significantly less authoritarian behaviour towards the children and were not observed removing physical activity from the children as a form of punishment. Case 3 and Case 1 both had a higher observed incidence of authoritarian behaviour in comparison to Case 2 and similarly, both had a larger outdoor play area for the children than Case 2. It is important to note, the authoritarian behaviour observed at Case 1, and some of the authoritarian behaviour observed in Case 3, were in the form of rules or safety orders directed at the children, and may have been more frequent in these cases given the larger play area available for children to run around. However, to confirm this association further in-depth research would be required.

Case 3 displayed the largest amount of negative authoritarian behaviour towards the children. Child care educators were observed using the threat of discipline as a means of controlling the activity level of children throughout the designated play time. The researcher observed one of the child care educators removing a child from play time and instructing him to sit down and watch his friends because he had been running too fast.

"That's enough! Come here and sit down!"- P1, Case 3, 11/03/14

Although the researcher noted the child failed to slow down after being instructed twice before, the removal of the child from participating in the physical activity period for more than half of the allotted time did not seem to be fair treatment. After several minutes of a time-out, a few of the punished child's friends tried to engage in play with him, to which the child care educator responded as follows:

"No, he's not allowed to play right now" – P1, Case 3, 11/03/14

The observed situation presented above is a contradiction of other behaviour observed. Child care educators had instructed the children to get up and start moving during the beginning of the observation period when a couple of the children were sitting in the sand; yet, when children did engage in more physical activity they were told to slow down. Communication between adults and children has been recognized as a relevant factor within physical activity contexts (Kimiecik and Horn, 2011), which was evidently missing from the above observation. Although research has shown a positive correlation between authoritarian caregiver styles and physical activity, these results are limited to an increase in organized sports and have not been seen in unorganized active-play (Saunders et al., 2012). The researcher did not observe a noticeable increase in physical activity levels when being spoken to in an authoritarian manner, but rather an observed

decrease in vigorous-intensity physical activity amongst the children. This observation implicates a negative association between authoritarian behaviour and physical activity levels amongst preschool children. However, in order to be certain of this finding, monitoring children's physical activity levels in relation to child care educator behaviour would need to be done. Future studies should focus on establishing a clear relationship between child care educator behaviour and level of physical activity in preschool children.

Permissive/Uninvolved Child Care Educator Behaviour. An uninvolved caregiver style is characterized by behaviour that is dismissal towards the children with very little interaction and offering little boundaries (Hennessy et al., 2010). As outlined in figure 3.1, child care educators in Case 3 exhibited the highest levels of uninvolved behaviour throughout the play time observation periods in comparison to Case 1 and Case 2. It is important to note Case 3 had the largest outdoor play area for the children to engage in physical activity. Furthermore, Case 1 had the second largest play area for the children and was observed to have the second highest incidence of uninvolved behaviour. Case 2, which had the smallest outdoor play space, was observed to have the least incidence of uninvolved behaviour. Based on these observations, it appears the larger the outdoor playing area available, the less involved the child care educators were in these three cases. This association could be due to the perceptions of the child care educators, potentially assuming the large play area would be motivation for the children to engage in more vigorous physical activity and therefore did not need to be as involved. Another explanation may be child care educators were not as concerned about safety, such as children running into each other or into the equipment. However, it was observed by the researcher that children in Case 2 that had child care educators more actively engaged through encouragement,

participation, and motivation, displayed higher levels of vigorous play. Given these were observations, in order for this association to be made, future research measuring the exact physical activity levels of the children in these different environments would be needed.

During the observations at Case 3, the researcher observed child care educators standing along the side of the play area away from the children, simply watching them play or talking with one another. The child care educators would interact with the children in circumstances that involved safety instructions such as,

"Do not run that fast, you are going to trip and get hurt!" – Case 3, P1, 10/14

However, communication was limited to relaying safety messages, decrease vigorous activity (instructing the children to slow down), or telling the children it was time for them to return inside for lunch. The researcher did note that one of the child care educators would engage with the children if they requested help using a piece of equipment, such as pushing them on the swing set, but no participation in moderate-to-vigorous intensity activity with the children was observed in the five-day observation period.

Although uninvolved child care educator behaviour is negatively associated with children's healthy food consumption within child care centres (Hughes et al., 2007), the researcher did not observe children being any less involved in moderate-to-vigorous-intensity physical activity as those in Case 1 or Case 2. However, this may be the result of the physical environment rather than child care educator behaviour towards them as Case 3 had the largest outdoor playing area between all three cases. In this way, children had ample room for running freely and playing different games, without the worry of not having enough space to participate

in multiple different activities. Had the physical playing area been smaller and more confined, such as those in the urban child care centres, different results may have been observed.

It is important to note that child care educators in Case 3 had the highest rate of authoritarian behaviour during the meal and physical activity, and also exhibited the highest rate of uninvolved behaviour during physical activity. Child care educators relayed nearly all verbal communication with the children in an authoritarian tone to ensure children were aware of the rules and understood how they should be behaving, but neglected to actually interact with the children during physical activity where they could have encouraged more physical activity. The physical play environment may have had a large effect on the children's physical activity levels, given the ample outdoor space and play structures at the child care centre and therefore, the authoritarian and uninvolved behaviour exhibited by the child care educators may not have had the same effect as displayed on children with less space to play, such as Case 1 and Case 2. Studies should concentrate on examining the effect the physical environment has on the activity levels of children when child care educator behaviour is less than ideal. Future research should also focus on the relationship between authoritarian and uninvolved child care educator behaviour as the correlation could be due to lack of confidence leading children in physical activity, or a lack of training. It is clear this relationship requires further exploration.

Overall, the child care educators present during the physical activity period in Case 1 and Case 2 were actively involved with the children throughout the play time observation period; whereas, child care educators in Case 3 assumed a more passive role and were often not involved with the children. Field note data indicated physical activity levels of the children were considered to be a top priority in all three of the child care centres in the present study, child care educator involvement and participation clearly varied between the three cases. Case 2 exhibited

the highest level of authoritative behaviour during the play time observation periods and researchers recorded positive health response from the children in these circumstances. Case 3 was the only private and rural child care centre observed in this study and child care educators exhibited, in almost all instances, authoritarian and uninvolved behaviour. When child care educators were uninvolved with children during the physical activity observation, the researcher did not observe children engaging in less physical activity, which may be a result of the physical environment, rather than the behaviour exhibited by the child care educators. Although it had been indicated to the researcher that physical activity levels of the children were considered a top priority in all three of the child care centres, the researcher did not observe this in all three cases. Child care educators in Case 1 and Case 2 were observed as being actively involved with the children during physical activity, suggesting they value and understand its importance. However, child care educators in Case 3 did not demonstrate the same behaviours, taking a passive approach and supervising the children, rather than engaging them to increase their activity levels.

5.4 Limitations

There is limited research examining the role child care educators have on influencing the physical activity environment for preschool children and therefore has several limitations. Given the exploratory nature of this study, only a few cases were selected for observation. Due to the design of this study and the small sample size, the findings discussed may not be generalizable to all child care centres. Furthermore, for the tool utilized in this study, the authors strongly recommended that observations be collected in the outdoor play space of the child care centres, however, it may be used to record indoor activities, if necessary. Depending on the weather conditions on the day of observations, the majority of them were collected when children were

outdoors. However, child care educator interactions with the children in the outdoor space differed from the few observations collected while children were indoors these indicated a difference in behaviour. These differences in child care educator's behaviour in the outdoor space compared to those demonstrated in the indoor space is notable and should be further examined through comparative observations of child care educator interactions with children during play time in both indoor and outdoor play spaces.

5.5 Conclusions

The findings of this study indicated that child care educator behaviours and styles had an impact (both positive and negative) on the active living environments for preschool children within child care centres. Case 2 exhibited the highest level of authoritative behaviour during the play time observation periods and researchers recorded positive health response from the children in these circumstances. The results observed in Case 3 indicated less than ideal child care educator behaviour and strongly indicate the need for future research that focuses on understanding the reasons and motivation underlying the relationship between authoritarian and uninvolved child care educator behaviour. The relationships observed between these two styles and their effect on the physical activity environment could be due to a lack of confidence in leading children in physical activity, or a lack of training of the child care educators. These findings clearly indicate a need for further investigation into the relationship between child care educator behaviour and caregiver style and its influence on active living environments for preschool children in child care centres.

5.6 Implications for Research and Practice

Future studies should concentrate their research on evaluating the active living environment of preschool children both at the child care and in the home, as the child care and home environment need to ensure they are supplying children with the similar physical activity messaging. Child care educators are in need of more specific training related to supporting and promoting physical activity amongst preschool children, including training on how to utilize small spaces. There is a clear gap between how child care educators perceive their behaviour and the actual behaviour they are exhibiting with the children during physical activity. Further investigation into understanding the perceived behaviour of child care educators is an important step, as it may influence future training and policy development.

Chapter 6: Conclusions and Implications for Future Research

The purpose of this thesis was to address gaps in the literature regarding child care educators' perceptions of their role in promoting healthy eating and active living environments to preschool children in child care, and the influence they may have on this environment. This thesis explored child care educators' perceptions and beliefs about their role in the promotion of healthy eating within the child care centre, observed their behaviours and interactions with preschool children during mealtime and physical activity, and explored child care educators' adherence to the ANGCY by learning the level of knowledge the child care educators had of the guidelines. Furthermore, by identifying child care educator behaviours and interactions with preschool children during the meal and physical activity time, we may be able to target idealistic behaviours for future interventions and training.

6.1 Conclusions

Data presented in Chapters 3, 4 and 5 highlighted the importance of understanding the relationship between child care educators' behaviour in child care centres and their influences on the healthy eating and active living environments for preschool children in child care.

6.1.2 Influence on the Healthy Food Environment in Child Care Centres

In relation to the healthy eating environment, the overall findings demonstrated that authoritarian and authoritative caregiving styles were observed more often than either of the permissive feeding behaviours. Child care educators working at a facility that promoted family style serving (Case 1 and Case 3) were more likely to engage in both authoritarian and permissive (indulgent/uninvolved) behaviour than child care educators working at a facility that

served pre-portioned meals (Case 2). Authoritative behaviour was most often exhibited by child care educators at Case 2 in comparison to the other two cases; however, child care educators in Case 1 did resort to using authoritative behaviour with the children during the meal period than any other type of behaviour. These findings are not surprising, as current literature depicts similar patterns within child care centres (Hughes et al., 2007).

Child care educators in Case 3 exhibited the highest amount of authoritarian behaviour directed at the children throughout the mealtime observation period. Research has indicated that authoritarian feeding styles that involve restrictive control of foods high in fat and sugar resulted in the child becoming fixated on the "forbidden foods", and was more likely to consume them in greater amounts, even when feeling satiated (Fisher and Birch, 2000). Child care educators were observed using the threat of discipline as a means of encouraging food consumption among children, an action that goes against the recommendations made by the ANGCY. Child care educators in Case 1 and Case 3 employed the highest amount of permissive/indulgent and permissive/uninvolved behaviours towards the children during the mealtime observation period. The indulgent behaviours recorded throughout the observation period in Case 1 and Case 3 involved child care educators allowing children to over-indulge in energy-dense nutrient-poor foods, and therefore more accurately depict the true meaning of indulgent behaviour. However, more permissive/indulgent comments were recorded throughout the observation period in Case 2, the researcher noted the child care educators were only offering children additional servings of fruits and vegetables, rather than unhealthy foods.

Overall, this study's findings indicated child care educator behaviours and styles had both a positive and a negative impact on the healthy eating environment and health behaviours of preschool children within child care centres. Case 2 exhibited the highest level of authoritative

behaviour during the meal observation period and researchers recorded positive health responses from the children during this period. Case 3 was the only private and rural child care centre observed in this study and child care educators exhibited, in almost all instances, authoritarian behaviour. It is important to highlight there was no observed increase in healthy food consumption or children's willingness to try new foods when the authoritarian behaviour was exhibited during the meal observation period.

6.1.3 Influence on the Active Living Environment in Child Care Centres

Although field note data indicated physical activity levels of the children were considered to be a top priority in all three of the child care centres in the present study, child care educator involvement and participation varied between the three cases. The child care educators present during the physical activity period in Case 1 and Case 2 were actively involved with the children throughout the physical activity observation period, whereas child care educators in Case 3 assumed a more passive role and were often not involved with the children. Child care educators in Case 2 exhibited the highest amount of authoritative behaviour towards the children during play time, closely followed by child care educators in Case 1. Similar to caregiver styles in other contexts (such as caregiver styles during the meal period), when authoritative behaviour is exhibited by the caregiver, the children have been observed to be in a more positive mood and have an increased interest in physical activity (Kimiecik and Horn, 2011).

Child care educators at Case 2 actively engaged with the children during the physical activity observation period, offering encouraging words to children who were participating in physical activity. Child care educators in Case 2 exhibited ideal authoritative behaviour throughout the meal period and continued this behaviour throughout the physical activity

observation as well. Role modeling healthy behaviours is characteristic of good authoritative behaviour on the part of a caregiver when engaging with young children. Case 3 exhibited the highest amount of authoritarian behaviour directed at the children throughout the physical activity observation period. Child care educators were observed using the threat of discipline as a means of controlling the activity level of children throughout the designated play time. Furthermore, child care educators in Case 3 exhibited the highest levels of uninvolved behaviour throughout the physical activity observation period. The researcher observed child care educators standing along the side of the play area away from the children, simply watching them play or talking with one another.

Overall, there were more children engaged in moderate –to-vigorous intensity physical activity when child care educators assumed an active role in the physical activity period and carried this behaviour on longer when child care educators ceased participation in the activity. It is clear that the authoritative behaviour exhibited resulted in a positive response from the children during their physical activity period. However, when child care educators were uninvolved with the children during the physical activity observation, the researcher did not observe children engaging in less physical activity, which may be a result of the physical environment, rather than the behaviour exhibited by the child care educators.

6.1.4 Knowledge of the ANGCY and Perceptions of Role in Healthy Behaviour Promotion

6.1.4.1 Knowledge of the ANGCY

Overall, Case 2 had the highest level of knowledge of the ANGCY, with each child care educator (5/5) responding that they had knowledge of the guidelines and had heard of them through the child care centre they were working in. Awareness of the ANGCY was evident to the researcher and having a visible copy of the guidelines in the child care centre promoted child care educators to use the resource. Memos recorded highlighted that upon completion of the interview, 3/5 child care educators interviewed pointed out the hard copy of the ANGCY, indicating a level of awareness. In contrast, child care educators working at Case 1 and Case 3 were less aware of the ANGCY, and some had no knowledge of them at all. Only 2/5 child care educators interviewed at Case 1 and 3/5 child care educators interviewed at Case 3 had any knowledge of the ANGCY. Despite a lack of knowledge of the ANGCY, all child care educators indicated to the researcher that they had knowledge of Eating Well with Canada's Food Guide. Furthermore, no physical copy of the ANGCY was visible at either of these child care centres, which may highlight the importance of visibility to knowledge dissemination and awareness to the ANGCY. Finally, child care educators promoted aspects of the ANGCY or Eating Well with Canada's Food Guide such as high fruit and vegetable consumption, portion control and eating a balanced diet as being very important and found opportunities to promote healthy eating.

6.1.4.2 Child Care Educators Perceptions of Their Role in Health Promotion

When child care educators were posed the question what they felt their role was in promoting healthy behaviours to children, all responded with an indication of role modeling

behaviours as being their most important role. This behaviour is consistent with the ANGCY recommendations for child care centres, as the child care educators were able to create a positive meal environment by making healthy foods appealing. Child care educators were aware of the positive impact positive reinforcement and role modeling has on the child's food consumption and that children were more likely to try new foods if they were eating it as well, indicating a level of trust children place in child care educators.

Overall, the findings of this research indicated child care educators understood the perceived importance of their behaviour, specifically when it came to role modeling a healthy lifestyle, the promotion of a healthy food environment and healthy food consumption by preschool children in child care centres. These findings support previous research that suggested role modeling and authoritative behaviour exhibited by child care educators was associated with increased consumption of the food being promoted (Hughes et al., 2007). Furthermore, child care educators understood that encouraging healthy food consumption amongst preschool children in child care centres by sitting with the children, role modeling the type of desired behaviour, and interacting with throughout the meal period had a perceived positive effect on the healthy food environment.

6.2 Strengths and Limitations

There are noteworthy strengths of this research. First, purposeful selection of one high performing case and two reference cases provided researchers with the opportunity to identify idealistic and unidealistic aspects of each case and to uncover what approaches are working. The high performing case in this study highlighted best practice approaches that researchers observed to be working well within the child care. In this way, other child cares are able to identify what

practices are working within the high performing child care and mimic those practices within their own in order to further support and foster an optimal healthy eating and active living environment within their child care. Second, the researcher was able to gain an in-depth understanding of the uniqueness of each child care environment through the multiple sources of data collected. Collecting multiple sources of data enhances the richness, rigour, and confirmability of the findings (Yin, 2009; Patton, 2002).

It is also important to acknowledge the limitations of this research. First, the findings of the current research are limited by the studies small sample size and were exploratory in nature; they may therefore not be generalizable to all child care centres. However, the purpose of a case study design is to gain an in-depth understanding of the uniqueness of each child care environment. Furthermore, a large sample size was not required in this study, as the goal was to gain an in-depth understanding of each of the three cases. Also, this type of qualitative research allowed for a comprehensive understanding of the perceptions and influences each of these child care educators had on the healthy eating and active living environment within their child care centres, adding knowledge to a limited area of research. Second, there are drawbacks of using key-informant interview data, as child care educators may have answered the questions based on what they thought the researcher wanted to hear. Child care educators were quick to agree to questions the researcher was asking regarding healthy eating and physical activity, however when probed to provide a more in-depth response, some were unable to. Third, due to the gap in the current literature examining child care educator behaviour and caregiving style, classifying observation data was sometimes difficult. For example, when classifying child care educator behaviour as indulgent, which is often associated negatively with feeding children; however, based on current classifications child care educators that offered children more fruits or

vegetables were classified as engaging in the indulgent behaviour when the behaviour observed was not negative. Despite limitations, the results obtained from this research may be used as a foundation for future studies to build on in the future, and potentially result in the development of training for child care educators.

6.3 Implications for Future Research

The findings of this thesis contributed to an area of preschool health and wellness where limited information is available. Furthermore, these findings contribute to the gaps in the literature addressing the role that child care educators have on influencing healthy behaviour development in children, their influence on creating healthy living environments, and perceptions of their responsibility regarding these behaviours.

Future studies should concentrate their research on evaluating the dissemination of information within child care centres and training for child care educators. The findings of this research identified clear gaps between the implementation of ANGCY and practice. Although the ANGCY recommendations for child care centres are evidence-based, resources on how to implement these ideal behaviours in practice should be provided. Furthermore, there is a need to examine the flow of information within and across child care centres, and identify better training mechanisms so resources such as the ANGCY do not go unheard of within child care centres. Increasing the availability and accessibility of professional development opportunities for child care educators should be considered. Allowing child care educators the opportunity to engage in professional development regarding the ANGCY through workshops, webinars, presentations and useable resources may facilitate an increase of child care educator knowledge and awareness.

The findings of this research also highlighted a clear gap between how child care educators perceive their behaviours and the actual behaviours when interacting with children. These findings indicated a pertinent need for future investigation and training development in the child care environment, as child care educators play a vital role as change agents in the lives of preschool children where healthy habit development can be supported. Finally, understanding the perceived behaviours of child care educators is an important step as it may inform future training within the child care centres. The development of a self-assessment tool for child care educators to determine their own behaviour within the centre could be useful for evaluating and developing the training needs of the child care educators on the best ways to interact with children throughout the meal and physical activity period. This is especially valuable if the self-assessment tool is supported with further training and resources to assist child care educators in identifying optimal behaviour styles for child interactions and assist them in their improvement.

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Appendices

Appendix A – Information Letter

Study Title: Providers and Policy: Influence on Healthy Eating and Active Living Environments for Preschool Children

Dear _____,

Thank you in advance for taking the time to read this letter. This letter will inform you of an opportunity as a child care provider to take part in a research study to assess the current nutrition environment of child care centres. Results from this study will be of benefit to child care centres to help with the implementation of healthy eating strategies. Your email has been provided to us by the Edmonton Child Care Licensing Agents for your region. Details of your role in the study will be outlined further in this letter. The results of this study will be used in a paper and poster presentation and may be published in a research journal.

The purpose of the study is to understand the current nutrition and physical activity environment of your child care centres and menu adherence to Alberta Nutrition Guidelines for Children and Youth (ANGCY) and Eating well with Canada`s Food Guide (EWCFG).

Participation in this study will involve contributing to a 30-minute interview with the five child care providers at varying levels of responsibility within your child care centre. You will take part in an interview to tell us your perceptions and beliefs about the ANGCY and EWCFG in your child care centre. Notes will be taken throughout the interview process. Participation will also include an observation at mealtime to see what food is being served at your facility and your interaction with children at mealtime.

By taking part in this study we hope that you will benefit in the long run by improved support from Alberta Health Services Population and Public Health dietitians to support healthy eating in your child care centre and further support student research projects at the University of Alberta. There is no cost associated with being in this study.

There are no risks associated with taking part in this study. If you feel uncomfortable in answering a question you may chose not to answer. You are under no obligation to participate in this study. The participation is completely voluntary. You can opt out without penalty. Even if

you agree to be in the study you can change your mind and withdraw at any time. In the event of opting out after the completion of one or more sessions your results will be included in the study. You may ask to have data removed up until the data are analysed.

Results of this study will be included in a Master of Science thesis prepared by Tania Shewring, one of the student researchers. The findings may be submitted for publishing. Data presented will not be linked to any individuals or names. Anonymity will not be maintained, as you will be in the presence of other participants and researchers throughout data collection. Participants will be encouraged to not discuss answers outside of the focus group but confidentiality cannot be assured. Data will be kept confidential by the researchers and will be stored on a password-protected computer in a locked office at the University of Alberta. All persons involved in the research have signed a confidentiality agreement. If you are interested in receiving a finalized version of the report you may indicate so at the beginning of the study by informing the study personnel.

To thank you for your participation in this study we will provide you feedback on how to support healthy eating and active living in your facility. We would also provide you with a 45-minute information session on a health topic of your choosing. We will also provide interview participants with a small honorarium in the form of a gift card.

The plan for this study has been reviewed for its adherence to ethical guidelines by a Research Ethics Board at the University of Alberta. For questions regarding participant rights and ethical conduct of research, contact the Research Ethics Office at (780) 492-2615.

If you have any further questions regarding this study, please do not hesitate to contact Tania Shewring.

Researcher:

Tania Shewring, MSc Candidate
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Supervisor:

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Promoting health and building capacity in the early years where children

Eat, Play, Learn!

Appendix B – Letter of Consent

Study Title: Policy and Educators: Perceptions and Influence on Healthy Eating and Active Living Environments for Preschool Children

Researcher:

Tania Shewring, MSc Candidate
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780-492-2693

Dear Child Care Educator,

Thank you in advance for taking the time to read this letter. This letter will inform you of an opportunity as a child care educator to take part in a research study to assess the current nutrition and activity environment of child care centres. Results from this study will be of benefit to child care centres to help with the implementation of healthy eating and active living strategies. Your email has been provided to us by the Edmonton Child Care Licensing Agents for your region. Details of your role in the study will be outlined further in this letter. The results of this study will be used in a Master of Science thesis, a paper, and may be published in a research journal.

The purpose of the study is to understand the current healthy eating and active living environment of your child care centres and adherence to Alberta Nutrition Guidelines for Children and Youth (ANGCY) and Eating well with Canada`s Food Guide (EWCFG).

Participation in this study will involve contributing to a 30 minute interview on_____, 2014 at _____. You will take part in an interview to understand your perceptions and beliefs about healthy eating and active living in your child care, and your perceptions and beliefs about the ANGCY in your child care centre. Notes will be taken throughout the interview process.

By taking part in this study we hope that you will benefit in the long run by improved support from Alberta Health Services Population and Public Health dietitians to support healthy eating and active living in your child care centre. There is no cost associated with being in this study.

There are no risks associated with taking part in this study. If you feel uncomfortable in answering a question you may chose not to answer. You are under no obligation to participate in this study. The participation is completely voluntary. You can opt out without penalty. Even if you agree to be in the study you can change your mind and withdraw at any time. In the event of opting out after the completion of one or more sessions, your results will be included in the study. You may ask to have data removed up until September 30th, 2014.

Results will be included in a Master of Science thesis for the University of Alberta. The findings may be submitted for publishing. Data presented will not be linked to any individuals or names. Anonymity will not be maintained, as you will be in the presence of other participants and researchers throughout data collection. Participants will be encouraged to not discuss answers outside of the focus group but confidentiality cannot be assured. Data will be kept confidential by the researchers and will be stored on a password-protected computer in a locked office. All persons involved in the research have signed a confidentiality agreement. If you are interested in receiving a finalized version of the report you may indicate so at the beginning of the study by informing the study personnel.

If you have any further questions regarding this study, please do not hesitate to contact Dr. Anna Farmer, at the University of Alberta.

The plan for this study has been reviewed for its adherence to ethical guidelines by a Research Ethics Board at the University of Alberta. For questions regarding participant rights and ethical conduct of research, contact the Research Ethics Office at (780) 492-2615.

Consent Form

Do you understand that you have been asked to be in a research study?	Yes	No
Have you read and received a copy of the attached Information Sheet	Yes	No
Do you understand the benefits and risks involved in taking part in this research study?	Yes	No
Have you had an opportunity to ask questions and discuss this study?	Yes	No
Do you understand that you are free to refuse to participate, or to withdraw from the study at any time, without consequence, and that your information will be withdrawn at your request?	Yes	No
Has the issue of confidentiality been explained to you? Do you understand who will have access to your information?	Yes	No

This study was explained to me by: _____

I have read and understood the attached information letter and agree to take part in this study:

_____ _____

Signature of Research Participant Date

_____

Printed Name

I believe that the person signing this form understands what is involved in the study and voluntarily agrees to participate.

_____ _____

Signature of Investigator or Designee Date

Appendix C – Meal Observation Tool Part 2: Eating and Serving Behaviours

YALE RUDD CENTER
FOR FOOD POLICY & OBESITY

Meal Observation Tool—Part II: Eating and Serving Behaviors

I. BACKGROUND ENVIRONMENT

1. The meal period began at _____ and ended at _____
2. Children were actually seated and eating beginning at _____ and ending at _____
3. How many children were eating at the meal? _____
4. How many childcare staff were in the room during the meal? _____
5. How many childcare staff were sitting with the children during the meal? _____
6. What kitchen equipment is present in the room?
   - ❑ Microwave
   - ❑ Toaster
   - ❑ Toaster oven
   - ❑ Oven/stove
   - ❑ Refrigerator
   - ❑ Dishwasher

II. TIME

1. Were any children rushing to finish eating before the meal period ended?
   - ❑ No
   - ❑ Yes
2. Did any children complain that they did not have enough time to finish?
   - ❑ No
   - ❑ Yes

III. DRINKING WATER

1. How accessible was drinking water in the classroom?
   - ❑ Not available at all (no presence of sink or fountain in classroom)
   - ❑ Sink, fountain, or cooler in classroom, but would require adult assistance
   - ❑ Child-level sink or cooler with pitcher/cups within children's reach or child-level fountain
   - ❑ Other:
2. Did you witness teachers prompting children throughout the visit to drink water?
   - ❑ No
   - ❑ Yes, at specific times only (such as coming in from outdoor play)
   - ❑ Yes, multiple times throughout the day

IV. FEEDING BEHAVIORS

1. The meal was served:
   - ❑ Family style (children serve themselves)
   - ❑ Delivered and served in pre-fixed portions,
   - ❑ Delivered in bulk and portioned by staff,
   - ❑ Family style for some foods, fixed portions for others (such as hot or liquid foods)
   - ❑ Family style for first serving, additional helpings portioned by staff
   - ❑ Other: _____

2. Children were allowed to have seconds:
   - ❑ No, seconds not allowed
   - ❑ Yes, but only for certain foods/beverages (check all that apply):
     - ❑ Water
     - ❑ Juice
     - ❑ Milk
     - ❑ Protein (specify type): _____
     - ❑ Fruits
     - ❑ Vegetables
     - ❑ Grains
     - ❑ Other: _____
   - ❑ Yes, for all foods/beverages
   - ❑ Children not observed asking for/receiving seconds [skip to next section]

3. When children have seconds, they:
   - ❑ Request, and the teacher serves them
   - ❑ Request, and serve themselves
   - ❑ Serve themselves without asking
   - ❑ Teacher serves children without child requesting more food

   3a. IF TEACHER SERVES WITHOUT CHILD ASKING, were certain children given seconds without requesting more food?
   - ❑ No
   - ❑ Yes [Specify: _____]

   3b. IF TEACHER SERVES WITHOUT CHILD ASKING, did the teacher serve certain foods as seconds but not others?
   - ❑ No
   - ❑ Yes—Specify:
     - ❑ Water
     - ❑ Juice
     - ❑ Milk
     - ❑ Protein (specify type): _____
     - ❑ Fruits
     - ❑ Vegetables
     - ❑ Grains
     - ❑ Other: _____

4. APART FROM DENYING SECOND HELPINGS TO ALL CHILDREN DUE TO INSUFFICIENT AMOUNTS OF FOOD AVAILABLE, were any children denied second helpings when they requested more food or were discouraged from having a second helping?
   - ❑ No
   - ❑ Yes—4a. Were there specific characteristics associated with children who were denied seconds?
     - ❑ No
     - ❑ Yes [specify: _____],

5. Did teachers ask children if they wanted any more to eat?
   - ❑ No
   - ❑ Yes—5a. Were there specific characteristics associated with children who were asked if they wanted more to eat?
     - ❑ No
     - ❑ Yes [specify: _____]

5b. Did teachers ask if children wanted more of particular foods?
   - ❑ No
   - ❑ Yes [specify: _____]

IV. FEEDING BEHAVIORS

6. Did teachers restrict children's intake of any food?
   - ❑ No
   - ❑ Yes—Specify:
     - ❑ Water
     - ❑ Juice
     - ❑ Milk
     - ❑ Protein
     - ❑ Fruits
     - ❑ Vegetables
     - ❑ Grains
     - ❑ Sweets/junk food
     - ❑ Condiments/spreads
     - ❑ Other: _____
7. Did teachers assist children with eating (i.e., encouraging distracted children to settle down and eat, helping children gauge their fullness level)
   - ❑ No
   - ❑ Yes
8. Did staff members consume some of the same foods as the children?
   - ❑ No
   - ❑ Yes
9. Did staff members consume less healthy foods in view of children?
   - ❑ No
   - ❑ Yes—9a. When was this observed?
     - ❑ Mealtime
     - ❑ Outside of mealtime

     9b. How many staff members were observed? _____

     9c. What food was consumed? _____
10. Did staff members consume food in branded packaging in view of children?
    - ❑ No
    - ❑ Yes—10a. When was this observed?
      - ❑ Mealtime
      - ❑ Outside of mealtime

      10b. How many staff members? _____

      10c. What brand was consumed? _____

V. STAFF COMMENTS—RECORD FOOD- OR EATING-RELATED COMMENTS MADE TO CHILDREN BY CAREGIVERS

Staff comments related to eating	To whom?	Reason for comment
	☐ Girls ☐ Boys ☐ Overweight ☐ Race/ethnicity ☐ White ☐ Black ☐ Latino ☐ Asian ☐ Other ☐ Group of children or all children	☐ Encouraging to eat—general ☐ Encourage to try new food ☐ Encourage to try fruit/vegetable ☐ Encourage to try unhealthy food ☐ Helping children gauge hunger level ☐ Specifying portion sizes ☐ Pushing /forcing children to eat more than they wanted ☐ Dissuading children from eating more ☐ Telling child s/he had to eat certain food before being allowed to eat something else ☐ Modeling positive thinking about trying healthy foods ☐ Comparing children's behavior ☐ Teaching social/motor skills related to eating (using fork, pouring, conversing) ☐ Other:
	☐ Girls ☐ Boys ☐ Overweight ☐ Race/ethnicity ☐ White ☐ Black ☐ Latino ☐ Asian ☐ Other ☐ Group of children or all children	☐ Encouraging to eat—general ☐ Encourage to try new food ☐ Encourage to try fruit/vegetable ☐ Encourage to try unhealthy food ☐ Helping children gauge hunger level ☐ Specifying portion sizes ☐ Pushing /forcing children to eat more than they wanted ☐ Dissuading children from eating more ☐ Telling child s/he had to eat certain food before being allowed to eat something else ☐ Modeling positive thinking about trying healthy foods ☐ Comparing children's behavior ☐ Teaching social/motor skills related to eating (using fork, pouring, conversing) ☐ Other:
	☐ Girls ☐ Boys ☐ Overweight ☐ Race/ethnicity ☐ White ☐ Black ☐ Latino ☐ Asian ☐ Other ☐ Group of children or all children	☐ Encouraging to eat—general ☐ Encourage to try new food ☐ Encourage to try fruit/vegetable ☐ Encourage to try unhealthy food ☐ Helping children gauge hunger level ☐ Specifying portion sizes ☐ Pushing /forcing children to eat more than they wanted ☐ Dissuading children from eating more ☐ Telling child s/he had to eat certain food before being allowed to eat something else ☐ Modeling positive thinking about trying healthy foods ☐ Comparing children's behavior ☐ Teaching social/motor skills related to eating (using fork, pouring, conversing) ☐ Other:
	☐ Girls ☐ Boys ☐ Overweight ☐ Race/ethnicity ☐ White ☐ Black ☐ Latino ☐ Asian ☐ Other ☐ Group of children or all children	☐ Encouraging to eat—general ☐ Encourage to try new food ☐ Encourage to try fruit/vegetable ☐ Encourage to try unhealthy food ☐ Helping children gauge hunger level ☐ Specifying portion sizes ☐ Pushing /forcing children to eat more than they wanted ☐ Dissuading children from eating more ☐ Telling child s/he had to eat certain food before being allowed to eat something else ☐ Modeling positive thinking about trying healthy foods ☐ Comparing children's behavior ☐ Teaching social/motor skills related to eating (using fork, pouring, conversing) ☐ Other:

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	❑ Girls ❑ Boys ❑ Overweight ❑ Race/ethnicity ❑ White ❑ Black ❑ Latino ❑ Asian ❑ Other ❑ Group of children or all children	❑ Encouraging to eat—general ❑ Encourage to try new food ❑ Encourage to try fruit/vegetable ❑ Encourage to try unhealthy food ❑ Helping children gauge hunger level ❑ Specifying portion sizes ❑ Pushing /forcing children to eat more than they wanted ❑ Dissuading children from eating more ❑ Telling child s/he had to eat certain food before being allowed to eat something else ❑ Modeling positive thinking about trying healthy foods ❑ Comparing children's behavior ❑ Teaching social/motor skills related to eating (using fork, pouring, conversing) ❑ Other:
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	❑ Girls ❑ Boys ❑ Overweight ❑ Race/ethnicity ❑ White ❑ Black ❑ Latino ❑ Asian ❑ Other ❑ Group of children or all children	❑ Encouraging to eat—general ❑ Encourage to try new food ❑ Encourage to try fruit/vegetable ❑ Encourage to try unhealthy food ❑ Helping children gauge hunger level ❑ Specifying portion sizes ❑ Pushing /forcing children to eat more than they wanted ❑ Dissuading children from eating more ❑ Telling child s/he had to eat certain food before being allowed to eat something else ❑ Modeling positive thinking about trying healthy foods ❑ Comparing children's behavior ❑ Teaching social/motor skills related to eating (using fork, pouring, conversing) ❑ Other:

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	❑ Girls ❑ Boys ❑ Overweight ❑ Race/ethnicity ❑ White ❑ Black ❑ Latino ❑ Asian ❑ Other ❑ Group of children or all children	❑ Encouraging to eat—general ❑ Encourage to try new food ❑ Encourage to try fruit/vegetable ❑ Encourage to try unhealthy food ❑ Helping children gauge hunger level ❑ Specifying portion sizes ❑ Pushing /forcing children to eat more than they wanted ❑ Dissuading children from eating more ❑ Telling child s/he had to eat certain food before being allowed to eat something else ❑ Modeling positive thinking about trying healthy foods ❑ Comparing children's behavior ❑ Teaching social/motor skills related to eating (using fork, pouring, conversing) ❑ Other:
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Did you witness any staff members using food as a behavioral contingency? Describe below:

IF FEASIBLE, ask center director or lead teacher to show what foods/brands the center has in the kitchen or cupboards. Emphasize that this is to get more precise data on nutritional content and will also help us find more cost-effective ways for them to obtain healthy foods. List brands here:

Note the following about all visible foods:

- **Brand**
- **Characteristics** (e.g., whole grain vs. white, sweetened vs. unsweetened, 100% juice, low-fat cheese, % fat milk, organic)
  - If a pre-packed mixed dish (e.g., frozen pizza) is served for a meal and the brand is uncommon, write down the information on the nutrition facts panel
  - If a grain product is questionably whole grain, check the ingredient list.
- **Approximate size** of food containers
  - For most items, mark "regular" (for typical sizes you see at the grocery store)," "large" (for family or bulk size containers), or "individual" (for individual portions of foods sold together, like yogurt cups or pudding cups). If you are unsure about size, write more detailed information.
  - For milk, write the exact size of the container

Foods stored at room temperature (e.g., canned, boxed, jarred)	Foods in the refrigerator or freezer	Fresh produce

Appendix D – Physical Activity Observation Tool

YALE RUDD CENTER
FOR FOOD POLICY & OBESITY

Physical Activity Observation Tool

Center ID: _____ Time of observation: _____ to _____

Date of observation: _____ Actual duration of outdoor time if different (ask teacher) _____

Name of observer: _____

I. PLAY TIME

1. **Location of physical activity**
   - ❑ Outdoor . . . . Times per day: _____
   - ❑ Indoor . . . . . Times per day: _____

   1a. If not outdoor, what is the reason?
   - ❑ No safe outdoor play space at the center
   - ❑ Space is too small for outdoor play
   - ❑ Inclement weather or too hot or cold
   - ❑ Don't know

2. **Number of staff present during physical activity time (baseline)** _____
3. **Number of children present during physical activity time (baseline)** _____
4. **Number of overweight children:** _____
5. **Was drinking water available (if outdoor play not observed, answer the question by asking or looking outdoors)?**
   - ❑ No
   - ❑ Yes
6. **Did staff members prompt children to drink water?**
   - ❑ No
   - ❑ Yes
7. **Structured, teacher-led physical activity***

Type of structured activity provided by staff (e.g., tag, race, Simon Says)	Total mins observed	Optional? Y/N	# children involved	If participating children different than non-participants, specify

[*note: *Structured physical activity is set up by an adult caregiver. Adult may participate for the duration, or set up the activity/activities and then monitor. Examples might include things like setting up a game of tag, a ball game, or a "dance with me" activity to music.*]

8. **Types of physical activity observed: Record the number of children you see actually engaging in each type of activity at the beginning of the observation and then for the time intervals afterwards.**

[Procedures: One observer will have a stopwatch timed to go off every 5 minutes. If other observers are too far away to hear the stopwatch, the keeper of the stopwatch should signal the other observers every 5 minutes, at which point all observers should take no more than 5 seconds to visually assess the number of children engaging in first, vigorous activity, second, moderate activity, third, some movement, and lastly, sedentary activity.]

Types of physical activity observed	Baseline	5 min	10 min	15 min	20 min	25 min	30 min	35 min	40 min	45 min
a. Vigorous activities: bicycling, running, skipping, jumping rope										
b. Moderate activities: climbing, throwing, hula hoop, walking, dancing										
c. Some movement: digging, playing house, stacking										
d. Sedentary activities: sitting, lying down										

I. PLAY TIME continued

9. **Did you see any children being sedentary or only engaging in limited movement for the majority of the observation?**
   - ❑ No
   - ❑ Yes . . . . . IF YES, how many?_____
10. **Were any activities not allowed on the playground? If so, which?**
   - ❑ All activities allowed
   - ❑ Running
   - ❑ Climbing
   - ❑ Jumping
   - ❑ Other: _____

II. PLAY EQUIPMENT

1. **What types of play equipment did you see and in what condition were the items?**

Type of equipment	**0.** Not Present **1.** Present, poor condition **2.** Present, good condition	**0.** Not Present **1.** Fixed **2.** Portable
a. Balancing surfaces		
b. Balls		
c. Basketball hoop		
d. Blocks/puzzle table		
e. Climbing structures		
f. House/kitchen		
g. Jumping equipment (jump ropes, hula hoops)		
h. Merry-go-round		
i. Parachute		
j. Pool		
k. Push/pull toys (wagons, scooters)		
l. Riding toys (bikes, tricycles)		
m. Rocking and twisting toys (rocking horses or a "sit and spin")		
n. Sand/water toys		
o. Sandbox		
p. See-saw		
q. Slides		
r. Stacking structures		
s. Swing set		
t. Tricycle track		
u. Twirling equipment (scarves, batons with ribbons)		
v. Tunnels		
w. Other:		

2. **Did children wait in line to use any equipment or toys?**
   - ❑ No
   - ❑ Yes

III. OUTDOOR SPACE

1. **Running space was:**
   - ❑ Completely obstructed because play space was full of play equipment
   - ❑ Some obstruction, but adequate for individual play (skipping), small games, or limited running (chasing, running from activity to activity)
   - ❑ Unobstructed, with plenty of space for group games (tag, soccer)
2. **Was the playground unsafe in such a way that it was a barrier to physical activity?**
   - ❑ No
   - ❑ Yes . . . . IF YES, note which areas had safety concerns interfering with PA. Mark all that apply:
     - ❑ Surfacing material under climbing structure not safe
     - ❑ Surfacing material under swings not safe
     - ❑ Surface of open spaces not safe for running/jumping/climbing
     - ❑ Playground structures too close together
     - ❑ Playground structure in disrepair and not safe for use
     - ❑ Other: ____

IV. STAFF BEHAVIORS

1. **Did you observe staff restricting active play as a punishment (not as a safety issue)?**
   - ❑ No
   - ❑ Yes . . . . IF YES, how many times?_______
2. **Apart from initiating structured PA, did staff join in during active play (either after initiating structured PA or during unstructured play)?**
   - ❑ No
   - ❑ Yes, during vigorous activity . . . . 2a. How many staff? ____ out of ____
   - ❑ Yes, during moderate/sedentary activity . . . . 2b. How many staff? ____ out of ____
3. **Did staff provide formal physical education lessons?**
   - ❑ No
   - ❑ Yes
4. **Staff comments or actions that promote or inhibit physical activity**

Staff physical activity comments or actions	Motivation of comment or action—choose 1	# kids	To whom—Gender	To whom—Weight	To whom—Race
	0Safety or rules 1Positive statement 2Instruction 3Increase PA 4Decrease PA 5Discipline		0Boys 1Girls 2Both	0Underweight/ Normal weight 1Overweight 2Both	0White 1Black 2Latino 3Asian 4Other 5Mix
	0Safety or rules 1Positive statement 2Instruction 3Increase PA 4Decrease PA 5Discipline		0Boys 1Girls 2Both	0Underweight/ Normal weight 1Overweight 2Both	0White 1Black 2Latino 3Asian 4Other 5Mix
	0Safety or rules 1Positive statement 2Instruction 3Increase PA 4Decrease PA 5Discipline		0Boys 1Girls 2Both	0Underweight/ Normal weight 1Overweight 2Both	0White 1Black 2Latino 3Asian 4Other 5Mix
	0Safety or rules 1Positive statement 2Instruction 3Increase PA 4Decrease PA 5Discipline		0Boys 1Girls 2Both	0Underweight/ Normal weight 1Overweight 2Both	0White 1Black 2Latino 3Asian 4Other 5Mix
	0Safety or rules 1Positive statement 2Instruction 3Increase PA 4Decrease PA 5Discipline		0Boys 1Girls 2Both	0Underweight/ Normal weight 1Overweight 2Both	0White 1Black 2Latino 3Asian 4Other 5Mix

IV. STAFF BEHAVIORS continued

4. Staff comments or actions that promote or inhibit physical activity continued

Staff physical activity comments or actions	Motivation of comment or action—choose 1	# kids	To whom—Gender	To whom—Weight	To whom—Race
	0 Safety or rules 1 Positive statement 2 Instruction 3 Increase PA 4 Decrease PA 5 Discipline		0 Boys 1 Girls 2 Both	0 Underweight/ Normal weight 1 Overweight 2 Both	0 White 1 Black 2 Latino 3 Asian 4 Other 5 Mix
	0 Safety or rules 1 Positive statement 2 Instruction 3 Increase PA 4 Decrease PA 5 Discipline		0 Boys 1 Girls 2 Both	0 Underweight/ Normal weight 1 Overweight 2 Both	0 White 1 Black 2 Latino 3 Asian 4 Other 5 Mix
	0 Safety or rules 1 Positive statement 2 Instruction 3 Increase PA 4 Decrease PA 5 Discipline		0 Boys 1 Girls 2 Both	0 Underweight/ Normal weight 1 Overweight 2 Both	0 White 1 Black 2 Latino 3 Asian 4 Other 5 Mix
	0 Safety or rules 1 Positive statement 2 Instruction 3 Increase PA 4 Decrease PA 5 Discipline		0 Boys 1 Girls 2 Both	0 Underweight/ Normal weight 1 Overweight 2 Both	0 White 1 Black 2 Latino 3 Asian 4 Other 5 Mix
	0 Safety or rules 1 Positive statement 2 Instruction 3 Increase PA 4 Decrease PA 5 Discipline		0 Boys 1 Girls 2 Both	0 Underweight/ Normal weight 1 Overweight 2 Both	0 White 1 Black 2 Latino 3 Asian 4 Other 5 Mix
	0 Safety or rules 1 Positive statement 2 Instruction 3 Increase PA 4 Decrease PA 5 Discipline		0 Boys 1 Girls 2 Both	0 Underweight/ Normal weight 1 Overweight 2 Both	0 White 1 Black 2 Latino 3 Asian 4 Other 5 Mix
	0 Safety or rules 1 Positive statement 2 Instruction 3 Increase PA 4 Decrease PA 5 Discipline		0 Boys 1 Girls 2 Both	0 Underweight/ Normal weight 1 Overweight 2 Both	0 White 1 Black 2 Latino 3 Asian 4 Other 5 Mix
	0 Safety or rules 1 Positive statement 2 Instruction 3 Increase PA 4 Decrease PA 5 Discipline		0 Boys 1 Girls 2 Both	0 Underweight/ Normal weight 1 Overweight 2 Both	0 White 1 Black 2 Latino 3 Asian 4 Other 5 Mix
	0 Safety or rules 1 Positive statement 2 Instruction 3 Increase PA 4 Decrease PA 5 Discipline		0 Boys 1 Girls 2 Both	0 Underweight/ Normal weight 1 Overweight 2 Both	0 White 1 Black 2 Latino 3 Asian 4 Other 5 Mix
	0 Safety or rules 1 Positive statement 2 Instruction 3 Increase PA 4 Decrease PA 5 Discipline		0 Boys 1 Girls 2 Both	0 Underweight/ Normal weight 1 Overweight 2 Both	0 White 1 Black 2 Latino 3 Asian 4 Other 5 Mix

Appendix E – Key Informant Interview Guide

Child Care Educator Interview Guide

1. How long have you been working at this child care centre?
    a. What is your role here?
2. Have you heard about the Alberta Nutrition Guidelines for Children and Youth?
    a. How did you first hear about the guidelines?
    b. The ANGCY sets out four action recommendations for child care centres. Have you heard of these, and which of any do you agree with?
3. What does healthy eating mean to you?
    a. Can you explain what you mean by that?
4. How do you represent healthy eating to the children?
    a. Do you eat the same food that is served to the children?
        i. Do you believe that it is important to eat the same food that is served to the children?
    b. Do you bring your own lunch and snacks from home?
        i. If yes, how often do you bring your own lunch/snacks from home? Why do you do that?
        ii. Do you eat your own lunch/snacks in front of the children?
    c. Do you sit with the children during mealtime?
        i. Why or why not?
        ii. Do you believe that sitting and eating with the children during mealtime is important?
            1. Why or why not?
5. What do you think your role is in promoting healthy eating to children?
    a. During mealtime, do you talk with the children about what they are eating?
    b. What are some things that you do to promote healthy eating with children at mealtime?
6. During mealtime, do you ask the children if they would like more to eat?
    a. Do you ask the children if they would like more of a particular food to eat?

    b. If a child tells you they are full, do you remove their plate without hesitation?
    c. If a child tells you they are full, but have eaten less than half of their meal, do you remove the plate or help determine if that child is full?
7. If a child asks for more food, do you allow that child to have more of any type of food being served, or of particular foods?
    a. Why or why not?
    b. What foods are they allowed seconds of and what foods are restricted? Why those particular foods?
8. Does your child care centre serve fruit or vegetables with every meal?
    a. If a child is not eating their fruit or vegetable, what course of action do you take?
    b. If a child is hesitant to trying new fruits and vegetables, how do you respond?
    c. What do you do to encourage children to eat fruits and vegetables?
    d. Do you eat fruits and vegetables in front of the children?
9. If serving a food that is new or less liked by the children, do you encourage the children to try the food?
10. What do you define physical activity to be for children?
    a. What do you define as moderate to vigorous physical activity, or energetic play, to be for children?
11. Do you feel the children in this child care centre receive enough physical activity?
    a. What types of physical activity do the children participate in?
    b. Do you encourage physical activity when the children are both inside the facility and outside the facility?
    c. How do you encourage children to participate in physical activity when they are hesitant or would rather partake in more sedentary behaviour?
12. Do you participate in physical activity with the children?
13. Do you lead the physical activity the children are engaged in?
    a. If so, how often?
    b. How confident are you in leading the children in physical activity?
    c. Is there anything that you feel would increase your confidence in leading children in physical activity?
14. Do the children have designated time to use a computer, watch television or movies?

a. If so, how often are the children able to access these devices?
b. When the children have access to these devices, do they have time restrictions?

15. Are you aware that there are physical activity and sedentary behaviour guidelines for children?