

CEASE TO BE OBESE: A CONTENT ANALYSIS OF HEALTHY LIVING THEMES  
IN TWO POPULAR CHILDREN'S BOOK SERIES

A Thesis

by

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## ABSTRACT

Childhood obesity has been a prevalent issue over the decades, that can occur as a result of genetic and non-genetic factors. Because of advancements in technology over the years, many Americans have strayed away from living traditional lifestyles that embed a healthy diet and physical activity into their every day lives.

In the past, a few studies have examined the effect books have on preschool aged children's behavior toward healthy food because it is at this age children begin to develop attitudes toward food. However, these studies only focused on the frequency of healthy food depictions and messages in books provided by reading lists, libraries, physician's offices, and best seller list to name a few.

This study focuses on healthy food as well as the depictions and messages in preschool children's books encouraging healthy living. Additionally this study compares two book series tied to popular television shows, one contemporary and one long-standing.

The findings revealed that although each series incorporated sub-themes regarding healthy living into the text and illustrations, the frequency of these sub-themes were heavily outweighed by other sub-themes not concerning healthy living. Furthermore, verbal and imagery codes for healthy living sub-themes were not combined as often as anticipated. Additionally, the long-standing series was revealed to be the more health conscious series of the two because of the large amount of background depictions of healthy food.

I concluded that the deficit in sub-themes concerning healthy living exists because neither series purpose was to educate children on health education. This conclusion also explains why there were not as many combinations of verbal and imagery codes regarding healthy living as anticipated.

From the literature it is apparent any type of media can have an effect on children's behavior. However, to better understand how books affect children's behavior toward healthy living, more research involving children must be done. The findings of the study also revealed that there is a lot more work to be done by agricultural communicators to decrease and hopefully end childhood obesity.

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## CHAPTER I

### INTRODUCTION

The prevalence of childhood obesity has increased throughout the past decades (Gurnani, Biken, & Hamilton, 2015). As of 2016, 25 percent of children in the U.S. are overweight and 11 percent are obese (Saleem, 2016). Han, Lawlor and Kimm (2010) believe the reason behind this prevalent issue is because of America's technologically dependent and consumerist society that has caused individuals to stray away from "traditional lifestyles with substantial embedded physical activity" (p. 1737). Although the rate of obesity in adults exceeds the rate of obesity in children, more than half of obese adolescents are likely to remain obese well into adulthood (Saleem, 2016).

#### **What is Obesity?**

Obesity is determined by an individual's body mass index (BMI), which is calculated by dividing the individual's weight in kilograms by the square height in meters (Overweight & Obesity, 2015). According to the Center for Disease and Control Prevention (CDC), there is a difference in being overweight and being obese. For children and teens of the same age and sex, an overweight individual would have a BMI at or above the 85<sup>th</sup> percentile and below the 95<sup>th</sup> percentile (Overweight & Obesity, 2015) and obese children and teens of the same age and sex would have a BMI at or above the 95<sup>th</sup> percentile (Overweight & Obesity, 2015).

According to the National Institute of Food and Agriculture, childhood obesity rates have tripled in the past 30 years and almost half of the U.S. will be obese 15 years from now (Obesity, n.d.). Action for Healthy Kids, a program using schools as the

foundation to end childhood obesity, was created as result of David Satcher, the 16th U.S. Surgeon General's public call to action (What We Do, 2015). The facilitators of Action For Healthy Kids have been shedding light on the childhood obesity crisis since 2002 (About Us, 2015). The continuous spotlight on this crisis has made childhood obesity a top priority for health professionals, school systems, and government leaders, such as the First Lady.

First Lady Michelle Obama launched a healthy initiative to combat obesity called Lets' Move (About Let's Move, n.d.). The program uses parents to reach children in their early years and is designed to put them on the path to a healthy future. Through Let's Move, parents are provided with tips and information on healthy food choices and environments (About Let's Move, n.d.). Let's Move also works to provide healthier food in schools, ensure healthy affordable food is readily accessible to every family, and help children become more physically active (About Let's Move, n.d.).

In addition to the Let's Move (2016) healthy initiative, the United States Department of Agriculture's National Institute of Food and Agriculture (USDA NIFA) has four initiatives to combat obesity. The initiatives are to a) help parents foster environments that support healthy choices for preschool children, b) provide teenagers with the guidance and information they need to learn healthier eating habits, c) conduct research to discover the mechanisms of metabolic disorders that contribute to obesity, and d) study the prevalence of trends in rural and urban communities (Obesity, n.d.). Investigating the causes of childhood obesity and finding effective solutions to combat

childhood obesity are two of NIFA's key missions and are priorities of the USDA (Obesity, n.d.).

### **Criteria for Healthy Lifestyle of a Preschooler**

To combat childhood obesity, it is not enough to solely tell children and parents what they should not do. Parents and guardians should be educated on their children's health and should educate their children on how to maintain good health. Parents can obtain information from entities such as MyPlate, the Child and Adult Care Food Program and the Institute of Medicine. These organizations provided recommendations and best practice guidelines for a healthy preschooler. Because this study focused on the preschool age group, recommendations and guidelines from these organizations were used to define the healthy lifestyle of a preschooler.

MyPlate (2016) is an easy-to-follow food guide created by the USDA "to help parents figure out how to feed their kids nutritious, balanced meals" (MyPlate Food Guide, 2016). MyPlate provides users with an icon depicting how much of each food group should be present on a child's plate during mealtime. For example, half the plate should be filled with fruits and vegetables (there should be more vegetables than fruits), and the other half of the plate should be filled with proteins and grains. Additionally, dairy should accompany each meal. My Plate uses the most current *Dietary Guidelines for Americans* to help users build a healthy eating style by providing tips and guidelines specific for all age groups.

For the preschool age group, MyPlate (2016) provides a list of the food groups and types of foods within these food groups that parents should incorporate into their

child's diet. Food groups include fruits, vegetables, grains, protein, and dairy.

Preschoolers should eat a variety of whole fruits (MyPlate Food Guide, 2016). Furthermore, fruit juice intake should be very limited and beverages should be 100% fruit juice (MyPlate Food Guide, 2016). In addition to fruits, red, orange and green vegetables should be incorporated into meals and snacks and at least half of all grains consumed should be whole grains (MyPlate Food Guide, 2016). Additionally, seafood, meat and poultry should be consumed in small portions for protein, and for calcium low-fat milk, yogurt, and cheese should be provided (MyPlate Food Guide, 2016).

The facilitators of MyPlate encourage children of the preschool age to drink plenty of water and limit the intake of fruit juice and sugary drinks (MyPlate Food Guide, 2016). They also advise parents to monitor the amount of saturated fats and foods in their children's diets. Before using the checklist, parents or guardians must first know the calorie level for their children. Once the calorie level is known, parents using MyPlate can create a personalized daily checklist, indicating the estimated daily physical activity and food group amounts for children based on their age, sex, height, weight and physical activity level (MyPlate Daily Checklist, 2016). For example, a child two to three years old who fits into the 1,000 calories a day group should consume one cup of fruits, one cup of vegetables, three ounces of grains, two ounces of protein, and two cups of dairy each meal (MyPlate Daily Checklist, 2016). A child in the same age range who fits into the 1,200 calories a day group would be expected to consume one cup of fruits, one and a half cups of vegetables, four ounces of grains, three ounces of protein and two and a half cups of dairy in each meal (MyPlate Daily Checklist, 2016). The table starts at

age two and ends at age 14+, so virtually anyone can benefit from the daily checklist. Although the MyPlate daily checklist indicates estimated daily physical activity for each age group the suggestions were rather vague for the two to five year old age group.

Compared to MyPlate, the Child and Adult Care Food Program also receives their nutritional guidelines from the most current edition of the *Dietary Guidelines for Americans* (Child and Adult Care Food Program, 2016). However, in 2011, the Institute of Medicine provided recommendations for changes in the Child and Adult Food Program meal requirements (Murphy, Yaktine, Sutor, & Moats, 2011) that were somewhat similar but slightly more detailed than MyPlate's guidelines.. The recommendations for the preschool age group are as follows: each lunch and dinner meal should consist of one fruit and two different vegetables. A variety of red, green, orange, and other vegetables as well as legumes should be served over the course a 5-day week. However, starchy vegetables such as corn should only be served twice per week. Additionally, whole fruits should be cut into bite sized pieces and served at most meals. One hundred percent fruit juice should be served once per day and should be the appropriate serving size for the age group's needs. Furthermore, half of the grains provided during meals and snacks should be whole grains and the other half should be enriched. Also, solid fats, added sugars, trans fats and sodium should be limited in each meal and snack. Lastly, only lean meats should be consumed and dairy products should be low fat or non-fat for children two years or older (Murphy, Yaktine, Sutor, & Moats, 2011).

In addition to eliminating foods and beverages high in fat and sugar from the

diet, children should be physically active everyday. After examining the MyPlate guidelines and other government run websites, such as the Center for Disease Control and Prevention, the recommendations pertaining to physical activity were vague. However, physical activity recommendations and guidelines have been created using observational studies of preschoolers in various child-care settings.

Because a large number of U.S. children attend non-parental childcare at the preschool age (U.S. Department of Education National Center for Education Statistics, 2006), childcare settings have commonly been used to monitor young children's physical activity levels. In 2002, the National Association for Sport and Physical Education created the first physical activity guidelines for preschool aged children (McWilliams et al., 2009). According to the guidelines, young children should partake in at least 60 minutes of unstructured (free play) activities and 60 minutes of structured (adult-led) activities daily. The 2002 National Association for Sport and Physical Education guidelines provided no recommendations for outdoor physical activity. However, the updated 2009 guidelines recommended children have access to both indoor and outdoor areas to perform large muscle activities (Active Start, 2016).

In addition to the National Association for Sport and Physical Education's guidelines for children's physical activity levels, another set of guidelines was also created. These guidelines were based on information provided by Ammerman et al., (2007) regarding the theory and design of the Nutrition and Physical Activity Self-assessment for Child Care (McWilliams et al., 2009) and were called the Nutrition and Physical Activity Self-assessment for Child Care best practice guidelines. The Nutrition

and Physical Activity Self-assessment for Child Care was created for childcare settings to “improve nutrition and physical activity policies and practices” (Ammerman et al., 2007, p. 143). The guidelines for the Nutrition and Physical Activity Self-assessment for Child Care was created using recommendations and standards of respected organizations such as the National Association for Sport and Physical Education, research evidence and feedback from expert panels.

As mentioned previously, the physical activity recommendations from the authoritative organizations were indistinct (Ammerman et al., 2007). Therefore, the Nutrition and Physical Activity Self-assessment for Child Care guidelines emphasized areas where unclear or no recommendations were given (Ammerman et al., 2007). Similar to the National Association for Sport and Physical Education, the Nutrition and Physical Activity Self-assessment for Child Care guidelines recommended children partake in 120 minutes of active play throughout a full day to better “develop their motor skills, expend energy, improve fitness and develop important social/ behavioral skills and still be within a center’s ability to provide this amount of time in its schedule” (McWilliams et al., 2009, p. 1655). Additionally, children should be educated on physical activity at least one time a week to increase participation and knowledge of physical activity.

Along with the recommendations regarding the amount time children should spend being physically active, the Nutrition and Physical Activity Self-assessment for Child Care guidelines recommended caregivers avoid allowing children to sit continuously for more than 30 minutes (McWilliams et al., 2009). However, the

National Association for Sport and Physical Education 2009 guidelines recommend children not partake in sedentary activities for more than 60 minutes a day (Active Start, 2016). Additionally, the Nutrition and Physical Activity Self-assessment for Child Care guidelines also advise caregivers to severely limit or eliminate television use (McWilliams et al., 2009).

A great way to limit television use is to engage in physical activity with the children. Because interactions with caregivers can promote or discourage physical activity, staff in childcare centers are recommended to join children in active play and encourage children to be physically active (McWilliams, 2009). In addition to caregivers encouraging physical activity, The Nutrition and Physical Activity Self-assessment for Child Care guidelines recommended children have a large variety of portable equipment available to use at the same time as well as unlimited access to the equipment during playtime. The use of portable equipment (balls, jump ropes, and hula hoops) rather than fixed equipment (jungle gym) encourages greater amounts of physical activity (Bower et al., 2008; Dowda et al., 2009). Although this information was gathered to enhance physical activity levels of children in childcare, parents or guardians of children who are not in childcare can also follow the recommendations.

Many factors contribute to childhood obesity but many avenues can be taken to prevent and decrease childhood obesity. However, one sole entity cannot eliminate the problem. If parents, government, media, and childcare establishments can work to ensure the health of young children separately as well as together, it might help decrease childhood obesity in America.



## CHAPTER II

### LITERATURE REVIEW

Contrary to popular belief, childhood obesity does not develop solely from excessively eating. Many factors are associated with childhood obesity, factors such as, genetics and poor dietary habits that come from lack of exercise and the consumption of unhealthy food. In addition to these factors, childhood obesity can also be linked to commercial advertising, prolonged television exposure, parental support or lack thereof, and financially strained families (Ebbeling et al., 2002).

According to Han, Lawlor and Kimm (2010), “obesity is a complex disorder affected by interacting genetic and non-genetic factors” (p. 1737). Children can have a mutation in their genes as result of consanguineous (“blood”) parents (Montague et al., 1997). When a child is conceived, a mutation can occur in the encoding of leptin, causing leptin deficiency (Montague et al., 1997). Leptin is an “adipocyte-specific secreted protein, which has profound effects on appetite and energy expenditure” (Montague et al., 1997, p. 903).

Additionally, candidate alleles (Le Stunff, Fallin, & Bougnères, 2001), single gene defects (Farooqi & O'Rahilly, 2000), and over nutrition as well as under nutrition of the mother during pregnancy have been found to contribute to childhood obesity (Montague et al., 1997). A candidate allele, or candidate gene, is a gene that has the ability to cause a disease, but does not always cause a disease (Candidate Gene, 2016). Furthermore, a single gene defect, or disorder, is a gene that will cause a disease (Single Gene Disorders, n.d.).

Over nutrition can increase the transfer of nutrients across the placenta, causing permanent changes in appetite, neuroendocrine functioning, or energy metabolism (Whitaker & Dietz, 1998). Under nutrition can produce irreversible physiological changes in the fetus that result in obesity (Ravelli, Stein, & Susser, 1976). Also, bottle-feeding in place of breast-feeding has been found to increase the risk of childhood obesity (Gillman et al., 2001; Von Kries et al., 1999).

Aside from genetics, children's diet and physical activity can determine if they are at risk for becoming obese. When children consume excessive amounts of food containing high glycemic indexes and large amounts of fat, they are likely to gain weight because the food is energy dense (Jéquier, 2001). Energy dense foods can mostly be found in fast food restaurants. Fast food meals are typically large in portion size, have high glycemic indexes, high energy density and contain saturated fat and trans-fat (Ebbeling et al., 2002). Consuming foods with high glycemic indexes, such as soft drinks, breads, cakes, and potatoes, increases a child's risk of obesity because these foods tap into the child's hormones, which induce hunger and cause children to overindulge (Cavadini, Siega-Riz, & Popkin, 2000; Subar, Krebs-Smith, Cook, & Kahle, 1998; Troiano, Briefel, Carroll, & Bialostosky, 2000).

Research has shown the more television children consume, the more likely they are to gain excess weight (Rey-Lopez, Vicente-Rodriguez, Biosca, & Moreno, 2008; Boone, Gordon-Larsen, Adair, & Popkin, 2007; Henderson, 2007; O'Brien et al., 2007; Danner, 2007). According to Hernández et al. (1999), an hour of television watching increases the risk of childhood obesity more than an hour of moderate to vigorous

activity will decrease the risk. Moreover, Ebbeling et al. (2002) found television watching is usually done while children mindlessly consume large amounts of energy dense foods. Therefore, it can be concluded that children who live a primarily sedentary lifestyle, excessively consuming media that discourages physical activity, are more likely to become obese than those who do not (Ebbeling et al., 2002).

Commercial advertising targeted at children during their mindless consumption of unhealthy foods makes it increasingly difficult to combat childhood obesity because the food industry uses excessive amounts of money to promote nutrient poor foods via television advertisements (Nestle, 2002). According to Boyland and Halford (2013) children “have both independent spending power (current and future) and a significant influence over family spending” (p. 235), making them major marketing targets by the food industry. A number of studies have also confirmed a link between how much television-advertising children are exposed to and their choosing to consume nutrient poor foods (Lobstein & Dobb, 2005; Scully, Dixon, & Wakefield, 2009; Scully et al., 2012). Therefore, parents and guardians should try their best to monitor what their children watch and the amount of time their children spend watching television, or remove the television from the child’s area to decrease the chance of them being exposed to child-targeted advertisements (Healthy Habits for TV, Video Games, and the Internet, 2016).

Just as television advertisements are negatively linked to physical activity, parental support is positively linked to a child’s participation in physical activities (Sallis, Prochaska, & Taylor, 2000). Research by Golan and Crow (2004) emphasized

the importance of parents taking active roles in their children's health while they are still young. In their study, children were split into two groups. Group one consisted of children whose parents completed one-hour group sessions on health-related topics regarding nutrition education, behavior, decreasing stimulus exposure, the limits of responsibility, and the modification of eating and activity (Golan & Crow, 2004). Group two consisted of children who were prescribed a 1,500 kcal/d diet and participated in group sessions regarding the same topics, but these children's parents did not participate in the study. The findings revealed children in group one (group with parents) reduced their overweight percentage more than children in group two (group without parents; Golan and Crow, 2004). Because the parents in group one took part in the group sessions, they were able to learn about their children's health and apply the necessary changes to their children's lives.

In a similar study examining the influence of parental involvement in the development of a health education program, Marzuki and Rahman (2015) found significant differences between the group with parental involvement and the group without parental involvement. During the eight-month health educational program, children partook in five to 10 minutes of health education, followed by 30 to 45 minutes of aerobic activity ending with a cool down (Marzuki & Rahman, 2015). Parents in the parental involvement group had access to the content of the program via Facebook, received teaching and learning notes similar to what the children were given in school, and were required to report on their children's diet and physical activity during their time away from school (Marzuki & Rahman, 2015).

In Marzuki and Rahman's (2015) study, the number of children on a balanced and healthy diet increased in both groups. The number of children whose parents were involved in the study increased by 55.9% and the number of children whose parents were not involved in the study only increased by 13.3% (Marzuki & Rahman, 2015). Likewise, the number of children performing physical activities in groups with parental involvement increased by 58% while the number of children in groups without parental involvement only increased by 11.8% (Marzuki & Rahman, 2015).

In a 2003 study on parenting style and fruit consumption, Kremers, Brug, de Vries, and Engels found a connection between parenting styles and children's willingness to consume fruits. Children whose parents used an authoritative (highly involved and strict) parenting style ate more fruit than children raised with other parenting styles and those children (children with authoritative parents) had better attitudes toward eating fruit. In contrast, Kremers et al. (2003) found children who came from homes with authoritarian (less involved but highly strict) or neglectful (less involvement and less strict) parenting styles ate less fruit and had less positive attitudes toward eating fruit than children of authoritative parents. Arredondo et al.'s (2006) randomized community intervention trial designed to apply and assess an environmentally centered intervention study for Latino children (kindergarten to second grade) and their families' yielded similar results. Arredondo et al.'s (2006) findings revealed girls ate significantly healthier than boys when their parents used more control strategies for eating. Therefore, parents and guardians should be mindful of how their actions and parenting styles are affecting their children mentally and physically.

However, parents and guardians should make sure they are taking an active role in their children's health and health education rather than depending on the childcare setting.

Although parental involvement has helped decrease childhood obesity, it can be difficult for parents who are financially strained to be involved in their children's lives. Financially strained families in urban communities are one of the major factors making obesity hard to combat (Ebbeling et al., 2002). Although neglect may not be intentional, studies show child neglect can increase a child's risk of becoming obese (Lissau & Sorensen, 1994). Children of financially strained families are more at risk to becoming obese because their parents usually work long hours, making it difficult to regulate the child's physical activity and provide daily home-cooked meals (Ebbeling et al., 2002). Additionally, in the communities these families live in, eating unhealthy is usually more cost effective (Hill & Peters, 1998).

Financial disparities in a family with growing children make combatting childhood obesity difficult but not impossible. As mentioned previously, most U.S. children are put into a form of non-parental childcare at the preschool age (U.S. Department of Education, National Center for Education Statistics, 2006). Therefore, children still have a chance to receive nutritional education and the appropriate amount of physical activity required to keep them healthy while they are away from their parents.

During financial disparities, it is more cost effective for financially strained families to eat unhealthy, but programs like SNAP (Supplemental Nutrition Assistance Program) offer nutrition assistance to low-income families. SNAP also has a

program called SNAP-Ed “to improve the likelihood that persons eligible for SNAP will make healthy choices within a limited budget and choose active lifestyles consistent with the current *Dietary Guidelines for Americans* and My Plate” (Nutrition Education, 2015).

### **Media and Behavior**

Many studies have investigated the influence of different forms of media, such as television and video games, on child behavior (Comstock, 1978; Comstock & Fisher 1975; Comstock & Strasburger, 1990; Anderson & Bushman, 2001; Bartholow, 2002; Sherry, 2001;). However, no research was found that has examined how books influence child behavior. Nonetheless, studies have suggested adult mediation through interactive reading (children listen and talk about the content being read) is proven to be more effective in influencing behavior than passive reading (children only listen to a story). Unlike passive reading, interactive reading leads to better comprehension of the content and positive behavioral change (Barrentine, 1996; Dickinson, 2001; Whitehurst et al., 1988).

In a nine-week observational study examining the effect of television content on children’s aggressive and prosocial (positive behavior) behavior during free play, Stein and Friedrich (1972) discovered children were influenced more or less by certain types of programming on television. In fact, a meta-analysis of the positive effects of television on children’s social interactions conducted by Mares and Woodward (2005) revealed that, in any setting, children who watched prosocial content (content denoting positive behavior) behaved better and had better attitudes than children who did not.

Mares and Woodward's (2005) findings were consistent with Stein and Friedrich (1972) who found prosocial television programs positively influenced the child's level of "rule obedience and tolerance of delay and persistence" (p. 273). These prosocial programs were effective in increasing children's self-control and persistence in assigned tasks (Stein & Friedrich, 1972). In a study regarding the effects of prosocial news content on the behavior of preadolescent children in the Netherlands, De Leeuw et al. (2015) found children's prosocial behavior increased more after they were exposed to prosocial behaviors in a news program. These findings expanded the findings of Mares and Woodard (2005) in that watching prosocial behaviors on television predict prosociality in children regardless of the type of program they watch.

In addition to Stein and Friedrich's (1972) findings on prosocial behavior, they observed that exposure to aggressive programming affected children's behavior whether they initially had high levels of aggression or average levels of aggression. Children with high aggression levels experienced an increase in aggressive behavior (Stein & Friedrich, 1972). Additionally, children with average aggression levels experienced a decline in self-control and tolerance for minor frustrations (Stein & Friedrich, 1972).

Similar to prosocial and violent programming affecting children's behavior, informative programming also has the ability to affect children's behavior. In Anderson et al.'s (2016) study on the connection between early childhood television viewing and adolescent behavior, Anderson et al. (2016) predicted that increased aggression in children could be a result of consuming aggressive or violent programming and concluded these findings as being "consistent with the early learning model" (p. 122). The early



learning model suggested, “children learn content from television through observation and participation” (p. 122). Anderson et al. (2016) found adolescents who viewed informative programs as preschoolers partook in more leisure reading, were more confident in their academic capabilities, and participated more in various types of extra-curricular activities than adolescents who did not. Similar to Stein and Freidrich’s (1972) findings on empathy as it relates to the effect of prosocial media use on behavior, in Anderson et al.’s (2016) study children who identified with television characters were more likely to experience behavioral influence.

### **Video Games and Behavior**

Findings of research linking video games to behavioral problems in children were not consistent. The reason for the inconsistency in findings can be attributed to differences in outcome measurement and data collection. Swing, Gentile, Anderson, and Walsh (2010) found attention problems in nine year-old U.S. children were positively linked with increased video game exposure but did not control for other variables such as environmental factors that could have contributed to the attention problems of the children. The amount of parenting and economic resources could very well play a part in how children experience media. If children come from a home with a higher economic status and educated, actively involved parents, those children are likely to experience media differently than children who come from a home with a lower economic status and poorly educated parents who do not take an active role in their children’s lives (Burchinal, Campbell, Bryant, Wasik, & Ramey, 1997; Sameroff, Seifer, Barocas, Zax, & Greenspan, 1987).

In a study on the link between U.K. seven-year-olds' video game exposure to hyperactivity and attention problems, Parkes et al. (2013) found no relationship. Similarly, Ferguson (2011) found no relationship between Hispanic 10 to 14 year-old boy's video game exposure and their attentiveness. However, Ferguson's data was gathered with a great deal of inaccuracy (Linebarger, 2015). It relied heavily on the respondents' estimates of hours of video games played, which "assumes that respondents are able to accurately provide an estimate of use in a relatively short amount of time" (Linebarger, 2015). Researchers have found that, when asked, adults tend to overestimate the amount of time they or their children spend doing socially desirable activities such as reading or exercising (Juster & Stafford, 1985; Robinson, 1985; Robinson & Godbey, 1997). However, when asked to estimate the amount of time they spend doing activities that could be perceived as socially undesirable such as watching television or drinking, parents tended to provide an underestimated number (Juster & Stafford, 1985; Robinson, 1985; Robinson & Godbey, 1997).

In relation to video game exposure and children's behavior, theorists have proposed a couple hypotheses. The *arousal habituation hypothesis* relates to the fast pace of video games (Huizinga, Nikkelen, & Valkenburg, 2013). This hypothesis "states that the fast pace of entertainment media may increase arousal during and after exposure" (Huizinga, Nikkelen, & Valkenburg, 2013, p. 180). It has been assumed by researchers that children get comfortable with media-induced arousal stimulation after long-term use and "after repeated exposure, their arousal system adjusts itself to this continuous stimulation (Huizinga, Nikkelen, & Valkenburg, 2013, p.180). Once the

baseline arousal level (normal arousal level) heightens, the child will require greater stimulation to remain calm and attentive and if placed in a less arousing situation, there's a chance the child will exhibit inattentiveness or hyperactivity (Huizinga, Nikkelen, & Valkenburg, 2013).

The second of the two proposed hypotheses is the *scan-and-shift hypothesis*, which has to do with the effect that video game playing has on the development of the child's attentional style (Huizinga, Nikkelen, & Valkenburg, 2013). This hypothesis "proposed that fast-paced entertainment media teach the child to develop an attentional style that can be characterized by scanning and shifting rather than selecting and focusing" (Jensen et al., 1997). As a result, children have a harder time concentrating on other attentional tasks that require focus such as reading or doing homework (Jensen et al., 1997).

### **Adult Mediation**

Similar to how parental involvement during mealtime and exercise can facilitate change in children's weight and eating behaviors, it can also facilitate change in how and what children learn from the media they consume. According to the *zone of proximal development*, a concept presented by Lev Vygotsky (1978), there is a difference between what one can learn on their own and what they can learn when being guided in a learning environment. Although most research to date regarding parental monitoring of media has focused on television (Gentile, Rasmussen, Reimer & Walsh, 2012), the findings can be applied to other forms of media such as books. For example, previous research has shown that active mediation (conversations taking place between the parent and child

about the media being viewed and its content; Gentile, Rasmussen, Reimer & Walsh, 2012) can reduce the adverse effects that media (particularly television content) have on children (Buijzen, 2009; Buijzen & Valkenburg, 2005). Additionally, in a study on the effects of television-viewing and direct adult modeling, children in the preschool age group were more likely to be influenced by television content when they had “an adult in their presence who [could] engage them directly and provide them with immediate feedback for their own responses” (Singer and Singer, 1974, p. 37). Therefore, it is likely that active mediation during book reading could boost the effectiveness of the various messages (both obvious and subtle) within a child’s book.

Unlike television viewing, book reading is “an intensely social activity” (Neuman, 1996, p. 496). It is not only important to the development of language and literacy, but it also “provides an interactive context for children to acquire and practice developing verbal and conceptual skills” (Neuman, 1996, p. 396). According to Bus, IJzendoorn, & Pellegrini (1995), “parent–preschooler book reading is related to outcome measures such as language growth, emergent literacy, and reading achievement” (p. 15). Adult engagement during book reading activities can also aid in stimulating development in a child who appears disinterested in reading books (Bus, IJzendoorn, & Pellegrini, 1995). Not only can adult mediation during reading foster an environment for linguistic growth but it can also help parents convey their worldviews and values to their children (Neuman, 1996). In addition to reading with their children, parents who reflect on the literature with their children were able to better teach their children how to make meaning of what they read in relation to their experiences (Ada, 1988).

Parental mediation during children's consumption of media can determine how media will influence their children. Parents have the ability to choose to let their children consume media and the ability to determine how long. The presence or absence of an adult during a preschool child's reading time can be a key determinant in what the child takes away from the book, whether the message is direct or subliminal. Therefore, parents should recognize the significant part they play in choosing their children's health destiny.

### **Theoretical Framework**

The social learning theory describes human development patterns of behavior through cognitive and self-regulative influences and is "helpful in explaining the influence of media depictions" (Goldman & Descartes, 2016, p. 204). In a detailed social analysis, Bandura (1971) explained the multiple ways social learning occurs. In social learning, "new patterns of behavior can be acquired through direct experience or by observing the behavior of others" (Bandura, 1971, p. 3). Social learning through direct experience was chiefly influenced by the type of consequence (rewarding or punishing) following the action and can be more or less influential depending on the immediacy of the consequence.

Social learning can also take place through modeling of exemplary or interesting figures and through the creation of memory codes (Bandura, 1971). "Most of the behaviors that people display are learned, either deliberately or inadvertently [,] through the influence of example" (Bandura, 1971, p. 5). Modeling influences human learning because it can help humans avoid making costly or dangerous mistakes and it teaches

them skills (e.g. learning to speak through speech) they may not learn otherwise (Bandura, 1971). The type of model also influences social learning. The majority of social learning takes place through exemplary figures, which might explain how “children and adults can acquire attitudes, emotional responses, and new patterns of behavior as a result of observing film or televised models” (Bandura, 1971, p. 10). Although no experimental studies examining the direct influence of media depictions on human modeling behavior were found, studies examining the influence of human models on other human’s modeling behavior was included to emphasize the influence an individual can have on someone’s eating behavior.

In 2008, Hermans, Larsen, Herman, and Engels conducted a study examining the social modeling effects of 95 normal-weight young women’s food intake in a naturalistic setting. “The extent to which people model other’s eating behavior is likely to depend not only on the context in which the eating takes place, but also on the characteristics of the model” (Hermans et al., 2008, p. 512). This statement is similar to that of Bandura (1971) who indicated, models who possess interesting and winsome qualities are sought out, whereas those who lack pleasing characteristics tend to be ignored or rejected, even though they may excel in other ways” (p. 7). Findings from Hermans et al.’s (2008) study revealed that participants modeling behavior was influenced by the research confederate’s (person the participants modeled) physical appearance. Participants who were placed with a research confederate resembling their body size (normal-weight) ate substantially more when the confederate ate more. However, participants who were

placed with a research confederate who was slimmer than they were ate substantially less than the confederate.

Furthermore, a study conducted by Addessi, Galloway, Visalberghi, and Birch (2005) on children's (2–5 years old) acceptance of a novel food revealed modeling of older individuals greatly influenced children's behavior. Although the study did not go into detail about the appearance of the models, children were more likely to accept and ingest a novel food when their model had the same food of the same color, rather than the same food of a different color or no food at all (Addessi et al., 2005). Additionally, the number of social influences present (a group of children eating a novel vegetable rather than one) could increase the acceptance of a novel food in a shorter amount of time (Addessi et al., 2005).

Although new patterns of behavior can be acquired through direct experience and modeling, the combination of verbal and imagery codes can help in the retaining of the learned behavior. According to Bandura's (1971) social learning theory, "most of the cognitive processes that regulate behavior are primarily verbal rather than visual" (p. 7). However, when verbal codes are combined with visual imagery, memory codes are created (Bandura, 1971). These memory codes "serve as guides for subsequent reproduction of matching responses" and can help observers "learn and retain the behavior better than those who simply observe..." (Bandura, 1971, p. 7). Similar to Bandura (1971), in an editorial regarding what and how children learn from picture and storybooks, Horst and Houston-Price (2015) stated, "looking at and listening to books increases children's general knowledge, understanding about the world, and promotes

language acquisition” (p. 1). However, more research needs to be done to examine how looking at and listening to picture books can influence children’s attitude toward living healthy.

According to Kids Health (2016), children usually begin to explore books independently at age three but usually do not begin reading independently until they are seven or eight years olds. However, they can usually retell stories that have been read to them at four years old and can comprehend stories through drawings by the age of six or seven (Reading Milestones, 2016). No experimental study was found that has examined the impact that combined verbal and imagery codes have on preschool aged children during book reading. Thus, based on the aforementioned information, one can assume the only way preschool children learn and retain healthy behavior as a result of picture books is through the mediation of a parent or guardian who is willing to read to the child. Therefore, rather than allowing a preschooler to simply look at a picture book promoting vegetables, the parent or guardian should read the book aloud to their children child so they hear “carrots help with eyesight” (verbal code) while simultaneously viewing a carrot (imagery code; Goldman & Descartes, 2016).

But, what if the book does not specifically promote the desired health behavior in the narrative, but it is portrayed in the illustration? In an intervention designed to help autistic school-aged children develop their social perspective-taking (capability to take the perspective of another person in a social situation) skills, Tsunemi et al. (2014) found children’s ability to take second- and third-person perspectives increased when their parents read to them and questioned them about the mental states of the characters.



Therefore, the process of reading and questioning by the parent or guardian might help increase the children's awareness of healthy eating and physical activity through picture books, even when the narrative of the book is not specific to the illustration.

Although social learning can occur in different ways, from the information provided above, it seems the best way to improve or develop children's behavior toward healthy living is through interactive adult mediation during reading time. However, more research needs to be done to provide evidence of this claim.

### **Conceptual Framework**

According to Goldman and Descartes (2016), "as early as the preschool years (ages three to five) children develop concepts of healthy and unhealthy food choices" (p. 203). Because books are a common source of media for children in their beginning stages of life, it would make sense to examine the books they read to understand children's behavior toward activities that promote healthy living. Only three studies have examined the foods and beverages depicted in non-health driven children's books (Byrne & Nitzke, 2000; England et al., 2015; Goldman & Descartes, 2016) and one study examined books made to educate children about healthy food and physical activity.

Byrne and Nitzke's (2000) study sample consisted of books most likely to be read by U.S. children at the time. With 199 food mentions out of the 114 sampled books, over half of the books in their sample had at least one reference to food. Nutrient dense foods appeared more frequently than nutrient poor foods and messages within the books were primarily positive. Although nutrient dense foods appeared more than nutrient poor foods, there were significantly less mentions of vegetables in comparison to fruits. Byrne

and Nitzke (2000) also noted that children can understand both blatant and subtle messages in books. Therefore, educators and parents should take this factor into consideration when choosing literature for their children.

In a later study Byrne and Nitzke (2002) examined 118 preschool children's acceptance of an unfamiliar vegetable after they were exposed to messages about the unfamiliar vegetable in a storybook. However, Byrne and Nitzke (2002) were not able to support or reject their hypothesis on the effect of children's books on children's attitudes toward a vegetable. This was because the number of children who had positive attitudes toward the vegetable after tasting it was higher than the researchers anticipated. Therefore, there was not much opportunity for increase in the post-test (Byrne & Nitzke, 2002).

Over a decade after Byrne and Nitzke's (2002) study, England et al. (2015) conducted a content analysis of food and beverage depictions in books intended for 2 to 5 year-old children. This is the only study "to investigate how the types of foods and beverages depicted in children's books vary depending on the source recommending them (i.e., physician's offices, libraries, or from bestseller lists)" (England et al., 2015, p. 6). Although there were fewer depictions of beverages than foods, milk was the most mentioned beverage, and surprisingly, water was the least mentioned beverage (England et al., 2015).

Similar to the findings of Byrne and Nitzke (2000), more than half of the sample In England et al.'s (2015) study had at least one food or beverage mention in the text or in the illustration. Additionally, books in this study presented more nutrient dense foods

than nutrient poor foods (England et al, 2015), which is congruent to the findings of Byrne and Nitzke (2000) as well. Also, there were far more mentions of fruits than vegetables in this study just as there were in the previous study. Unlike Byrne and Nitzke (2000), dessert was the highest mentioned food type after fruit.

Like the previously mentioned studies, Goldman and Descartes' (2016) sample consisted of books widely accessed by children, except their sample was "based on recommendations from local children's librarians and book store staff" (p. 204). Similarly, their findings revealed the children's books had more mentions of nutrient dense foods than nutrient poor foods. Goldman and Descartes' (2016) also found healthy foods in the books, like fruits and vegetables, were less likely to be "portrayed with positive affect" (p. 207) than unhealthy foods such as candy and pizza.

In a 2014 study conducted by Droog, Bujizen, and Valkenbeurg, Educational Entertainment (EE) was examined to determine its impact on interactive shared reading and character product congruence. Unlike the previous studies, this study purposely examined health driven books. The purpose of EE-productions was to influence healthy food consumption through picture books, using entertaining narratives that tie educational messages into the content (such as the adventures a rabbit who regains its strength by eating carrots; Droog, Bujizen, & Valkenbeurg, 2014). From the study, researchers found EE-productions can improve children's consumption of healthy food but only when the desired food to be consumed was promoted in the book (Droog, Bujizen, & Valkenbeurg, 2014).

Aside from the type of food and the quantity of food being consumed, physical activity levels play a role in determining if a child is at risk to becoming obese. Therefore, I attempted to find studies that examined or analyzed messages regarding physical activity in children's books. A preliminary search for studies concerning physical activity in relation to children's books was conducted using the Google Scholar search engine and Texas A&M University's library website. Key phrases used during this search were "preschool children's book and physical activity," "physical activity in preschool children's books," and "physical activity in picture books" and one study by Fingon (2011) was found.

Unlike the samples in the other studies mentioned in the conceptual framework, with the exception of one, Fingon's (2011) sample only focused on books related to health and nutrition. Additionally, Fingon (2011) did not conduct frequency counts of mentions or depictions of physical activity within the books. Fingon (2011) only provided the reader with a list of children's books that could be used by physical education teachers based on the accuracy and quality of the information, illustrations, humor, usefulness, general interest, and appropriateness (Fingon, 2011).

Books and television are the two main sources of media children consume. Although the current study only involved books, the books were based on popular television characters that have been adapted from books or vice versa. The discussion of television's influence on behavior in the literature review provided an understanding of how books can have just as much influence on children's behavior. An overview of the

past studies examining food depictions in children's books and their findings were also highlighted in the literature review to show the significance of this research topic.

The deficit in experimental studies examining the effect children's literature has on children (Byrne & Nitzke, 2002) was the biggest gap. The current study does not focus on the effects of adult mediation during storybook reading. However, it was another gap found in the literature. Research has been done regarding adult mediation and the positive impact it has on a children's cognitive development but no research has specifically examined how or if adult mediation during storybook reading impacts children's behavior in their diet and physical activity.

### **Purpose and Research Questions**

This study analyzed and compared two preschool children's book series for healthy eating depictions and other activities promoting healthy living. As a result of the content found in the abovementioned literature, three research questions were generated to accomplish the study.

RQ1. What themes and sub-themes emerged from the narrative in each series?

RQ2. How often were healthy lifestyle themes central to the narrative in each series?

RQ3. Which series appeared to be more health conscious and how?

## CHAPTER III

### METHOD

I conducted the study using qualitative and quantitative content analysis, “a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use” (Krippendorff, 2004, p.19). Content analysis can heighten a researchers understanding of a particular phenomena and inform practical actions (Krippendorff, 2004).

The qualitative phase of the content analysis lies within the research approach, research objectives, sample selection, and partially in the argument basis and the coding process. The quantitative phase of the content analysis lies within the argument basis for proof and the coding process. The research approach in this study would be considered qualitative because it uses an inductive approach where “research questions guide data gathering and analysis but potential themes and other questions may arise from careful reading of data” (White & Marsh, 2006, p. 35). The research objectives would be considered qualitative because they seek to “capture the meanings, emphasis, and themes of messages” (Altheide, 1996, p. 33) rather than replicate inferences made from the text (Krippendorff, 2004). I purposely, and not randomly, selected the samples, a key distinction between qualitative content analysis and quantitative content analysis (White & Marsh, 2006).

The argument basis for proof and coding process are both qualitative and quantitative. Qualitatively, the argument basis for proof may “support interpretations by weaving quotes from the analyzed texts and literature about the contexts of those texts

into their conclusions, by constructing parallelisms, by engaging in triangulations, and by elaborating on any metaphors they can identify” (Krippendorf, 2004, p. 88). In the current study, the argument basis for proof is qualitative because interpretations of the analyzed text were supported by quotes in the findings of the study and because parallelisms between the analyzed text were made to answer RQ3. The argument basis for proof is also quantitative because of frequency (Marsh & White, 2006), the frequency of healthy lifestyle sub-themes central to the narrative were examined to answer RQ2 (Krippendorf, 2004).

According to Marsh and White (2006), a quantitative coding scheme is “developed a priori in accord with testing hypotheses” and “may use coding scheme(s) from other studies” (p. 35). Coding for the narrative within the sample was qualitative because the coding scheme of the text was developed during the data analysis process and not before data analysis. However, the coding scheme for the images would be considered quantitative because the coding scheme was decided before coding began and was used from another study.

I chose this study design because it focused on interpreting the narrative and illustrations within the sample for direct and subliminal messages regarding healthy living or health conscious messages. No clear definition for health conscious messages could be found. Therefore, for in this study, health conscious messages were defined as any message found in the narrative or illustrations that aligned with the aforementioned food and physical activity guidelines provided in the introduction. Books commonly depicted characters partaking in physical activity. However, it was not possible to know

how long the characters in the book were active unless it was directly stated. Hence, any depiction or mention of physical activity in the form of play or exercise was considered health conscious. Additionally, this study did not involve human subjects. Therefore, consent was not needed to conduct this study and confidentiality did not have to be preserved nor did non-respondents need to be handled.

One strength of this study design was its flexibility (Roller, 2013). The qualitative content analysis allowed for a deeper understanding of the narrative and revealed the prevalence of sub-themes emerging from the sample. Another strength of qualitative content analysis was trustworthiness. Because of the intimacy with the data, the researcher was considered the human instrument and was able to create meaning from the data. This intimate connection with the data paired with triangulation (multifaceted data collection) provided “assurance that the data [was] representative of the phenomenon being stud[ied]” (Duffy, 1985, p. 229). One other strength and possible weakness of the study design was the process. Because qualitative research is inductive and allows researchers to “gather data to build concepts, hypotheses, or theories” (Merriam & Tisdell, 2015 p. 7), the guidelines to choosing a sample, collecting data, and analyzing data are not as flexible as in quantitative research. An emergent research process provides qualitative researchers with flexibility but it can also open the door to biases and shortcomings of the human instrument (Merriam & Tisdell, 2015).

### **Sample**

This study used a purposive sampling method, also called *relevance sampling* (Krippendorff, 2004). Thus, I chose the sample based on what needed to be known and



what entity best provided the information (Tongco, 2007). As mentioned previously, at a very early age (three to five), children develop concepts of healthy and unhealthy food choices (Goldman & Descartes, 2016), and exposure to food messages in media can influence children's food preferences. Therefore, I chose to look at two preschool children's books series. One series based on its popular television show and another book series that resulted in a television show.

To acquire a sample, I found the most popular preschool television shows that were based on books. Because few educational television shows are based on books, I used the iGameMom website as a starting point for identifying the book series. This educational game website provides readers with a list educational television shows for preschool children based on books (Book Based Educational TV Shows for Preschool Kids, n.d.). Because the majority of the shows used animals as their main characters, I chose to only focus on book series with animal characters; eliminating the *Magic School Bus*, *Super Why* and *Jake and the Never Land Pirates*, leaving me with *Clifford the Big Red Dog*, *Curious George*, *Arthur* and *The Octonauts*.

Next, I previewed three books in each of the remaining book series for presence of food depictions because “when using relevance sampling, analysts proceed by actually examining the texts to be analyzed, even if only superficially...” (Krippendorf, 2004, p. 119). I chose to preview only three books because I believed, if there were food depictions in at least three books, there would be more food depictions in other books within the series. I did not initially preview the books for depictions of physical activity because the initial intent of the study was to solely focus on food depictions. However,

physical activity was factored in during the analysis of the selected books because I realized that being active is also a major part of being healthy.

Unlike the other books, *The Cat in the Hat* is not a book series; it is a book within the Dr. Seuss series. I previewed the Dr. Seuss series, but the food depictions were very minimal, leading me to look at other series. *Clifford the Big Red Dog* series had very minimal to no food mentions and minimal food depictions. The only food I viewed him eating was dog food given to him by his owner, and she was not shown eating or handling any food. Although *Curious George* is for age groups three to eight, it seemed more like it was for an older age group because of its vocabulary. Further, there was only one food depiction (a banana) in all three books. Bananas are for both humans and animals, but because Curious George is a monkey, he is assumed to eat bananas. Therefore, I chose to use *Arthur* and *The Octonauts* series because they had multiple food depictions. I looked at *The Octonauts* 10-book series first and then conducted the same analysis on the *Arthur* book series, comparing a contemporary television based book series to a more long-standing, book-based television series.

Although each book within the 10 book series was about *The Octonauts*, two different publishing companies and authors produced the books. Meomi wrote books one through four, and HarperCollins published each of the books between the years of 2009 and 2011. Additionally, Simon and Schuster authored and published books five through 10. Meomi's books were 31 pages, which was significantly longer than Simon and Schuster's books, which were only 18 pages.

Unlike *The Octonauts*, the same author, Marc Brown, wrote all books in the *Arthur* book series. The *Arthur* book series is a long-standing book series, consisting of books written as early as 1976 to as late as 2007. Each book was an average of 30 pages in length.

### **Data Collection**

According to the CDC (2015), childhood obesity has more than doubled in the past 30 years. Because of this, I chose to compare *The Octonauts* to *Arthur* to identify which series was more health conscious. Books within each series were ordered via Amazon, individually numbered in publication order and read all the way through to give myself and the other researcher an idea of what themes and sub-themes might emerge.

### **Data Analysis**

Because there was not a theory in which to frame this study, I used an inductive approach when analyzing data. For this reason, I used an open coding technique to code the data. The sentences, paragraphs, and illustrations within the sample comprised the units of analysis. During analysis, I, along with the help of another master's candidate within my department, identified emerging sub-themes along with the corresponding page number and sentence or paragraph onto the code sheet I created (Appendix, A). Because illustrations cannot be re-drawn during analysis, we included a short description on the code sheet. We analyzed the illustrations for activities promoting healthy living, such as exercising and eating healthy.

Illustrations and narratives within the books had separate code sheets and separate lists. One list included narrative themes and sub-themes along with a number of how many times the theme emerged. The other list included illustration themes and sub-themes along with how many times they emerged. Narrative sub-themes appearing less than three times were not included. Narrative sub-themes appearing more than three times but less than five times were recurring and narrative sub-themes appearing more than five times were considered prevalent. All recurring and prevalent sub-themes were categorized into themes based on commonality and the prevalent sub-themes were marked with an asterisk.

Using Goldman and Descartes (2016) method from a previous study, we coded each occurrence of the illustration sub-themes for centrality to the narrative. If the sub-theme was mentioned in the narrative and also illustrated, we considered it central and marked it with a C. For example, if a character was illustrated baking a cake and the narrative also mentioned the cake, we considered the theme central. If the character was illustrated baking a cake but was not mentioned in the text, we considered the theme background and marked it with a B. We then compared the prevalence of central healthy lifestyle sub-themes to background sub-themes emerging from the illustrations within the series. Data from each book within each series was collected and analyzed in the same manner.

To help the reader identify what books and page numbers the findings came from, I created a notation system. The first number indicated the book number, and the second number indicated the page where the information was found. For example 01.23

would be interpreted as book one page 23. Books were numbered in date order.

Therefore, book one was the book first published within the series, and book 10 was the last book published.

### **Trustworthiness**

In any type of qualitative research, the human is the chief instrument in the data collection and analysis process, which has many strengths as humans can process, respond, and adapt to data quickly (Merriam & Tisdell, 2015). The human instrument is also able to broaden their understanding through verbal and nonverbal communication (Merriam & Tisdell, 2015). Unlike quantitative data, which is strict in its process, the informality of the qualitative process in combination with the human instrument allows for exploration of unusual or unexpected data that may emerge (Merriam & Tisdell, 2015). As the primary instrument for data collection and analysis in qualitative research, it is imperative for researchers to remain objective by recognizing their biases and not allowing those biases to affect their judgment during the study. Therefore, ensuring reliability and validity is essential to establishing trustworthiness in qualitative and quantitative studies (Merriam & Tisdell, 2015). Because the majority of this study used a naturalistic approach, I used credibility, transferability, dependability, and confirmability in place of internal validity, external validity, reliability, and objectivity to establish trustworthiness (Lincoln & Guba, 1985).

Because this study was a content analysis and did not use human subjects through prolonged engagement or persistent observation, I achieved credibility using triangulation through peer debriefing. Peer debriefing “is a process of exposing oneself

to a disinterested peer in a manner paralleling and analytic session and for the purpose of exploring aspects of the inquiry that might otherwise remain only implicit within the inquirer's mind" (Lincoln & Guba, 1985, p. 308). Peer debriefing can also aid in confirming transferability. According to Lincoln and Guba (1985), "the naturalist cannot specify the external validity of an inquiry" (p. 316) the naturalist can only use thick description "to enable someone interested in making a transfer to reach a conclusion about whether transfer can be contemplated as a possibility" (p. 316). Therefore, to achieve transferability, I used thick description when drafting the findings and peer debriefing to confirm richness in my descriptions.

Dependability and confirmability can be simultaneously achieved through use of an audit trail (Lincoln & Guba, 1985). In the dependability audit, the auditor "examines the product—the data, findings, interpretations, and recommendations—and attests that it is supported by data" (Lincoln & Guba, 1985, p. 318). Confirmation that the product is supported by data also establishes confirmability, which was achieved through "triangulation and the keeping of a reflexive journal" (Lincoln & Guba p. 318–319). Therefore, to ensure dependability and confirmability, I kept an audit trail.

## CHAPTER IV

### FINDINGS

As I stated previously, I placed the themes and their corresponding sub-themes into a table with the most prevalent sub-themes marked with an asterisk (see Table 1). The findings of the contemporary series (*The Octonauts*) were provided first followed by the findings of the long-standing book series (*Arthur*).

#### **Research Question One**

Five themes—*healthy lifestyle, unhealthy lifestyle, learning, being a better person, and happiness*—emerged through data analysis. Sub-themes for *Healthy Lifestyle* included physical activity, good hygiene and healthy food. Furthermore, unhealthy food was the only sub-theme to emerge under the *unhealthy lifestyle* theme. Both the *learning* and *being a better person* theme had the most sub-themes. Additionally, sub-themes that emerged under the *learning* theme were education, teaching, investigating/inquiring, discovery, and innovation. Unlike the other themes, *being a better person* was the only theme to have all prevalent sub-themes. These sub-themes were helping, manners, appreciation, concern for others and teamwork. Lastly, *happiness* was the final theme to emerge and only consisted of two sub-themes, music and fashion (Table 1).

Table 1

*The Octonauts*: Themes and their Sub-themes

Themes	Sub-themes
Healthy Lifestyle	Physical Activity
	Good Hygiene
	Healthy Food
Unhealthy Lifestyle	Unhealthy Food
Learning	Education*
	Teaching*
	Investigating/Inquiring*
	Discovery
	Innovation
Being a Better Person	Helping*
	Manners*
	Appreciation*
	Concern for others*
	Teamwork*
Happiness	Music*
	Fashion

*Note.* \* = prevalent sub-themes appearing more than five times



### *Healthy Lifestyle*

The most recurrent sub-theme from the *healthy lifestyle* theme was physical activity. Though it was the most recurring sub-theme, it did not emerge nearly as much as sub-themes outside this theme. Physical activity ranged from the Octonauts participating in activities encouraging physical activity, such as Dashi dog playing basketball (1.4) to Captain Barnacles testing his snorkel (4.3) to Captain Barnacles actually encouraging the reader to exercise with a positive message such as “I always feel better after I exercise!” (3.25).

Although not heavily mentioned in the narrative, good hygiene also emerged as a sub-theme within the *healthy lifestyle* theme and each mention of good hygiene was accompanied by an illustration. For example, in book four Peso Penguin was shampooing his pet crab Clawdius (4.23). Additionally, Dr. Shellington was shown brushing his teeth (2.3) and on the very next page Kwazii Kitten was depicted taking a bath (2.4). In an effort to show his uniqueness to a lonely unknown sea monster Peso Penguin claimed, “I’m the only Penguin with shiny white teeth” (2.29), implying he had good hygiene because he kept his teeth clean. Additionally, Shellington commented about a shark with dirty teeth claiming, “It could use a tooth brush” (10.5), implying the Octonauts frown on that bad dental hygiene.

Similar to good hygiene, healthy food emerged as a *healthy lifestyle* sub-theme but was also not heavily mentioned in the narrative. In book four, Tunip the Vegimal was packing a picnic basket with sandwiches and what looked like blueberry muffins (4.3). Additionally Dashi Dog mentioned the trees in a particular habitat “drop down

fruit for food”, to persuade Mr. Slowstache (a turtle) to stay in the habitat (4.17). The only other book where healthy food was mentioned in the narrative was book three. In the beginning pages, readers saw Tunip the Vegimal (half vegetable, half animal creature) tossing a salad (3.3)

### *Unhealthy Lifestyle*

As shown in Table 1, the only sub-theme in the *unhealthy lifestyle* theme was the unhealthy food. Book one had the most illustrations of unhealthy food in which one was central to the narrative, “Tunip the Vegimal was baking a cake” (1.4), and three were background to the narrative. The central illustration was the only illustration that did not contribute to the context of the story; however, the three depictions of unhealthy food that were considered background did. For example, page 18 of book one displayed Peso Penguin eating marshmallows around a camp-fire. Page 27 of book one showed an animal with melted ice cream to emphasize how a day at the beach would be without shade and page 31 of book one depicted a cake covered in chocolate; however, the cake was only depicted because the Octonauts were having a party to celebrate Shadow Appreciation Day. Book three showed a plethora of unhealthy foods (3.21, 3.22); however, these unhealthy foods also fit the context of the story because “the whole crew set out to make their favourite pastries” (3. 1) in an effort to cheer up another character.

### *Learning*

Professor Inkling was one of the only characters mentioned and depicted participating in activities encouraging education and learning, such as studying his travel guide (4.4), reading his newspaper (2.3) and reading to the Octonauts (8.1, 8.18).

Professor Inkling was also the only Octonaut who seemed to get joy from reading claiming, “There’s nothing like perusing the printed word to stimulate the intellect and galvanise the imagination” (3.23). Other than Professor Inkling, Captain Barnacles was the only other character that was mentioned and depicted participating in an activity encouraging education as he was depicted writing in his writing log (1.3).

The investigating/inquiring sub-theme was included into the *learning* theme because the Octonauts were consistently investigating or inquiring about situations that usually expanded their knowledge, and helped them solve their problems. Captain Barnacles was the main character to investigate or inquire about a situation. For example, after Mr. Slowstache was forced out of his home due to the dead coral, Captain Barnacles asked him what happened to better understand the problem (4.10). In book two, Captain Barnacles asked an unknown sea monster who it was, why it attacked the ship and where it was from after their ship had been hit (2.11). Additionally, in book eight, Professor Inking could not finish the book he was reading about his grandfather’s adventures to the Octonauts because the next page of the book was missing; to which Captain Barnacles replied, “We must find out what he [the grandfather] saw!” (8.2).

Professor Inkling also encouraged the Octonauts to investigate or inquire about certain problems. For example, in book one he told the Octonauts to go to the sea of shade to find out why the all the shadows had disappeared (1.6) and later in the book, he had Captain Barnacles question the king about why the shadows had left (1.24). Similarly, in book three Professor Inkling wanted The Octonauts to investigate about

why there was a sad fish outside of the Octopod (Octonaut travel vehicle; 3.7), prompting Dashi Dog to ask the fish “Why are you so sad?” (3.8).

The discovery sub-theme was included in the *learning* theme because it usually occurred after one of the Octonauts investigated a problem or situation and, ultimately expanded the knowledge of the characters and the reader. In book four, Shellington discovered the coral the sea creatures were building their homes on was alive (4.23) and as a result of his discovery, he was able to figure out why the town had turned white. Additionally, after doing research on a lonely unknown sea monster in an effort to find others like it, Professor Inkling discovered that it was the only one of its kind (2.27). Similarly, after looking in the encyclopedia, Professor Inkling discovered that the frowning fish in book three was not sad but was actually an upside-down fish (3.30).

The teaching sub-theme usually emerged after a problem was solved in an attempt to educate the Octonauts but sometimes it emerged before the problem was solved. For example, in book four, Dr. Shellington explained to Captain Barnacles the characteristics of a normal coral reef to point out that something was wrong with the one they were observing (4.6). At the end of the book four, Dr. Shellington discovered the coral was alive and explained to the Octonauts that the coral had algae inside of it saying “I learned that each coral has algae inside that give it colour and help it make food” (4.26), to which Professor Inkling added, “Algae are plants, and plants need light,” (4.26).

### *Being a Better Person*

As stated previously, each sub-theme in the *being a better person* theme was considered prevalent. These sub-themes were *helping*, *manners*, *appreciation*, *concern for others*, and *teamwork*. *Helping* was the most prevalent sub-theme overall because the Octonauts were always helping one another in any way they could. In book four, The Octonauts asked Mr. Slowstache, “Is there anything we can do to help?”, and proceeded to help him find a new home (4.13). When they could not find a suitable home for Mr. Slowstache, Captain Barnacles assured him the Octonauts would help him figure out what was wrong with his old home (4.23). Also, in book two when the unknown sea monster was injured after attacking the ship, Peso Penguin helped “bandage the whimpering monster” (2.1). After the unknown sea monster explained to the Octonauts that he was just trying to find others like him, Captain Barnacles replied, “I’m sure we can help you” (2.14).

Although the Octonauts were typically the ones doing the helping, there were times when they received help from others. For example, in book five, Captain Barnacles asked the torpedo rays for help to power up their dead Octopod (5.12). Likewise, in book one the Octonauts helped get everyone’s shadows back but only with the help of the shadows who “form[ed] a ship to carry The Octonauts” (1.20) through the Bramblywoods to speak to the shade king. Furthermore, Kwazii Kitten lost Professor Inkling’s book to a flying fish in book eight, but another flying fish helped lead them to it as a favor to Peso Penguin for helping mend his fin (8.5, 8.9, 8.14). In book ten the Octonauts helped a pilot fish find his whitetip shark friend (10.16) and lastly, the

Octonauts sought help from fiddler crabs to help the beached orca return to the ocean (9.15).

*Manners and appreciation* were common sub-themes that were often conjoined. After characters were helped, they usually showed their appreciation by verbally thanking the Octonauts, returning a favor, or giving them a gift. In book four, Mr. Slowstache showed his appreciation with a smile after The Octonauts offered to help him find a new home (4.13). He also displayed his appreciation at the end of the book by presenting “each of the crew with a rock from his prized collection” (4.31). Furthermore, Captain Barnacles had an appreciative tone when the Shadows offered to help the Octonauts get through the Bramblywoods (1.20), and when the shadows all returned to their owners, Captain Barnacles thanked the shade king. Also, in book eight, Kwazii Kitten thanked the flying fish for leading them to the missing page book (8.17) and Professor Inkling had a thankful tone after the Octonauts found his book and discovered the missing page (8.18). Furthermore, in book 10, the pilot fish thanked the Octonauts for helping him find his whitetip shark friend (10.18), and the orcas in book nine thanked the Octonauts for rescuing their cousin and showed their appreciation by allowing The Octonauts to use their special signal (9.17).

In addition to saying thank you to show appreciation, characters were polite and apologized to others when they did something wrong. For example, the unknown sea monster apologized to the Octonauts for attacking their ship (2.12). Similarly, the orcas apologized to the Octonauts for bumping their ship after Professor Inkling kindly told them “Please do not bump our ship” (9.16), and in the same book, Captain Barnacles

showed kindness to a grumpy fiddler crab that pinched him (9.13). He even helped the crab back on his feet after a wave knocked him upside down. The crab replied “Thank you for helping me” (9.15).

Throughout the sample there were many instances when the Octonauts showed concern for others. For example, Tweak Bunny shouted for the Octonauts to watch out in concern because a building was falling over (4.22). In book three, before helping the frown fish (3.5), Dashi Dog noticed the fish outside frowning, prompting her to ask the fish “Why are you so sad?” (3.8). In the same book, after trying to cheer up the frown fish with a ride on the merry-go-round, the fish flew off and everyone rushed over to him to make sure he was not hurt (3.28). Furthermore, the Octonauts returned to the ship in book six to find a giant squid clutching the Octopod in its tentacles, which caused Captain Barnacles shout “Inkling!” in concern because Professor Inkling was the only one on board (6.14). In book ten Captain Barnacles was concerned for his safety and the safety of the whitetip shark because it was trying to take a bite out of the Gup-A (another Octonaut vehicle; 10.5). Lastly, in book nine, Captain Barnacles showed concern for the beached orca asking him, “Are you all right?” (9.10).

In the majority of the books some form of teamwork was present. For example, when Dr. Shellington solved the mystery of the coral reef, “...animals from far and wide returned to help” (4.27) and worked together to rebuild the city around the coral (4.30). Although unhealthy, in book three “the whole crew set out to make their favourite pastries” to cheer up the frown fish (3.21). Another example of teamwork was when “the torpedo rays worked together to get the Octopod running” (5.13) for the Octonauts, and

in book one, the shadows teamed up to help The Octonauts get through the Bramblywoods. Additionally, in book nine the Vegimals, crabs, Octonauts and orcas collectively worked together to rescue the beached orca (9.12, 9.14, 9.16). Whether it was the Octonauts working amongst themselves, alongside others, or others teaming up with others to solve a problem, the problems always managed to get solved.

### *Happiness*

Sub-themes that evoked happiness from the characters were fashion and music (see Table 1). The fashion sub-theme emerged several times, and in each occurrence, the character was depicted or mentioned as being happy. For example, Dashi Dog was picking out sunglasses while posing in the mirror with a big smile on her face. Additionally, Kwazii attempted to cheer the frown fish up with a dress up party because “It’s hard to feel sad when you’re being glamorous” (3.13).

Music was repeatedly associated with happy emotions and was sometimes used to bring happiness to a character. For example, Captain Barnacles told the unknown sea monster that he was “the only polar bear who play[ed] the accordion” (2.29), in an effort to demonstrate his uniqueness. Similarly, Peso Penguin practiced the piano in book one, and to cheer everyone up after the loss of his or her shadows, Captain Barnacles played his accordion once again (1.3) Additionally, Peso Penguin suggested the Octonauts use music to cheer up the frown fish because “Playing music with [his] friends always brightens [his] day” (3.11). The Octonauts were not the only musically inclined characters either, as the orcas used music to cheer their beached cousin up while he was



being rescued and Captain Barnacles provided another tune from his accordion when they succeeded (9.12).

Unlike *The Octonauts* series, only three themes emerged from the *Arthur* series. One of the themes in the *Arthur* series was the same as *The Octonauts*, *healthy lifestyle*. This theme consisted of only two sub-themes, healthy food and physical activity. The other two emergent themes were *positive* and *negative*. Education and selflessness emerged in the positive themes, with selflessness as a prevalent sub-theme. Additionally, unhealthy food and teasing emerged in the *negative* theme, with unhealthy food as prevalent sub-theme.

Table 2

*Arthur*: Themes and their Sub-themes

Themes	Sub-themes
Healthy Lifestyle	Healthy Food
	Physical Activity
Unhealthy Lifestyle	Unhealthy Food*
Learning	Education
Being a Better Person	Selflessness*
	Discipline (punishment)
Negative Attitude	Teasing

*Note.* \* = prevalent sub-themes appearing more than five times

#### *Healthy Lifestyle*

Healthy food and physical activity were the only two significant sub-themes in the *Arthur* book series that fit into the healthy lifestyle theme. Healthy food sub-themes

were found in three of the nine books. However, none of the messages surrounding the theme encouraged readers to eat the foods because they were healthy, but were placed into the text because they fit the context of the story. For example, Arthur received a note from his secret admirer that read “Apples, Bananas, Peaches, a Pear, With a face like yours, You’re lucky I care” (3.5). The mention of fruit was used to make the poem flow rather than to educate readers on the nutritional value of the aforementioned fruits. Additionally, book nine had three mentions of healthy foods but they were all mentioned for the purpose of helping Arthur remove his tooth. On page nine of book five, Arthur persuaded his father to make steak, corn on the cob, and peanut brittle to make his tooth fall out. Because it did not work, Buster brought Arthur some carrots to help, and Sue Ellen provided Arthur with raisins to make it appear as though he had missing teeth, so he would fit in with his classmates (9.12).

Similar to healthy food, physical activity was found in less than half of the books in the series and was placed in the text not to promote the importance of exercise to the reader, but to add to the context of the story. For example, Arthur took off his coat to play soccer with his classmates (3.12). However, this mention of Arthur playing soccer was only being used to set the scene for Arthur’s classmates to tease him for having a secret admirer. Similarly, in the same book, Arthur ran to the movie theater so that he would not be late to meet up with his secret admirer (3.24).

Book five had the most mentions and depictions of characters being physically active, most likely because the setting was a camp. Although book five did not directly communicate the importance of exercise, it communicated more about exercise to

readers than the other books. In the beginning of the book, Arthur and his friends rode past their rival camp where the campers were depicted working out strenuously causing Buster to comment, “They’re going to be in great shape for our scavenger hunt. No wonder why they always win” (5.6). Buster’s comment implied the more in shape one is, the better chance they have at being a winner. When Arthur and his friends reached their camp, they were ridiculed by their camp counselor for not being in shape and their dessert privileges were taken away for the summer, relaying to readers that being out of shape is unhealthy (5.8). Later in book five, Arthur and his friends were tired and out of breath because of their workout. They were so tired they did not even brush their teeth (5.11). Although this is a mention of physical activity, it could potentially send the wrong message to impressionable readers because it highlighted one of the most undesirable traits of exercising and it also implied that not brushing is okay.

### *Unhealthy Lifestyle*

Similar to *The Octonauts*, unhealthy food was the only sub-theme to emerge from the *unhealthy lifestyle*. Unhealthy food was also the only other prevalent sub-theme next to selflessness in the *Arthur* series. Mentions of unhealthy food in the *Arthur* book series did not encourage nor discourage readers to eat unhealthy. Like the healthy food sub-themes mentioned as a part the healthy lifestyle theme, mentions of unhealthy food fit the context of the story. For example, Arthur received a note from his secret admirer who left extra sweet treats in his lunch box (3.5). After reading the note, Arthur hoped it was chocolate. Chocolate was appropriate for the situation because the book was about Valentine’s Day. As another example, in book four after Francine won the game for her

classmates, Mr. Ratburn, the teacher, treated everyone to chocolate soda as a reward (4.25).

This pattern continued in almost every book. For example, Arthur was so worried about getting beat up by Binky, the school bully, that he did not finish his cheeseburger or his chocolate crème pie (6.6). Additionally, in book seven Francine used two cupcakes to bribe Arthur (7.5), and as mentioned previously, in book eight, Buster treated all his friends to ice cream after they visited Santa. Finally, Arthur turned down his after school snack of cookies and milk because he was focused on pulling his tooth in (9.4).

### *Learning*

The only sub-theme to emerge from the *learning* theme was education. From the text in each book, one can see education is important to the author because the school is a common setting in each story. Even when not in the school setting, school still appears to be an important factor in the character's lives. For example, in book four, a whole page is dedicated to Francine studying hard for her big math test (4.11). Also, in book seven, Arthur was doing his math homework despite the pressing issue on his mind (7.18).

Similar to *The Octonauts*, the author of this series also incorporated a few educational fun facts during the plot of the story. For example, Arthur and his friends find frogs in their sheets to which the Brain commented, "Amphibians. How fascinating," (5.11) and Buster responded, "No, they're frogs". Here the author educated readers on the scientific name of frogs using a funny scenario. Additionally, D.W. makes

a grammatical error in her speech saying “I teached Killer a Trick” but her grandmother corrected her saying “Taught... You taught Killer a trick” (8.8). Finally, in book 10, Arthur watched a class video that provided information on when people begin to lose their baby teeth (10.9).

### *Being A Better Person*

Along with showing readers that education is important, the author also showed readers how to be selfless. Selflessness was considered a prevalent theme in the study and the only prevalent theme to emerge from the *being a better person* theme. Only two books discussed and depicted acts of selflessness, but most of the selfless acts were found in book nine. It makes sense why book nine highlighted the importance of selflessness because it is about Christmas, the season of giving. Almost the entire book was dedicated to Arthur trying to find the perfect gift for Santa. He even went to the mall to sit on Santa’s lap and ask “Santa, what would you like for Christmas?” (8.10). Buster also displayed selflessness when he treated everyone to ice cream after the visit to Santa (8.13).

Discipline was part of the being a better person theme because it was used to correct bad behavior in order to make the individual a better person. For example, in book four Francine was wrongfully punished when Mr. Ratburn thought she had cheated on her math test (4.14). As a consequence, she was sentenced to board washing for a week while she watched her friends play outside (4.17). However, it was the discipline placed upon Francine that made Muffy confess what she had done. When Muffy finally told Mr. Ratburn she cheated and not Francine, Muffy was disciplined in the same way

and both characters learned consequence of cheating and being dishonest (4.27). Book six was the only other book where a character was disciplined for his actions. However, the book does not share if Buster actually learned from his actions after he was caught putting sneezing powder on Mr. Ratburn's desk as a part of an April Fool's joke. All the reader knows is that he was sent to the principal's office.

### *Negative Attitude*

Unlike *The Octonauts* book series, which had no negative sub-themes or characters treating each other in a negative way, the *Arthur* books had quite a few situations when characters had negative attitudes toward each other. However, it may be because the characters in the *Arthur* books were in elementary school, a common place for teasing and name calling among children. For example, Arthur's friends at school teased him when he showed up wearing glasses (2.10). Additionally, when Arthur took off his coat to play soccer, the note from his secret admirer fell out his pocket and Francine got a hold of it (3.12). She and Buster taunted Arthur calling him names like "Loverboy" (3.12) and "Hot Lips" (3.12). Furthermore, in book 10 Francine teased Arthur about still having all his baby teeth because he was the only one.

### **Research Question Two**

As mentioned in the method chapter, only healthy lifestyle sub-themes were explored in the illustrations of each series. Healthy lifestyle sub-themes mentioned in the narrative and depicted in the illustration were marked with a C for central. In the same manner, sub-themes depicted in the illustrations and not mentioned in the text were

marked with a B for background. In each series, the centrality of the healthy living sub-themes differed amongst each theme.

Although there was not a vast difference in central and background sub-themes, overall, the illustrations in *The Octonauts* series were more central to the narrative. However, there were more background depictions of healthy food ( $n = 8$ ) than central depictions ( $n = 3$ ). Central versus background sub-themes for physical activity were almost even but there was one more central depiction ( $n = 7$ ) than there was background ( $n = 6$ ) and all depictions of good hygiene were central ( $n = 5$ ; Figure 1).

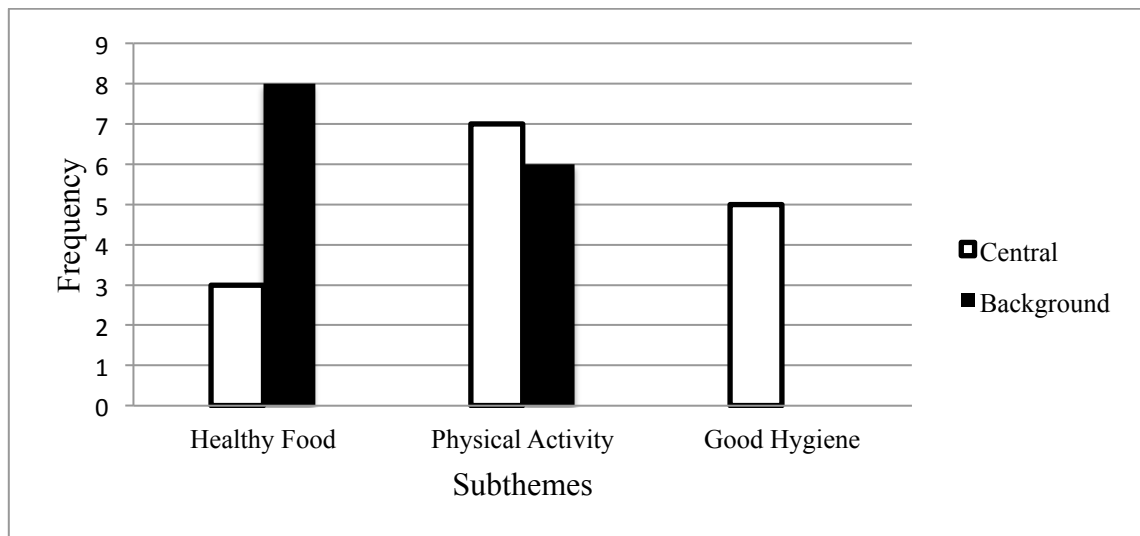


Figure 1. *The Octonauts*: Frequency of central and background sub-themes.

Just like *The Octonauts* series, the *Arthur* series had far more background depictions of healthy food ( $n = 34$ ) than central ( $n = 6$ ). Also, similar to *The Octonauts* series, central and background depictions of physical activity were almost even; but in this case there were more background depictions ( $n = 7$ ) than central ( $n = 5$ ). One significant theme that appeared in *The Octonauts* series but not in the *Arthur* series was

good hygiene. Good hygiene only appeared as a theme in book nine of the *Arthur* book series, but there were not enough depictions of good hygiene for it to be considered a significant theme (Figure 2).

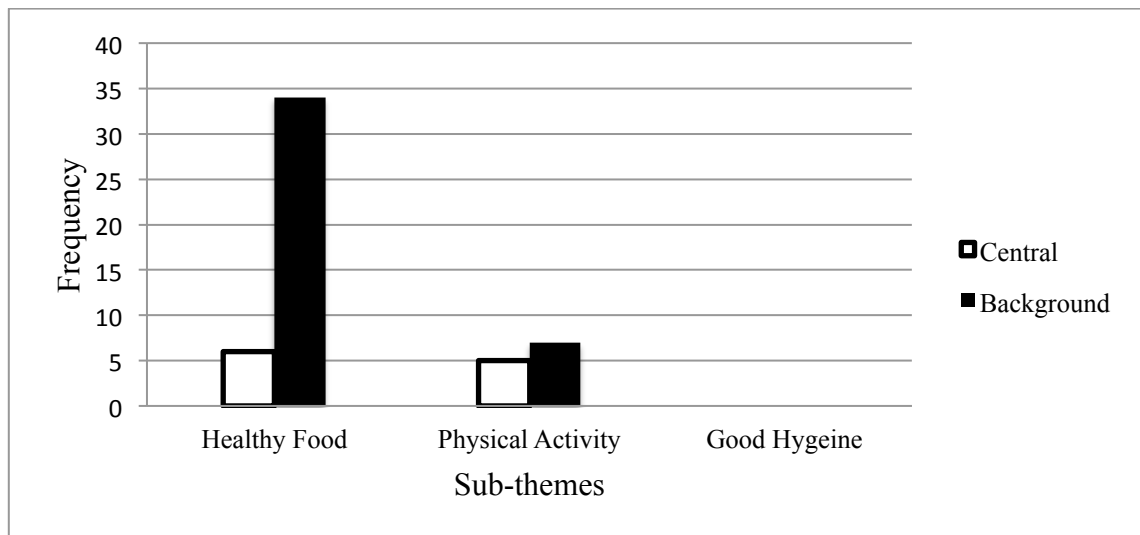


Figure 2. *Arthur*: Frequency of central and background sub-themes.

*The Octonauts* book series had more central depictions of physical activity ( $n = 7$ ) than the *Arthur* book series ( $n = 5$ ). However, *Arthur* had more central depictions of healthy food ( $n = 6$ ) than *The Octonauts* ( $n = 3$ ). In *The Octonauts* series, each depiction of good hygiene was central to the narrative ( $n = 5$ ). As mentioned previously, although good hygiene sub-themes did appear in the *Arthur* series, they were considered insignificant, which is why the amount was zero (Figure 3).



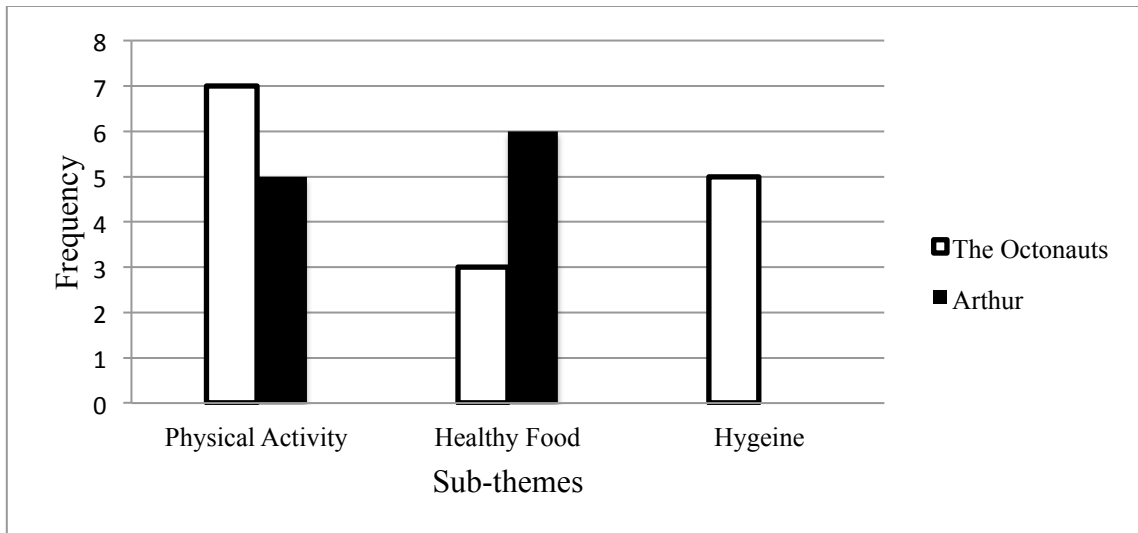


Figure 3. Comparison of central healthy living sub-themes in both series.

### Research Question Three

Although good hygiene fell into the healthy lifestyle theme, it does not help combat childhood obesity. Thus, when determining which series appeared to be more health conscious, the good hygiene sub-theme was not factored in. While both series had minimal healthy food and physical activity depictions central to the narrative, overall, the *Arthur* series had more central healthy living depictions ( $n = 11$ ) than *The Octonauts* ( $n = 10$ ; Figure 3). The *Arthur* series also had a greater frequency of background depictions of both healthy food and physical activity, but it was the large amount of background depictions of healthy food that set the Arthur series over the top in health consciousness.

In the majority of the *Arthur* books, the characters (mainly the children) ate healthy in the school and home setting. For example, Arthur and D.W. ate eggs, sausage, toast with honey and orange juice for breakfast (2.14), and when Arthur was holding his

lunch box, it appeared he had an orange and a sandwich in it (2.24). Similarly, in book three, Arthur, along with three other characters were depicted eating their school lunches, which consisted of apples, orange juice, a sandwich and a carton of milk (3.6). Furthermore, book four depicted Francine studying for her big math test at her desk with an open plum cider and the core of a red apple (4.11) and in book nine Arthur began his day with a bowl of “Funny Flakes” and a large glass of milk (9.1). Additionally, Arthur was depicted with a supper of steak, corn on the cob, an apple, peanut brittle, and a glass of milk (9.5).

In addition to depicting healthy foods, book 10 was also the only book that included characters eating healthy and incorporated health messages through illustration. On page 20 of book nine, while Arthur was waiting to be seen by the dentist, he and his mother were sitting in front of a poster that read, “Eat Healthy Snacks” and below the text was a collection of fruits. On the next page, Arthur was in the dental chair and behind the dental assistant was another sign illustrating a smiling tooth holding an apple in one hand and a vine of grapes in the other with the a “Eat Balanced Meals and Healthy Snacks” message (9.22).

Not only were the children of the *Arthur* series eating healthy, but the adults were as well. For example, during their family television time, Arthur’s parents were consuming health chips and low calorie pretzels (2.12). Book eight had the most depictions of adults eating healthy. For example, a woman was depicted examining a box of low-calorie chocolate candy canes (8.13). Additionally, when Arthur was trying to discover what Santa wanted, he found multiple Santas with or consuming healthy

foods or beverages (8.19, 8.20, 8.24). The Santa Arthur saw in the mall had a prune juice by his side while he worked and a slimmer Santa Arthur saw at a carwash was drinking a diet root beer (8.19). Also, Arthur viewed a Santa on television who was advertising pickled peppers while he took a bite out of one (8.20). Lastly, Arthur saw another slim Santa in the grocery store with a basket full of healthy foods such as lettuce, all natural granola, carrot juice, sprouts, bananas, oranges, and what appeared to be a cantaloupe (9.23).

## CHAPTER V

### CONCLUSIONS, RECOMMENDATIONS, LIMITATIONS

*Arthur* and *The Octonauts* were two very entertaining series sure to please any reader. Each series was filled with colorful illustrations and even more vibrant characters to retain the attention of young readers. Although neither of the series went out of their way to promote healthy living, there were plenty of background illustrations and subtle messages regarding healthy living that parents or guardians can expand on while reading to their children. I anticipated the frequency of the healthy living theme in each series to be large both centrally and in the background. However, what I anticipated was not what was revealed. Below are conclusions for each of the three research questions along with the recommendations, limitations and implications.

#### **Research Question One**

From the samples, I concluded that sub-themes emerging from the narrative of both series varied greatly but were positive overall. *The Octonauts* book series was a positive, educational book series that not only entertained young readers but also expanded their knowledge while aiming to assist in character building. Similarly, *Arthur* was a humorous and relatable book series that also expanded the reader's knowledge. However, from the themes and sub-themes that emerged it was clear the purpose of these series was not to educate the reader on living a healthy life.

It was very challenging to find sub-themes in the *Arthur* book series because although it was written in the third person, as *The Octonauts* series was, it was far more conversational between characters. Therefore, I was forced to create broad themes to

ensure all sub-themes fit under a theme. Another reason it may have been more challenging to find sub-themes within the *Arthur* book series is because of the maturity of the characters in *Arthur* versus the maturity of the characters in *The Octonauts*. Although the Octonauts ages were not shared, one can assume they were more mature and more educated because the characters held titles like “Professor, Engineer, and Scientist” and they spoke with a more advanced vocabulary. The specific age of the characters in the *Arthur* book series was not known either; however, one can assume the characters were in elementary school because they only had one teacher.

Although *The Octonauts* series taught children valuable lessons, the majority of the lessons came from the *learning* and *being a better person* theme. The lessons also served the same purpose in each book, which was to increase the academic knowledge of its readers and teach its readers how to be well-mannered. Unlike *The Octonauts*, the *Arthur* series did not appear to have a purpose other than to teach a different but valuable life lesson in each book throughout an entertaining narrative.

The only lesson to emerge as a sub-theme within the series was selflessness. The others lessons in the *Arthur* series seemed to come from the theme of the book as a whole. For example, book one taught readers about self-love, book two was centered around pride, and book four gave the lesson of accountability. Additionally, book six taught children to stand up to bullies without using violence, book seven educated children about togetherness, and book eight was centered around the theme of giving. The themes of each book within both series were not factored in when comprising the units of analysis and were not mentioned in the findings as a result. Had I had known

the narrative themes representing the purpose of the *Arthur* series would emerge from the *Arthur* books as a whole and not just from the sentences and paragraphs, I would have included the books as a unit of analysis.

### **Research Question Two**

Although this study analyzed healthy living themes for centrality to the narrative, Goldman and Descartes (2016) were the first researchers to analyze the frequency of food depictions and their centrality to the narrative. Their study revealed “the frequency of a food’s depiction and its centrality to the narrative were not closely linked” (p. 206). The same can be said for the current study. In *The Octonauts* series, carrots were the most illustrated background healthy food, but there were no mentions of carrots in the narrative. Similarly, the *Arthur* series had many background illustrations of fruit but book nine was the only book to incorporate positive messages about fruit in the form of two dental office posters.

Additionally, although there were physical activity depictions central to the narrative, these central depictions did not encourage physical activity. The depictions of physical activity that were mentioned centrally in the *Arthur* series were only included to fit the context of the story. For example, when Arthur took off his coat to play soccer in book three, the author was setting the stage for his friends to find the note from his secret admirer. Furthermore, in the same book Arthur runs to the movies instead of riding, but not because it is healthier. He runs to the movies to get there faster. Additionally,

Unlike the *Arthur* series, the central depictions of physical activity in *The Octonauts* were not included to fit the context of the story but the narrative neither

discouraged nor encouraged physical activity. It appeared that central depictions of physical activity were only used to show readers what the Octonauts liked to do in their spare time. For example, in book one Dashi Dog was depicted playing basketball but the narrative did not state that she was playing basketball because it is a great way to stay in shape, it simply stated she was playing basketball. Similarly, Captain Barnacles was exercising in book two but the narrative did not state that he was exercising to stay fit; it just stated he was exercising.

Neither Byrne and Nitzke (2000) nor England et al. (2015) examined the narrative when factoring in the presence of nutrient dense versus nutrient poor foods in the books; they only examined the illustrations. However, Goldman and Descartes (2016) did and they found nutrient dense foods were less likely to be mentioned centrally than nutrient poor foods. Similar to Goldman and Descartes (2016), in the *Arthur* series, there were more mentions in the narrative of unhealthy foods than healthy foods. However, in *The Octonauts* series healthy and unhealthy foods were both mentioned the same amount of times in the narrative.

I initially believed the frequency of healthy living sub-themes central to the narrative would have been greater than what was revealed. As mentioned previously, though both books incorporated healthy living themes into the illustrations and narrative, neither of the series' purpose was driven by the desire to educate its reader about healthy lifestyles. Perhaps, if the purpose for each series were to educate readers about living a healthy lifestyle, healthy lifestyle themes would have been more central to the narrative.

### **Research Question Three**

Similar to the findings of Byrne and Nitzke (2000), over half of the books in each series of the current study had at least one reference to food. Additionally, both series presented more nutrient dense foods than nutrient poor foods, but only in the illustrations. Although nutrient dense foods were presented more frequently than nutrient poor foods, Goldman and Descartes (2016) found that books within their sample “present[ed] sweet and comparatively unhealthy foods as very desirable” (p. 207).

Just as Goldman and Descartes (2016) found nutrient poor foods to be more desirable in their sample, books within the current sample also depicted nutrient poor foods as desirable. For example, in book three of *The Octonauts* series, when the Octonauts were trying to cheer up the frown fish, they baked pastries and they all looked very cheerful (3.21, 3.22). Additionally, in book one, Tunip the Vegimal was baking a cake with a cheerful smile on his face. Similarly, in book four of the *Arthur* series, Mr. Ratburn treated his students to chocolate sodas after they won their softball game, and in book eight Buster treated everyone to ice cream during their visit to see Santa (8.13).

The above mentioned background illustrations depicted nutrient poor foods as more desirable in both series, however, *Arthur* was considered to be the more health conscious series because it had more central and background depictions of healthy living. As mentioned previously in the conclusion of research question two, the centrality of healthy food was not closely linked to the narrative, and the depictions of physical activity were neither encouraged nor discouraged in the narrative. The authors in each series could have incorporated more direct messages encouraging healthy diet and exercise to accompany the illustrations of healthy food and physical activity.



However, I think it is great that the authors tried to at least illustrate the characters in each series pursuing healthy lifestyles.

### **Recommendations**

The current study as well as the majority of the studies mentioned in the conceptual framework (Byrne & Nitzke, 2000; England et al., 2015; Goldman & Descartes, 2016) did not incorporate children into their study. Byrne and Nitzke's 2002 study was the only study that used children when examining a storybook's effect on a child's behavior toward a healthy food. However, the findings of their study could only be regarded as preliminary suggestions because of unanticipated factors. For the current study, it would make sense to get a preschooler's feedback on what they took away from the books through a post-test or survey.

Although the process of using preschool children in a study can be long and strenuous, their presence would increase the strength of the study. Along with increasing the strength of the study, using preschool children to read the books during experimental research and following them for a period of time in future studies would also allow researchers to begin to make conclusions about how the books influence children's attitudes and behaviors toward healthy food and healthy living in general. Additionally, the use of children would allow researchers to support or refute the proposed theory associated with reading and behavior. Previous studies (Byrne & Nitzke, 2000; England et al., 2015; Goldman & Descartes, 2016) refer to the social learning theory as a possible foundation for how children learn. However, the theory could not be supported or refuted in those studies nor this one because children were not used.

Because I found the purpose of the two book series within my sample not to be health conscious, a recommendation would be to examine other popular books and book series for emerging themes and sub-themes to figure out the purpose. If researchers find these books or book series are not health conscious, a recommendation for practice would be to write more children's books where healthy living is the purpose. Because television is the most commonly consumed form of media next to books, it would be beneficial to also examine preschool television shows for messages and depictions of healthy living to see if the same gap exists. If so, another recommendation for practice would also be to create new television shows that focus on communicating healthy living.

In addition to examining other popular books and book series as well as television shows, researchers could also compare EE productions to non-EE productions. The purpose of EE productions is to influence healthy food consumption through an entertaining narrative. Therefore, future studies could compare how EE productions impact a child's attitude toward healthy living to non-EE productions. Researchers could examine which type of book children prefer to read and what characteristics of the book made them want to read it. This same research strategy can also be used to compare health driven television shows to more popular non-health driven television shows.

Based on the feedback the researchers receive from the children, they can work with the appropriate entity to create a new book or television series that is health driven, but also encompasses the desirable characteristics of a popular children's book or

television show. If creating a new book or television series is not possible, better promotion of health driven preschool media needs to occur.

Additionally, future studies could also test Bandura's theory regarding the combination of verbal and imagery codes to create memory codes. Researchers could use multiple books promoting healthy living. One book would consist of solely the narrative, the other book would only consist of illustrations, and another book would combine both the narrative and illustrations. After reading and reflecting on each book aloud, a test or survey could be used to examine what the children grasped from each type of book to examine if the combination of the narrative and illustrations really does help children retain information better than just having one or the other.

Aside from testing Bandura's theory, a reading program that incorporates parents could be designed. The program could start in extension and roll over into the school system based on the data gathered from the extension program. For the program, extension agents would be provided with a list of health driven age appropriate books, based on research. The agents would also be provided with instructions on when and how to read the books. Children would be provided with a personal copy of each book they read with the extension agents as well as a take home activity that they must complete with a parent or guardian. After completing the take home activity, the parent or guardian would sign off on it and the child would receive a reward. The reward would make children want to participate in the program and the presence of an adult during reading time and a parent or guardian during the take home activity would help children better comprehend and internalize the messages they read in the health conscious books.

## **Limitations**

The number of books evaluated was a major limitation. It would have been preferable to analyze more books, but because of the limited amount of time allotted to conduct this study, I could only analyze 10 books per series. Also, excluding children from the study was a major limitation of the study. Additionally, I also would have preferred to have one more researcher present to analyze data to increase the strength of triangulation. However, due to schedule variations of other potential researchers, two researchers analyzed the data.

Another limitation of the study was that it only focused on books and not the television show the books were depicted after for possible variation in themes. Also, the study does not research how much kids read today. Because America is becoming increasingly dependent upon technology every day, it would be useful to examine how much children read versus how much they consume other forms of media such as television and video games.

## **Implications**

This study implicates there is still a lot of work to be done by agricultural communicators in the fight to end childhood obesity. Because children have the ability to decide how they feel about diet and exercise at an early age, it is our job as agricultural communicators to ensure children understand the importance of leading a healthy lifestyle as early as possible. Based on my study it is apparent that health messaging in popular children's books is limited. However, children are the solution to solving the problem of childhood obesity.

If the findings, conclusions, and recommendations of my study are not taken into consideration, agricultural communicators will continue to see a pattern of children who are obese growing into obese adults. However, if the findings, conclusions, and recommendations of my study are taken into consideration, agricultural communicators will increase positive messaging regarding healthy living into popular children's books and other media. Additionally, agricultural communicators will not focus on communicating the importance of healthy living solely to adults. Instead, they will find effective ways to communicate healthy living to children and remain consistent in educating children about health living long after preschool.

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APPENDIX A

Book Title				
Illustration or Narrative?	Description of image or quote	Pg #	Notes about description	Theme