

USER-CENTERED DESIGN OF VIDEOS TO EDUCATE LOW-INCOME PARENTS
ON HEALTHFUL FEEDING PRACTICES OF YOUNG CHILDREN: A CAMINITOS
COLLABORATIVE PROJECT

by

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LIST OF ABBREVIATIONS

Abbreviation	Description
Best Food FITS-	Best Food for Families, Infants, and Toddlers
CDC-	Centers for Disease Control and Prevention
BMI-	Body Mass Index
NHANES-	National Health and Examination Survey
WIC-	Supplemental Nutrition Program for Women, Infants, and Children
SEM-	Social-Ecological Model
DRI-	Daily Recommended Intake
DGA-	Dietary Guidelines for Americans
HHS-	United States Department of Health and Human Services
USDA-	United States Department of Agriculture
AAP-	American Academy of Pediatrics
AHA-	American Heart Association
CSFP-	Commodity Supplemental Food Program
RWJF-	Robert Wood Johnson Foundation
SCT-	Social Cognitive Theory
UCD-	User-Centered Design
PBL-	Problem-based learning
PDF-	Portable document format

IRB- Institutional Review Board

CITI- Collaborative Instructional Training Initiative

TRACS- Teaching, Research and Collaboration System

TSCDC- Texas State Child Development Center

I. INTRODUCTION

The prevalence of childhood overweight and obesity in the U.S. remains high.^{1,2} The causes of childhood obesity are multifactorial and there are many negative health consequences associated with the condition;³ thus, this public health crisis has drawn the attention of researchers and health professionals in recent years. Scientific evidence to support healthful feeding practices for young children continues to emerge. Healthful practices followed during early childhood set the stage for long-term health and obesity prevention.⁴ Much is already known about early feeding, yet no consensus of feeding practice guidelines for young children in the U.S exists.^{4,5} There is a great need for clear recommendations, as the information available to parents is abundant and overwhelming.⁶ Additionally, there is a need for interventions that effectively translate evidence-based research into information that parents find engaging, practical, interactive, and informative.^{7,8}

Previous research shows parents are interested in learning about nutrition, food, and physical activity from technology, and particularly from videos.^{8–11} Furthermore, programs such as Head Start and preschools may contribute to nutrition education interventions as they interact directly with families and children, which allows them a unique opportunity to provide guidance on early feeding practices. Research initiatives such as Best Food for Families, Infants, and Toddlers (Best Food FITS) and *Caminitos*, which work closely with such programs, have the potential to address these gaps in the literature.

Best Food FITS and Caminitos

How this Project fits within Best Food FITS and Caminitos

Best Food FITS is a community-focused research program in central Texas devoted to improving the health of children by reducing the risk of childhood obesity. Headed by faculty from the Nutrition and Foods program at Texas State University, the program began its endeavors in 2010 with the aim of increasing children's fruit and vegetable consumption and decreasing their intake of sugar-sweetened beverages. To date, Best Food FITS has improved children's menus in the community,¹² and in childcare centers.¹³

Caminitos, also known as "little roads," is a program within the Center for P-16 Initiative at Texas State University that strives to create pathways to success for preschool-aged children and their families. The program works to foster positive pre-kindergarten experiences that promote educational success and healthy children. The primary strategies of *Caminitos* are to increase organized physical activity and nutrition education during school, improve gross and fine motor skills, and increase parental knowledge about healthy eating practices as well as physical activities for the home environment.

With similar goals, Best Food FITS and *Caminitos* are collaborating to combat childhood obesity, foster growth and development, and promote positive health behaviors. Created under the umbrella of both Best Food FITS and *Caminitos*, this thesis project aimed to engage parents of young children to learn about appropriate feeding practices that contribute to their children's health. The overall goals of this project were to create student-generated educational videos on several feeding practice guidelines for

parents of young children and to gather their perspectives and impressions of the videos to determine whether they were effective educational tools for parents.

II. LITERATURE REVIEW

Childhood Obesity

Statistics

In the past decades, the prevalence of overweight and obesity in the U.S. has affected many populations. Due to the increasing rates of overweight and obesity among infants, toddlers, and school-age children, the health of these populations is now a leading concern. Childhood “overweight” and “obesity” are determined in children and adolescents 2-19 years of age based on the U.S. Centers for Disease Control and Prevention (CDC) body mass index (BMI)-for-age growth charts.^{14,15} Percentiles that are age and sex specific for BMI are used to classify these conditions.^{14,15} Specifically, “overweight” and “obesity” for children and adolescents 2-19 years of age are defined as BMI at or above the 85th percentile to less than the 95th percentile, and at or above the 95th percentile, respectively.^{14,15} “Obesity” is not a recommended term to use for children younger than 24 months. Instead, the CDC uses growth charts assessing sex-specific weight for recumbent length at or above the 95th percentile to define “excess weight” or “overweight.”¹⁴

The prevalence of childhood overweight and obesity in the U.S. remains high as obesity among pre-school and school-aged children continues to rise.² Specifically, according to a 2015-2016 National Health and Examination Survey (NHANES), 18.5 % of U.S. children and adolescents ages 2-19 years assessed were obese.² Also, the survey data revealed that 13.9% of children ages 2-5 years were obese, reflecting a 4.5% increase from the 20013-20014 NHANES.¹⁶ In Texas, the rate of childhood obesity in children 2-5 years is slightly higher (15.3%) than the national rate.¹⁷ Children in Hays county in central Texas are disproportionately affected, with 16% of children ages 2-5

years experiencing obesity.¹⁸ Furthermore, preschool-age children (2-5 years) from low-income families have the highest rates of obesity. Specifically, 14.7% of preschool-aged children from low-income families in the US were obese,¹⁹ and 15.7% of low-income preschool-aged children in the state of Texas were obese.¹⁸ Programs such as the Supplemental Nutrition Program for Women, Infants, and Children (WIC), which serve low-income children under the age of 5 also have high prevalence rates of obesity in the nation (14.5%) and Texas (14.9%).²⁰

Ramifications of Childhood Obesity

High rates of childhood overweight and obesity are associated with numerous negative ramifications, including short and long-term impacts on a child's physical, social, and mental health. Early childhood obesity can have immediate health challenges that impact a child's cardiovascular, respiratory, skeletal, endocrine, reproductive, and digestive systems. Children who experience obesity may suffer from physical health complications, such as obstructive sleep apnea and asthma, bone and joint problems, non-alcoholic fatty liver disease, gallstones, and gastro-esophageal reflux.²¹ Immediate comorbidities such as high blood pressure and high cholesterol significantly increase the risk of heart disease as an adult.²² Obesity is the greatest risk factor for type 2 diabetes mellitus, and children who are obese have a higher risk of developing diabetes during adolescents.^{3,21} Other concerns related to childhood obesity include social and mental health challenges, such as being targeted for bullying and teasing, and experiencing social isolation, low self-esteem, anxiety, and depression.^{3,21} Finally, preschool and school-age children who are obese are more likely to become obese adults.^{22,23} Of concern, negative health outcomes such as hypertension and diabetes developed early in life are not only

likely to be more severe later, but can be linked to more than one chronic disease.

Importantly, healthful practices followed during early childhood may help prevent many of these unfortunate consequences associated with obesity.

Causes of Childhood Obesity

There are many complex factors that may contribute to childhood obesity. These factors can be visualized using a social-ecological model (SEM) describing the influencers of childhood obesity.^{24,25} As depicted in the model (Figure 1),²⁴ components that may impact childhood obesity include intrapersonal and interpersonal factors, in particular feeding practices and behaviors; the home and built environment, which may consist of the family, child care centers, schools, and food outlets; and macro-level sectors of influence, such as food and beverage industries, societal and cultural norms, food marketing and media, and policies and programs.^{24,25} It is important that researchers consider the causes of childhood obesity within the context of the SEM in order to properly target intervention strategies.

Intrapersonal or individual factors that may be associated with increased risk of childhood overweight and obesity include a child's genetic makeup, such as having the fat-mass and obesity-associated gene,²⁶ race and ethnicity, in particular Hispanic and non-Hispanic black children,^{1,16} low socio-economic status,^{18–20} and maternal behaviors such as smoking during pregnancy, poor dietary intake, gestational weight gain, and formula feeding or short duration of breastfeeding.^{27–29}

Interpersonal factors within the social environment involve the connection and interactions children have with their parents, family, peers, and others in the community, such as teachers, who may have a strong influences on the child's food choices and health

behaviors.²⁴ The home food environment and the built environment, which includes the home, restaurants, schools, and childcare are physical settings not only where food is consumed or attained, but where social interactions around food and activity occur.²⁴

A child's first interactions often occurs with their parents in the home environment; thus, positive parental role modeling and knowledge of appropriate feeding practices is essential in influencing healthy food preferences and eating behaviors across all stages of early feeding. Controlling feeding practices of the parent, such as restriction of specific foods and quantity of foods, pressure to eat, observing intake of food, and offering rewards for food consumption or using food as a reward can negatively impact a child's dietary patterns, food preferences, and weight status.³⁰⁻³³ These practices may contribute to increased risk of obesity. Conversely, children are likely to prefer unhealthy foods less often when parents model healthy eating habits, provide explanations of the importance of healthy foods, and make healthy foods available in the home.³² In addition, parents who reward healthy eating with verbal praise, encourage family mealtime, and include children in food planning and preparation engender healthy food preferences and intakes among their children.^{31,32} On the other hand, research suggests factors within the built environment that contribute to increased rates of preschool obesity in urban and poor communities may revolve around high accessibility of fast food.³⁴ Additionally, the close proximity of fast food restaurants to schools are significantly associated with higher rates of childhood obesity.³⁵

Lastly, the macro-level environment describes sectors of influence that may be associated with elevated rates of childhood obesity. For example, food and beverage industries and societal and culture norms can impact feeding practices and behaviors in

young children. Approximately one third of U.S. children consume food outside of the home with their families, particularly from fast food and sit-down restaurants, and often not from a kid's menu.^{36,37} Most of these foods are purchased for convenience, served in large portions, are more energy-dense than nutrient-dense, are higher in fat, sodium, and sugar than foods prepared in the home, and do not meet the specific nutrient recommendations for young children.^{34,36,37} The poor quality of foods consumed by children away from home may increase a child's risk of becoming overweight or obese.^{36,38}

The restaurant industry is not the only macro-level sector influencing dietary decisions. Cultural norms can play a significant role in the food and beverages children consume. For example, Hispanic culture and practices may contribute to differences in food preferences and dietary patterns. Compared to non-Hispanic infants and toddlers, Hispanic children of the same age are more likely to consume common culturally-accepted foods and beverages such as rice, beans, tortillas, soups, cookies, and fruit-flavored drinks.³⁹ These dietary patterns, which include high intakes of sugar-sweetened beverages, high-fat and processed foods, and low consumption of fruits and non-starchy vegetables are common among Mexican-American families and children.^{40,41} Therefore, cultural feeding practices established during early childhood may contribute to long-term food preferences and poor dietary habits that adversely affect children's health and obesity risk.³⁹

It is evident that many factors within the SEM may hinder parents from engaging in healthy feeding practices with their children. However, the home environment can play a particularly pivotal role in promoting healthy feeding practices, especially during the

first few years of children's lives, a critical period for physical, social, and mental growth and development. Therefore, introducing appropriate feeding practices in the home as children transition from infancy to early childhood is of the utmost importance.

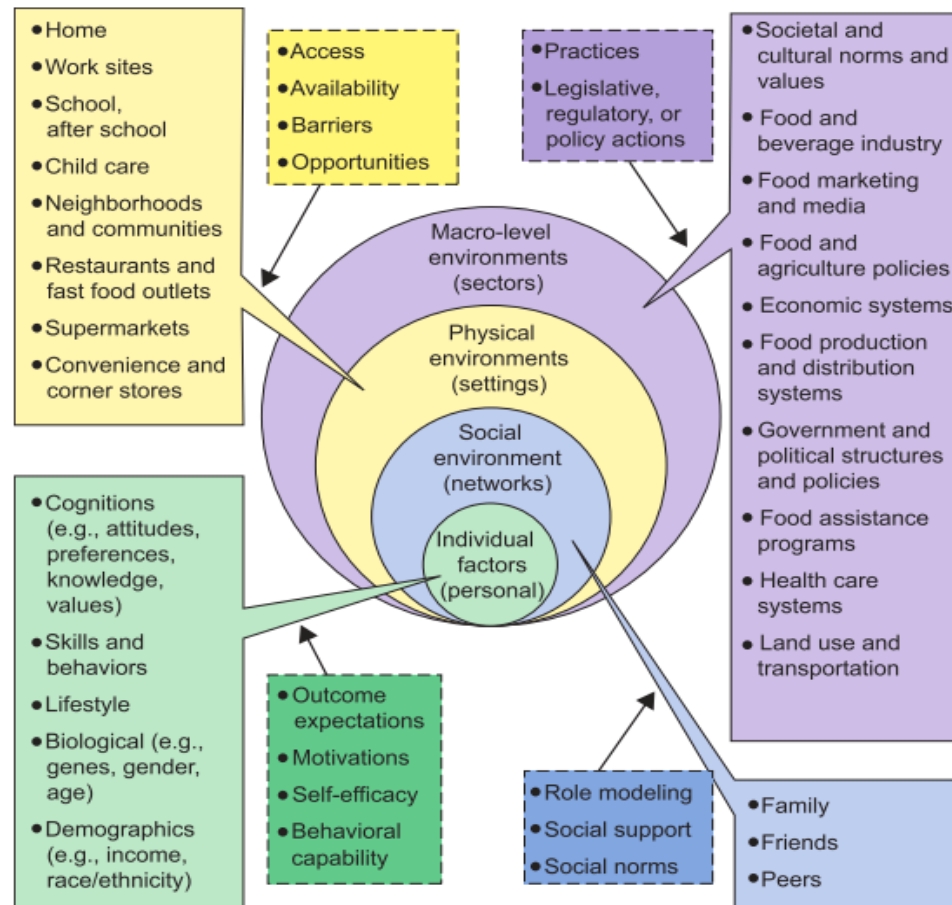


Figure 1. An ecological framework depicting the multiple influences of childhood obesity.²⁴

Early Feeding

In response to recent scientific evidence, the first 1000 days of life, from conception until a child is two years of age, is described as a movement that supports adequate nutrition during this time period; these 1000 days are the foundation for fostering healthy children.⁴² Although achieving optimal nutrition throughout any point in an individual's lifespan is beneficial to living a healthy lifestyle, the first 1000 days is

frequently referred to as the most crucial time period for a child's growth and development.⁴³ Ensuring proper nutrition during this window of opportunity may prevent obesity and the development of chronic diseases occurring during early childhood and later as an adult.^{4,44} Furthermore, the rates of U.S. pre-school and school-age children experiencing obesity is on the rise, thus healthful feeding practices and positive feeding behaviors for children three to five years are also of importance.^{2,45}

As children grow, they experience different feeding practices during early and late infancy, as toddlers, and throughout their preschool years. Scientific-evidence addresses several important issues around feeding practices for children under the age of five. This section will address breastfeeding and formula feeding, specific nutrient needs around six months of age, and recommended complementary feeding and parental practices.

Recommended Feeding Practices During Early Feeding

Exclusive breastfeeding for the first six months of life is the first feeding practice recommended to mothers because of the many benefits of breastfeeding for both mother and child.⁴⁶ The benefits breastfeeding provides to an infant include an abundance of nutrients essential for growth, a strong bond with mother, protection against infections and allergies, an enhanced immune system, and reduced risk for asthma and infant morbidity and mortality.⁴⁷ In addition, several studies have indicated breastfeeding to be a protective factor against childhood obesity.^{4,48–50} A 2014 meta-analysis conducted by Yan and colleagues⁴⁸ concluded breastfeeding lowered the risk of obesity in children by 22% compared to children never breastfed. Furthermore, longer durations of breast feeding (≥ 7 months) has demonstrated significant protective effects on the prevalence of childhood obesity, while shorter durations (< 3 months) of breastfeeding provide minor

protection.⁴⁸ In more recent studies, research suggests exclusive or not, breastfeeding of any duration may reduce the risk of childhood obesity.^{49,50} Although breastfeeding provides many advantages for children's short and long-term health, it is not always the chosen feeding practice for infants. Commonly reported reasons for not initiating breastfeeding or early cessation include maternal fatigue, perceived low milk supply, medical conditions, breastfeeding difficulty, returning to work/school, and lack of family and social support.^{47,51} Therefore, formula feeding can become an alternative during this life stage.

Infant formulas are carefully manufactured to meet the needs of infants but can be fortified with iron and other critical nutrients to support infant growth and development. These formulas however, often have higher levels of protein than needed during this life stage, which may contribute to weight gain and increased risk of children experiencing obesity;⁵² thus, high protein formulas are of concern. In support of this concept, studies have also indicated that low protein formulas, similar to the protein content of breast milk, may lower body weight and reduce the risk of childhood obesity.^{53,54} A study conducted by Weber and colleagues⁵³ tested the early protein hypothesis by analyzing correlations between protein content of infant formula, BMI, and the prevalence of obesity in school-age children. Findings indicated infants fed the lower protein formula had lower BMI and risk for obesity compared to infants given the high protein formula.⁵³ Interestingly, the BMI of infants fed the low protein formula was similar to that of the breastfed infants;⁵³ suggesting low protein formula may be an effective alternative to breastfeeding.

As infants grow, their nutrient requirements change, and they can no longer be fully satisfied by breast milk or infant formula alone. Therefore, complementary feeding around six months of age is necessary to support further growth and development.⁵⁵ While choosing healthy complementary foods is important to provide optimal nutrition, so is how those foods are prepared. Healthful food preparations such as baking or steaming instead of frying; pairing unfamiliar foods with familiar foods; repeated exposure to new foods, in particular vegetables as they often have a bitter taste; and transitioning to table food (e.g. puree, mashed, chopped foods) promote exposure to an array of new flavors and textures, which is essential to shaping children's food preferences and acceptance.⁴

Iron and zinc are two essential nutrients needed around six months of age due to the daily recommended intake (DRI) for these minerals increase.⁵⁶ Additionally, iron and zinc are particularly important for breastfed infants as stores decline and breast milk no longer provides enough of these nutrients.^{4,57} It is for this reason that baby food meats along with iron- and zinc-fortified cereals are some of the first recommended foods for infants.⁴ Other nutrients to offer are foods high in unsaturated fats, particularly essential fatty acids. Research suggests introducing foods high in alpha-linolenic acid (omega-3) and linoleic acid (omega-6) to ensure proper brain growth and development.⁵⁸

In addition to these particular nutrients, infants need a variety of foods from all food groups that provide sufficient macro- and micronutrients. Consumption of fruits and vegetables among U.S. infants and young children is alarming similar to that of adults, whose fruit and vegetable intake accounts for less than 10 percent of energy.²⁹ Findings from the Infant Feeding Practices Study II and the Year 6 Follow-Up study indicated

fruits and vegetables consumed less than one time daily during late infancy mirrored similar eating behaviors at six years of age.⁵⁹ Therefore, early and frequent introduction of whole fruits and vegetables may positively influence dietary behaviors later in life. Although fruit is recommended for infants, the consumption of fruit juice is not, as it offers no nutritional benefits over whole fruit and provides a large amount of sugar without the fiber found in fruits.⁶⁰ The introduction of fruit juice during early infancy has been associated with increased risk for early and mid-childhood obesity.⁶¹ Lastly, foods and beverages that are calorically dense and high in saturated fat, sodium, and added sugars,^{4,29} including sugar-sweetened beverages,⁶² should be avoided as they provide no nutritional value for growing children and are dietary risk factors for childhood obesity and other chronic diseases.^{4,29}

As with infants, growing toddlers and preschoolers also need healthful diets composed of a variety of foods, such as fruits and vegetables, lean meat and meat alternatives, whole grains, and dairy products.⁴ Consumption of foods and beverages high in calories, fat, sugar, and sodium may promote a lifetime of poor dietary patterns and health outcomes, and thus should be avoided. This stage of life is often characterized by picking eating, and feeding can be a challenge for parents.⁴ Parents who view his or her child as a picky eater are more likely to pressure their child to eat and restrict consumption of unhealthy foods,⁶³ which are parental practices that have been associated with higher intakes of unhealthy foods.³¹ Feeding practices that may promote positive eating behaviors of the child include frequent exposure to new foods, pairing unfamiliar foods with familiar foods, providing a variety of healthy foods in the home, parental role

modeling of eating healthy foods, and fostering the development of self-regulation through responsive parenting.⁴

Current Feeding Guidelines for Infants and Young Children in the U.S.

The 2015 Dietary Guidelines for Americans (DGA) are evidence-based recommendations published every five years by the United States Department of Health and Human Services (HHS) and the United States Department of Agriculture (USDA).⁵ The DGA provide recommendations on foods and beverage intake for Americans two years of age and older, with the aim of promoting healthy lifestyles and preventing chronic diseases.⁵ The extensive report includes, but is not limited to, recommendations on estimated calorie needs, macro- and micronutrient goals, food groups and sources, and physical activity. While these guidelines have been used as a foundation for policy makers, health professionals, and the public, they do not provide recommendations to support early feeding practices and nutrient needs of children younger than two years of age.^{4,5} Indeed, there is overall absence of national comprehensive feeding guidance for US infants and toddlers.

To fill this gap to the extent possible, other organizations, such as the American Academy of Pediatrics (AAP) and the American Heart Association (AHA) have provided some early feeding recommendations for infants and young children.^{64,65} For example, with the goal of promoting cardiovascular health, the AHA provides dietary recommendations for infants and children ages one to three.⁶⁵ Other organizations cover early feeding stages in more detail. For example, the AAP routinely publishes articles for parents and caregivers related to breastfeeding and formula feeding, introduction of solid foods, requirements for specific nutrients, development of food preferences and

behaviors, recommended food groups and beverages, and food safety.⁶⁴ Government entities like the USDA not only contribute to developing the DGA, but also provide resources to guide feeding recommendations for young children that specifically target child nutrition programs such as WIC and the Commodity Supplemental Food Program (CSFP). Many of these resource guides, however, are outdated and do not address current feeding practices supported by the scientific literature.^{66,67} There are many other parent-friendly resources, often web-based, that provide information on what and how to feed young children.^{68–71} However, parents may be overwhelmed by the amount of information provided or by the fact that many recommendations are not consistent and may not apply specifically to their child’s feeding stage.⁶

More recently, the *Healthy Eating Research* program of the Robert Wood Johnson Foundation (RWJF) published a report of evidence-based research covering the past 20 years on nutrition and feeding practices in order to address the gap in knowledge of *what* and *how* to feed children two years or younger. The goal of this document is to fill this gap until recommendations for this age group is included in the 2020 DGA.⁴ Detailed guidelines were generated for caregivers by an expert panel, and included what food groups and/or nutrients to feed an infant or toddler, food and beverages to limit/avoid, the importance of dietary diversity, and how to best go about feeding young children through responsive feeding.⁴ Additional guidelines of importance for caregivers addressed food allergies, food safety, physical activity, and screen time.⁴ The guidelines are meant to communicate to caregivers about appropriate feeding practices that support their child’s rapid growth and development. Additionally, this report sets the stage for other nutrition and health professionals to participate in future development of new

evidence-based feeding practice guidelines that can be used to inform and educate caregivers, child-care settings, and Head Start/Preschool programs in which infants and toddlers are becoming more involved.⁴

Development of Feeding Practice Guidelines

Role of Students and Health Professionals

An abundance of research on early feeding practices has emerged as the rise in childhood obesity became of concern to researchers, health professionals, and the nation alike. However, a set of evidence-based guidelines for feeding children under age 2 has yet to be formulated for the public. In the absence of such guidelines, university nutrition programs can empower students enrolled in formal coursework to systematically investigate the literature and develop evidence-based guidelines appropriate for feeding young children. Courses that emphasize the importance of nutrition research and evidence-based practice can benefit students as they further their careers as nutrition professionals. Course-based research not only allows students to strengthen skills in critical thinking, but it also builds additional competencies through the development of practice skills such as leadership, teamwork, oral and written communication, and self-organization.⁷² Most importantly, students gain the ability to analyze and interpret current literature, a critical skill for future nutrition professional.⁷² Specifically, a pedagogical approach to learning fosters the development of professional competency skills that may not be developed by other traditional teaching methods.⁷² Challenging students to translate research into parent-friendly information provides concrete experience communicating with target populations, an essential skill for applying evidence-based practice in community and clinical settings.

Health professionals can also play a role in the development of nutrition guidelines. For example, the RWJF *Healthy Eating Research* report on feeding practice guidelines for infants and young toddlers was generated by an expert panel, which included doctors, professors, registered dietitians, and research directors.⁴ Involvement with such groups empowers health professionals to develop a more thorough understanding of current research and how that information should be translated for public use. Health professionals can then use these evidence-based guidelines in their practice to educate and support parents on the importance of early feeding.⁴

Use for Parents

A primary goal of developing guidelines on appropriate feeding practices for infants and young toddlers is to condense a large amount of complex information into something that parents find useful and easy to understand. User-friendly guidelines have potential to enhance parents' knowledge of what and how to feed their children during the early stages of life when growth and development are most critical. Furthermore, detailed guidelines can give parents a greater understanding of important topics such as food preferences and habits, hunger and satiety cues, and division of responsibility between the parent and child.⁴ However, for parents to achieve positive nutrition and health outcomes for their children, they not only need access to clear guidelines; the information must also be interactive, engaging, and personally tailored.⁷ Organizations that involve regular interaction with parents and children, such as child-care centers and Head Start/Preschool programs, may be ideal avenues for distributing evidence-based information on early feeding practices.

Obtaining Nutrition and Health Information

In recent years, there has been a significant increase in the number of individuals who actively seek food, nutrition, and health information.⁷³ In addition, the sources of this type of information have evolved to keep up with technological trends.^{73–76}

Consumers, including parents and caregivers, glean nutrition and health information from television, websites, social media, blogs, phone applications, health professionals, and other parents or family members.^{73,74} In 2011, television was reported to be the number one source of nutrition information, followed by magazines.^{73,74} As technology continues to evolve, so do methods of accessing nutrition and health information. Recent reports show that technological advances, such as the internet, are an ever-increasing source of nutrition and health information.^{73,74,76} Websites providing this information must compete for internet traffic; thus, for a website to be successful it must be interactive, engaging, visually attractive, and tailored for its intended audience.⁷

Although video education is not currently the primary source for obtaining nutrition and health information, consumers may be using videos if they seek information from the internet.⁷ Many web-based resources exist for parents on what and how to feed their children, some of which use videos as an educational tool. For example, the AAP has incorporated short animated videos on its website to educate parents on responsive feeding, safe storage/preparation of breast milk and formula, introducing solid foods, and food allergies.⁶⁴

Recent studies have shown parents enjoy learning about food and nutrition recommendations from technology, particularly videos.^{8–11} However, the number of interventions using videos to provide nutrition education is minimal, and even fewer

video interventions have been designed with parents in mind.⁷⁷⁻⁸⁰ Therefore, nutrition education interventions that include videos designed to consider the preferences and needs of parents may be an effective way to teach parents about appropriate feeding practices for young children.^{9,81} Additionally, researchers believe it is essential to understand which features of a videos enhance nutrition knowledge and support learning in adults.⁷⁹ Learning theories can serve as a foundation for exploring these factors.

Education Theory

Learning can be explained as both a process and an outcome.⁸² Tenets of good education propose that learners thrive in environments where opportunities and experiences support knowledge. Successful education is based on learning theories that help to explain the methods by which learning occurs.⁸² There are many ways in which children, students, and adults learn or are motivated to learn. Theories allow researchers to explore the most appropriate interventions to support learning. As the use of video education increases, learning theories can be used to design and develop videos that effectively teach parents about feeding practices for young children.

Adult Learning

Many different theories within adult learning aid in understanding how adults learn. Social cognitive theory (SCT) explains how adults learn within a social environment through the observation of others, thus allowing adults to gain knowledge, develop skills, identify strategies to problems, and cultivate their own beliefs and attitudes.⁸² Furthermore, adults learn about behavioral and social roles by observing and modeling other adults.⁸² This can be further explained through vicarious experience, a construct of self-efficacy theory, where learning occurs by watching the success or

failures of others that are like oneself.⁸³ In the context of feeding practices for young children, parents may learn what and how to feed their children by observing what other parents have successfully done. For example, a parent struggling to get his or her child to eat vegetables might observe another parent use a successful technique to feed his or her child carrots and broccoli. An individual who connects with others through vicarious experiences frequently may believe that they too can accomplish the desired behavior.

The theory of reciprocal determinism explains an individual's behavior is influenced by a combination of the external environment and personal factors (e.g. beliefs, personality, characteristics).⁸⁴ Through reciprocal determinism, parents can navigate within the support system of other parents (a part of the external environment) to develop positive behaviors, such as healthful feeding practices for their young children. Video education that considers these leaning theories may be an effective method to not only teach parents but may also foster in them the ability to make positive health-related behavioral changes.

User-Centered Design

With improvement in technology, videos are becoming a preferred source of food and nutrition-related information for parents.⁸⁻¹¹ Videos can enhance knowledge and foster positive behavioral changes, allowing for effective interventions.⁷⁹ The user-centered design (UCD) process is an appropriate evidence-based approach in technology development that continuously considers the needs of the user during each stage of the design process: concept generation, technology development, technology evaluation, and implementation.⁸¹ Previous research has used the UCD process to design and develop

apps to improve health behaviors;^{9,81} thus videos on healthful feeding practices for young children developed using UCD may have similar results.

Pedagogical Approaches for Nutrition & Health Education

There are several pedagogical approaches used to determine whether different methods of teaching students, children, parents, and patients are effective means for learning. Problem-based learning (PBL) is one type of pedagogical approach that aims to improve knowledge by working through problems to find a resolution.⁸⁵ A 2014 study by Harris and Kloubec⁸⁵ implemented a PBL approach with undergraduate nutrition students and evaluated their experiences. Findings suggested students had overall positive experiences with this method of teaching, as it was a different way of learning about nutrition topics and disease states. Similarly, Harman and colleagues⁸⁶ evaluated nutrition students' learning experiences using case-based learning, a specific method of PBL. This approach allowed the students to acquire skills that are particularly important for the professional practice of nutrition and dietetics, including interpersonal communication, problem solving, critical thinking and awareness, team building, and self-organization.^{72,86} PBL and case-based learning have been shown to be effective pedagogical approaches for nutrition students. Another method of providing education is video-based learning, which has grown in popularity in recent years.

Video-based Learning Interventions

There is some evidence that video-based learning may be a more effective approach than other traditional teaching methods for educating diverse populations. For example, video-based learning followed by group discussion has been shown to improve academic performance more than a lecture-style course among post-graduate students.⁸⁷

Other research has investigated students' performance using video-based learning by observing the testing effect, a psychological finding that long-term memories are improved by testing.⁸⁸ Use of video-based learning and the testing effect has been shown to have positive outcomes on long-term learning.⁸⁸ Although these studies do not include topics related to nutrition and health education, they provide insight into the potential of video-based learning to enhance knowledge.

Most video-based nutrition and health education has targeted patients and clients. Researchers investigating the use of videos to teach and promote learning have compared this approach to other technology interventions.^{77,89-94} A study by Stribling and Richardson⁸⁹ involved use of a survey tool to determine the feasibility of and patient satisfaction with using tablets to provide health information to patients in the form of audio-video presentations or electronic portable document format (PDF) documents. Results indicated positive effects on a patients' overall satisfaction with the quality and quantity of information provided regardless of the teaching method used.⁸⁹ Patients reported the information provided was easy to understand and promoted learning; however, researchers found that patients who were provided information through an audio-video presentation instead of electronic PDF documents were more informed about their medical conditions.⁸⁹ More research is warranted to understanding how videos can impact learning.

Other studies have investigated the effectiveness of video-based learning have compared this approach to teaching methods such as text-based information interventions (with no graphics or animations).^{77,90,91} Multiple intervention studies have used only videos to provide health and nutrition education to patients.⁹²⁻⁹⁴ The majority of this

research has shown that video-based interventions are an effective way of learning and making positive health behavior changes.^{74,77,91–94} However, only a few studies have identified the specific characteristics unique to videos that impact learning and/or health behavioral changes in patients.^{77,92,93} In one such study, researchers used a web-based intervention for obesity prevention to examine the effectiveness of video and text modes of delivery on diet, physical activity, and BMI.⁷⁷ Results indicated that the video version was more effective than the text version at lowering daily energy intake from energy-dense foods and BMI.⁷⁷ Furthermore, feelings of relatedness, usefulness of messages, and overall appreciation of the intervention were greater in the video group compared to the text group, which may have contributed to the positive health and nutrition outcomes of the study.⁷⁷ Another study concluded videos that provided education on human immunodeficiency virus testing were easy to understand, useful, and provided specific information.⁹² In addition to these video characteristics, VanAcker and Kuriata⁹³ reported personal preference of the patient as the main reason videos were favored over other methods of delivering health education. Although videos have been shown to be an effective method for learning and fostering positive behavioral changes in patients, few studies have used videos to provide nutrition and health education specifically for children and their parents.^{78,79}

In a 2014 study, Piziak⁷⁸ focused on improving physical activity and healthful eating practices in three to five year olds by developing and evaluating bilingual interactive videos for Head Start that included two components: nutrition education and exercise. The nutrition education portion incorporated a bilingual nutrition game, while the exercise portion allowed the children to engage in up to 10 minutes of exercise using

an interactive dance pad.^{78,95} The study included four focus groups that included teachers, managers, and a dietitian, all of whom participated in the development and evaluation of the interactive videos.⁷⁸ The first and second focus groups discussed concept development of the videos and tested usability for the children, respectively. The third and fourth focus groups assessed the children's experience with the interactive videos and the incorporation of the intervention into all Head Start centers in the area. Overall, the 20 children who participated in the intervention had positive experiences with the interactive videos.⁷⁸ Additional findings indicated reasons the videos inspired the children's participation. Teachers reported the videos were engaging, age-appropriate, easy to understand in both English and Spanish, and included characters and foods that were familiar to the children.⁷⁸ A previous study conducted by Piziak⁹⁵ invited parents to participate in a nutrition game (without the use of videos) where they were motivated to make changes on foods consumed at home. Based on this literature, it is evident that nutrition education and physical activity interventions through games and interactive videos are potential valuable teaching methods for promoting positive health behaviors.

A more recent quasi-experimental study investigated the effects of videos about dealing with difficult parenting situations related to health behaviors of children ages 6-12 years.⁸⁰ The researchers explored the videos' effects on parenting practices and parental self-efficacy.⁸⁰ Results indicated the video intervention had no effect on increasing the children's physical activity levels, improving dietary behaviors, or limiting screen-time.⁸⁰ However, this study was conducted over a four-month period, and, per the researchers, it is possible children need more time to make permanent behavioral changes. The videos did however, demonstrate positive effects in improving some

parenting practices and parental self-efficacy, which over time could directly impact the children's health behaviors.⁸⁰ Furthermore, researchers found the video intervention had different benefits for different groups of parents. The intervention was more effective at increasing self-efficacy among parents of children ages six to nine years compared to those of older children, whereas it resulted in greater improvements to specific parenting practices among parents of children ages 10-12 years compared to those of younger children.⁸⁰ Features of the videos that increased parenting practices and parental self-efficacy were not explored; this warrants further investigation.

Certain characteristics of videos can encourage learning and motivate others to learn, specifically with regards to topics related to nutrition.⁷⁹ Ramsay and colleagues,⁷⁹ aimed to identify these video characteristics by showing childcare providers nutrition education videos on feeding young children during childcare mealtime settings. Childcare providers within nine focus groups viewed three video vignettes: one neutral video of a children going down a slide and two videos on feeding young children. Participants then evaluated the videos by completing two response activities for each video, engaging in a discussion over their responses, and answering pre-prepared discussion questions.⁷⁹ Results attributed six major video characteristics to support learning: videos were authentic and relatable, short in length, provided simple and concise messages, conveyed a skill-in-action, and allowed viewers to conceptualize content through visual and auditory cues.⁷⁹ Some of these videos characteristics to support learning and positive behavioral changes have been observed in other studies among different populations.^{77,78,92}

In addition to identifying major video characteristics, Ramsay and colleagues also investigated participants' motivation to learn about topics related to feeding young children.⁷⁹ Participants reported finding the videos to be motivating and inspiring. Some discussed their interest in applying what they learned to their own classroom settings. Others expressed their motivation to learn by inquiring about additional videos and suggesting specific topics, such as snacks recommendations for certain age groups.⁷⁹ In other studies, parents have expressed interest in learning about healthy food substitutions and creative ways to provide fruits and vegetables to their children via videos.¹⁰

Over the years, research investigating the use of videos to provide nutrition education to individuals has been somewhat limited.⁹⁶ However, videos are an effective way to teach diverse populations, and researchers must continue to identify specific characteristics that support video-based learning in order to optimize community nutrition education.⁷⁹

Video-based Learning through Video Contests

Very few studies have used video contests as a pedagogical approach to teach students or educate a population.^{75,97,98} Of the published studies, only one incorporated health education,⁷⁵ and none included nutrition education. Findings from Lencastre and colleagues⁹⁷ suggest students are open to the idea of creating videos and having them publicly viewed. Therefore, video-based learning through contests may be a way to not only help students gain knowledge and professional skills, but to also serve as an educational tool for teaching others about health and nutrition.

A 2011 study by Dawson and colleagues⁷⁵ used a video contest on social media to promote sun safety. Participant videos on skin cancer prevention were evaluated for

relevance, content, and entertainment value. Of the 30 videos submitted, three finalists were selected and ranked by judges.⁷⁵ The finalists' videos were evaluated for pre- and post-contest view rates by the public. Although there was no significant increase in video viewing frequency after the finalists were announced, this study supports the use of videos and a video contest on social media as an effective way to provide health information to the public.⁷⁵ Thus, participant-generated videos may be an appropriate method used in future research for providing nutrition education to communities.

Another video competition included pedagogical topics within a school community to promote informal engagement.⁹⁷ Twenty-three students ages 16-18 entered videos into a contest over specific topics in subjects like math, biology, history, and English. Participants interacted frequently with a mentor when creating their videos, and following submission, the videos were displayed for peers to view. The videos were evaluated on pedagogical quality, explanation of the topic, video quality, originality, and peer engagement, and interactivness.⁹⁷ Findings indicated student-generated videos can be useful for future use in the classroom and have pedagogical potential.⁹⁷ Similar results were reported from a class competition involving graduate level student-generated videos.⁹⁸

In conclusion, no current studies have used video contests as a pedagogical approach to teaching students about feeding practices of infants and young children. Moreover, no studies have investigated student-generated videos on this topic for parents to view and evaluate. This study aims to incorporate a mixed-method, three-phase approach founded upon UCD that includes the development of evidence-based feeding

practice guidelines, a process evaluation of student-generated videos via a contest, and an evaluation of videos by parents of young children within a low-income community.

Objectives

Purpose of Study

To begin UCD of educational videos by

1. Challenging undergraduate students enrolled in a university lifespan nutrition class via a contest format to develop educational videos for parents of young children that communicate the appropriate feeding practices.
2. Gathering the perspectives of parents with young children enrolled in Head Start/*Caminitos* regarding their impressions of a sample of the student-generated videos.

Research Questions

1. Is an assignment using student-generated videos an effective pedagogical approach to support student learning through teaching parents about evidence-based guidelines?
2. What are parent's perspectives on student-generated nutrition videos and are they effective educational tools for providing evidence-based guidelines to parents?

Hypotheses

1. We hypothesize that an assignment, founded upon constructivism, in which students are tasked with generating educational videos, will: a) be an effective pedagogical approach to support learning about appropriate feeding practices, b) foster the generation of technological and professional skills, and c) provide

experience in communicating evidence-based guidelines that parents can easily follow.

2. We hypothesize that parents will: a) overall be entertained by the sample of student-generated videos, b) find the information provided through videos easily applicable to themselves and other parents as a means to learn about appropriate feeding practices.

III. METHODS

Institutional Review Board

This study has been approved by the Texas State University Institutional Review Board (IRB), CON2016W7881.

Training of Research Assistants

Nutrition students recruited to work as undergraduate research assistants received all necessary training prior to the study. Training consisted of Collaborative Instructional Training Initiative (CITI) through an online course, learning how to use the video editing WeVideo software,⁹⁹ and practice conducting semi-structured interviews. Research assistants were responsible for, but not limited to, editing videos, collecting data in the field, interviewing participants, and entering and organizing data. In addition, nine graduate students enrolled in Advanced Community Nutrition (NUTR 5363) and 10 graduate students enrolled in Advances in Child Nutrition (NUTR 5306) completed the CITI online course and received training on conducting interviews from one of the principal investigators.

Phase 1. Curriculum Development

Participants

In Spring 2016, 10 graduate students enrolled in Advances in Child Nutrition (NUTR 5306) at Texas State University participated in a seminar style discussion, research course.

Graduate Research Course Objectives and Design

The first stage of the UCD process is concept generation, where the users and their needs are identified.⁸¹ To accomplish this, a graduate-level nutrition course participated in an exploratory process that extensively investigated the literature to address the gaps in knowledge on the most appropriate feeding practices for parents of young children to follow. As part of a research-based course assignment, the graduate students in the class engaged in the study as research assistants to develop feeding practice guidelines based on current scientific consensus. The guidelines they generated were used as the foundation for a video contest assignment for college students enrolled in an undergraduate nutrition lifespan course (Phase 2 below). Feeding practice guidelines were divided into four categories: breastfeeding, infant formula, complementary feeding (introduction of solid foods), and feeding practices for preschoolers. Under the direction of one principal investigator, graduate students thoroughly reviewed and interpreted the literature to further develop specific guidelines within each category including topics such as general breastfeeding practices, handling and storage of breast milk and infant formula, macronutrients, micronutrients, cereal, fruits and vegetables, dairy, sugar, food allergies, choking hazards, and others. Guidelines were generated and reviewed by the research team to check for accuracy and clarity prior to being viewed by students participating in the video contest.

Course Assignment Schedule

A detailed assignment schedule for the seminar style discussion, graduate research course is shown in Table 1. Weeks two through four included the initial development of user-friendly feeding practices guidelines for parents that were used in

Phase 2 of this study. The course syllabus and assignment sheet are described in more detail in Appendix A and B.

Table 1. Assignment schedule for Advances in Child Nutrition (NUTR 5360)^a

Assignment	Assignment Details	Deliverable	Due Date
Identifying Feeding Practice Topics and Major Course Assignments	Class discussion allows for learning and understanding of important topics to consider during early feeding. Students will review learning objectives of course and purpose of curriculum development for other phases of this research study.	Class Discussion and Course Syllabus	Week 1
Selection of Group Topics	Students select four early feeding practice topics for the semester to research, present, and transcribe into guidelines. Topics are selected based on student preference and availability throughout the semester.	Topic Sign-Up Sheet	Week 1
Collaborative Institutional Training Initiative (CITI) Research Ethics Training for IRB	Students will complete online training and certification for human subject's research needed for further phases of research study.	Online Course and Certification Document	Week 2
Develop Template for Feeding Practice Guideline Statements	Students will develop a template that organizes guideline statements, rationale supporting each guideline, and a list of resources for 1) parents and 2) scientists and practitioners.	Word Document	Week 2-3
Preliminary Review of Literature	The feeding practice guidelines for parents will be generated in two stages. Therefore, students will conduct a preliminary review of the literature for all topics assigned to, gathering multiple references.	Literature Search via Web	Weeks 3-4
Submission of Feeding Practice Guidelines Draft for Parents	Students will generate a draft of guidelines for parents that will be used as the core curriculum in a pilot of a video contest research project (Phase 2).	Word Document using Feeding Practice Guideline Statement Template	Week 4

Table 1. Continued. Assignment schedule for Advances in Child Nutrition (NUTR 5360)^a

Assignment	Assignment Details	Deliverable	Due Date
Submission of Single Paper Article	Partners will search the literature and submit a single article over their assigned topic for classmates to read and outline prior to presentation day.	Single Paper and Outline Notes	Weeks 3-12
Partner Literature Review Paper/Presentation	Each student will conduct a literature search and write an extensive literature review with their partner over assigned topics. Partners will then present a literature-based lecture on their topic to their other classmates.	Paper and Presentation	Weeks 4-13
Group Discussion/Feedback	Classmates will engage in group discussion following each presentation by contributing prior knowledge, posing relevant questions, and providing thorough feedback on recommended guidelines.	Group Discussion and Class Participation Sheet	Weeks 4-13
Video Contest Viewing and Scoring	Students will participate in the video contest research project (Phase 2) through viewing and scoring of student-generated videos.	Score Sheets	Week 13
Video Contest Event	Students will serve as research volunteers at a video contest event showcasing student-generated videos for parents to view and evaluate.	CITI ^b Certification Document	Week 14
Submission of Feeding Practice Guidelines Final Version for 1) Parents and 2) Scientists and Practitioners	Students will submit a final version of audience-appropriate generated guidelines on assigned topics.	Word Document using Feeding Practice Guideline Statement Template	Week 15
Peer Evaluation	Students will evaluate their partners by reporting their contribution to the course assignments (e.g. literature paper, presentation, guidelines).	Online Peer Evaluation	Week 15
^a Adapted from Hesse and Schubert ⁷² ^b Collaborative Institutional Training Initiative			

Phase 2. Process Evaluation

Participants

The participants enrolled in the video contest consisted of a convenience cross sectional sample. During the Spring 2016 semester, 52 undergraduate and three graduate students enrolled in Nutrition in Lifespan and Advanced Nutrition in Lifespan (NUTR 4365/NUTR 5375) at Texas State University participated in a class video contest as an assignment. Additionally, 10 graduate students enrolled in Advances in Child Nutrition (NUTR 5306) participated in the scoring of student-generated videos.

Implementation of Video Assignment

The second stage of the UCD process involves the design and development of the prototype,⁸¹ which in the context of this study was student-generated videos. Students of Nutrition in Lifespan participated in a video contest through a class assignment. The assignment is found in Appendix C. Students were directed to visit the Best Food FITS Video Contest webpage developed by the research team and acted as true participants of the study to achieve a similar experience for when the study is carried out at the community level. The welcome page gave specific details regarding the video contest including general information, criteria, prizes, and how to enter the contest. Each student was asked to participate in the video contest by creating a video depicting appropriate feeding practices for infants and young children from a list of preselected guidelines. Videos submitted to the contest were asked to be approximately 30-90 seconds in length and created using a smartphone or tablet. Students completed four steps prior to enrolling in the study and had the option to email the researchers any questions they encountered prior to submitting a video for the contest. The four steps of the video contest are briefly

explained below. A detailed description of the webpage can be found in Appendix D. All students who entered the contest and submitted a video received a Best Food FITS t-shirt.

Video Contest Webpage

Step 1 of the video contest was to register. This was required so that researchers were aware of the total enrollment prior to video submissions. The registration form asked for the student's name, email address, phone number, phone carrier, and how they would like to be contacted.

Selecting feeding practice guidelines for video creation was step two of entering the video contest. Each student created their video about any of the feeding practice guidelines listed in the contest. Up to two videos could be submitted for each category, but only one video was required for students to receive their class grade. Students could choose to include multiple guidelines for their video(s) that covered one of the four categories: breastfeeding, infant formula, complementary feeding, or preschool.

Students created their video(s) in the third step of the video contest. They were provided with information and helpful tips on how to create a video using a smartphone or tablet. Tutorial videos were available for students to watch, which included suggestions for making a successful video using an electronic device.

The final step of the video contest was for students to submit their videos to the research team. This section included two parts. First, students completed a survey before entering the contest, which is further discussed in the student evaluation section below. Second, Step 4 discussed how to submit completed videos on a student's phone or tablet using a video application called WeTransferTM (2016 Version, WeTransfer BV). All submitted videos were sent to a Best Food FITS email account where they were

downloaded, screened for appropriateness, and checked for consent prior to scoring of the videos. Each video was renamed to include an appropriate category, video number, guideline topic, and participant number. Videos were stored onto a secure Texas State University Teaching, Research and Collaboration System (TRACS).

Student Evaluation

Evaluation of the video assignment and student-generated videos occurred as an additional component of UCD. Stage 3 of UCD consisted of two components: 1) a prototype evaluation from students on the design and development process using a pedagogical method and 2) a prototype evaluation from the targeted users (i.e. parents of young children) that is further discussed in Phase 3 of this study. All survey questions generated for student evaluation used a combination of a five-point Likert scale and open-ended questions. A five-point Likert scale was used as it allowed for a systematic, uniform method in measuring the attitudes and perspectives of the participants in a quantifiable manner.¹⁰⁰ Open-ended questions and voluntary responses were also included in the survey evaluations and score cards to gain further information on the design and development process of the student-generated videos.

Prior to submitting a video to the contest, students completed a pre-contest survey which included participant consent, demographics, and details about the video being submitted. Additional survey questions consisted of time spent on technical issues, technological difficulty, preliminary research on video creation and nutrition guidelines, knowledge gained, preparation for future jobs, and improvement in certain skills. Other questions related to satisfaction asked about satisfaction with video contest

and with performance of creating a video. Details to the survey's contents can be found in Appendix E.

All videos submitted to the contest were viewed and scored by students in Nutrition in Lifespan (NUTR 4365) and Advances in Child Nutrition (NUTR 5306). A five-point Likert scale was used to score each video in the categories of entertainment, quality, ability to teach others, usefulness, accuracy, overall reaction, and importance of concepts. The student score card is found in Appendix F. Students provided their names on each score card packet to receive class credit and names were later removed once grades were entered. Videos were shown in class by a member from the research team and each student was given adequate time to identify and score each video before the next video was shown. The maximum total score for each video was 10, calculated by taking the average of each score card and multiplying it by two. All score card packets were collected and stored in a locked compartment of the research lab until data was imported.

Upon completion of scoring all videos each student who submitted a video received a link to a post-contest survey evaluating the class assignment as a video contest. The purpose of the follow-up survey was to allow the research team to learn about the students experience and perception with creating videos through a video contest, so the process could be improved for future participants. Questions focused on clarity of information and instructions for each of the steps in video contest, use of resources and technology, and motivation and effort in creating videos in comparison to other classmates. The follow-up survey is included in Appendix G.

Preparation of Videos by the Researchers for Community Implementation

After videos submitted to the contest were scored by class peers, the research team evaluated the scores and selected the top 10 nutrition videos based on accuracy, variety, clarity, and entertainment. To better accommodate the parent population, two of the 10 videos were translated to Spanish and two additional videos were voluntarily generated by a student enrolled in Advanced Nutrition in Lifespan (NUTR 5375). Fourteen videos were edited and finalized by the research team and undergraduate research students for parents to evaluate, using WeVideo editing software.⁹⁹ Edits included adding subtitles, removing inaccurate information, and adjusting video length appropriately. Spanish videos included a voice over in Spanish, performed by a volunteer graduate student, and edits were made to include Spanish subtitles. The two bilingual videos were edited to include subtitles in English. A description of the 14 videos is found in Appendix H.

Phase 3. Community Implementation, A Parent Evaluation of Student-Generated Videos

Participants and Recruitment

Participants recruited in the third phase of the study consisted of a convenience sample of parents of young children in San Marcos, Texas, a predominately low-income community. Enrollment occurred from Spring to Summer 2016 from the Texas State Child Development Center (TSCDC), pre-school/Head Start programs in the surrounding area (i.e. Bonham Pre-K, A. Washington, Henry Bush), and a local public summer program for children at the San Marcos public library. The goal was to recruit

approximately 50 parents to evaluate the sample of student-generated videos selected for public viewing.

Initially, a nutrition event at Bonham Pre-K, a *Caminitos* research collaborative site, was developed by the research team with the goal of fostering healthy eating practices and positive health behaviors for children, parents, and their families. The event allowed parents to watch and evaluate student-generated videos designed to improve knowledge on appropriate feeding practices for young children. The event also included stations which provided nutrition and physical activities for the children to learn from and engage in.

Parents and children were recruited from Bonham Pre-K using flyers, school posters, personal interactions, and social media outlets such as the schools home web-page. Flyers were sent home with students in their folders for parents to view. Additionally, posters of the event were placed around the school's main entrances and hallways. An example of the flyer and school poster is found in Appendix I. Recruitment efforts of parents of young children from TSCDC, San Marcos Head Start schools, and the public library included flyers, emails, and on-site verbal recruitment during pick-up hours. Flyers and emails contained a link to an online video survey that allowed parents to learn more about the video study and watch and score each video. The online video survey was created for participants who were unable to watch and evaluate videos during their child's pick-up time or for participants recruited through flyer and email distribution (e.g. TSCDC, San Marcos Public Library). Examples of these materials are found in Appendix J. Contents of the online survey can be found in Appendix L. To serve a

predominately Spanish speaking population, materials were offered in both English and Spanish.

Video Scoring by Parents

Usability testing and field studies occur during the third stage of the UCD process to evaluate and provide feedback of the developed prototype. Usability testing usually occurs in a controlled environment, where field studies test usability of the prototype in an environment that is familiar to the user such as an individual's home, workplace or school.⁸¹ For the purpose of this pilot study, the users, which in this case were parents of young children evaluated the prototype of student-generated educational videos in a natural environment.

Parents who attended the Bonham Pre-K nutrition event had the opportunity to watch and score 14 videos; while they were asked to score ten videos, the two Spanish videos and two bilingual videos were optional for scoring. Each parent who was interested in evaluating the videos was provided a packet containing a consent form describing the research project, a demographic form, and 14 score cards. Similar to the student evaluation of scoring videos, a five-point Likert scale was used for parents to score each video on entertainment, quality, ability to teach others, usefulness, and overall reaction. To gather additional preferences, needs, or concerns parents had regarding the student-generated videos the score cards included a section for voluntary comments. The consent form, demographic form, and parent score card is described in detail in Appendix K. A designated station for each video was set up at the event where parents were given disposable head phones to watch each video on a laptop or tablet. A volunteer was present at each station to ensure there were not technical difficulties or incomplete score

cards for each video. All packets were collected and stored in a locked compartment of the research lab until data was imported. Once data was transferred to secure files on Texas State University TRACS, original packets were destroyed, and names of the participants were disassociated from all responses provided throughout the video scoring process.

Parents recruited on-site at Head Start schools or the public library in San Marcos, Texas watched and scored the selected videos on tablets during their child's pick-up hours or after a summer program for children. Parents were given the same packet used at the Bonham Pre-K nutrition event to evaluate videos. Parents recruited via email or unable to watch the videos in person were provided a link to an online video survey. The webpage included information about the research study, instructions to watching and scoring videos, the nutrition videos, and a scoring survey. The survey allowed parents to provide consent, demographics, and score each video using the same five-point Likert scale that was used at the Bonham Pre-K nutrition event. All data collected online was automatically uploaded to a secure document and further downloaded to Texas State University TRACS, where names of the participants were disassociated from all responses. All participants who completed score cards for the 10 required videos received a Best Food FITS t-shirt.

Parent Interviews

To continue the evaluation stage of UCD, parent's perspectives of student-generated videos was further explored. Parents were interviewed using a 12-question semi-structured interview guide to facilitate 10-minute interviews conducted in person or via phone. A detailed description of the interview guide can be found in Appendix M.

The guide included topics that assessed parent's perspective and impressions of watching student-generated videos on appropriate feeding practices for infants and young children. The guide also provided a suggested list of introductory questions followed by probing questions to gather a further description of important concepts or prompt items that may have been overlooked.^{101,102} Questions were founded on UCD user acceptance, perceived usefulness, perceived ease of use as well as adult learning theories such as social cognitive theory and vicarious learning to improve self-efficacy, support, and reciprocal determinism. While interviews were not recorded, detailed notes were taken during the interview to best capture the participant's input. Notes from each interview were stored in a locked file of the research lab until an electronic word document was made and uploaded to Texas State University TRACS. After electronic copies were uploaded, all original files were destroyed, and names of the participants were disassociated from all responses.

All participants being interviewed watched at least 10 of the 14 videos selected for public. In person interviews were conducted by nine graduate students enrolled in Advanced Community Nutrition. Three research assistants conducted phone interviews of parents who preferred to be interviewed outside of the event or who completed an online video survey and consented to be contacted for an interview. All in person interviews occurred at the Bonham Pre-K nutrition event. Participants who were interested in an interview after scoring videos at Bonham Pre-K were given a colored wrist band during sign-in. Designated areas at the event were available to ensure all interviews were private. Research assistants who conducted phone interviews attempted to contact participants two to seven days after completion of the online video survey. If a participant

could not be reached during the first attempt, research assistants left a message and attempted to call back the following day. Participants were no longer considered for an interview after the second attempt at contact. As an incentive, all participants who completed an interview were invited to select one item from a variety of cooking utensils that was subsequently delivered to their child's school for pickup.

Data Analysis

After collecting all data, participant responses were entered into a spreadsheet, identifiers were omitted, and data was cleaned and checked for accuracy. Descriptive analysis was employed to explore features of the participants and evaluation of videos. Frequencies were generated to gather demographics, response rates, pre-contest survey data, video score card responses across groups, and comments of student and parent samples. Independent sample t-tests were applied to compare differences among student and parent samples with respect to the following video score card responses: the ability for video(s) to teach others and if parents would use the information provided in the video(s). Correlation analysis was used to examine relationships between variables including: student motivations to create videos and total outcome scores of videos evaluated by peers, and effort and total outcome scores. Spearman's rho statistic was calculated for each variable. All statistical data analysis was conducted using Statistical Packages for Social Sciences (SPSS version 25, IBM Corp.).

Comment text and interview responses were transcribed then coded and themed using a three-coder model to determine inter-rater reliability.^{102,103} Comment codes were developed to explore student and parent's perspectives of creating and/or evaluating videos as an effective pedagogical method. Inter-rater reliability of the comment coding

was calculated by dividing total number of agreements for all codes by the combined total number of agreements and disagreements for all codes.^{103,104} Overall inter-rater reliability of the comment coding was 97%. An initial theme list was developed by a principal investigator to include master codes and sub codes that included clear definitions of meaning.¹⁰² Major and minor codes of interview responses were developed to gather constructs of UCD. The coding process began with two trained undergraduate research assistants working on the study. Each coder received a copy of all interview transcripts and the master code list. Then, transcripts were coded separately for initial themes and a second run through occurred to code for emerging themes within major or minor categories. Results from both coders were discussed and compared to determine codes in agreement or disagreement. All disagreements were resolved. A third coder, the lead qualitative researcher, reconciled a particular code when a consensus was not met between the two initial coders.^{103,104} Initial transcript coding had an inter-rater reliability of 73%. Following the reconciliation of coding discrepancies by a lead researcher, codes were collapsed, and the final recoded reliability was 95%.

IV. MANUSCRIPT

Article Title

User-Centered Design of Videos: A Pedagogical Approach to Enhancing Student Learning and Educating Parents of Young Children on Healthful Feeding Practices

Introduction

In the U.S., the prevalence of childhood overweight and obesity remain high as obesity rates among pre-school and school-aged children continues to rise.^{1,2} The health outlook of children experiencing overweight and obesity is of primary concern for researchers and health professionals. While research suggests that early exposures to food and experiences with feeding set the stage for long-term health and obesity prevention,⁴ the US has yet to publish feeding practices guidelines for children under the age of two.^{4,5} Despite the dearth of official guidelines, parents who explore the internet may be faced with an abundance of recommendations on how to feed their children, many of which are unsubstantiated.⁶ Thus, the need for reliable information that is readily available to parents is clear. In today's world, such information is best presented in formats that parents find engaging, practical, and interactive.^{7,8}

Previous research has shown that parents are interested in learning about nutrition, food, and other health behaviors via technology, particularly from videos.⁸⁻¹¹ To date, few studies have used videos to provide nutrition education, and even fewer have been designed with parents in mind.⁷⁷⁻⁸⁰ User-centered design (UCD) is a process that can be used to develop and refine technological interfaces while continuously considering the needs of the user during each stage of the design process.⁸¹ Previous research has used the UCD process to design and develop apps to improve health behaviors.^{9,81} Videos

designed and developed to consider the preferences and needs of parents may be effective in disseminating evidence-based recommendations to parents of young children.^{9,81}

Any educational modality should consider theories such as constructivism and the Social Cognitive Theory (SCT)⁸²⁻⁸⁴ to serve as the theoretical foundation for which the content can be developed. Pedagogical methods founded upon constructivism have the ability to enhance learning through prior knowledge and experience when it is applicable to practice.^{82,105} Per SCT,⁸³ parent self-efficacy regarding feeding children may improve through vicarious learning offered via peer-generated videos. Through reciprocal determinism,⁸⁴ parents can navigate within the support system of other parents to develop positive behaviors, such as healthful feeding practices for their young children. Videos, which include other parents or topics of parental interest can serve as an outlet to gathering this community.

Programs such as Head Start, and pre-schools interact directly with families and children, allowing them a unique opportunity to provide guidance on early feeding practices. *Best Food for Families, Infants, and Toddlers* (Best Food FITS), a community-focused research initiative devoted to combating childhood obesity, fostering growth and development, and promoting positive health behaviors in south central Texas¹⁰⁶ works closely with such programs, and thus has potential to improve early feeding practices through evidence-based interventions. To date, Best Food FITS has improved children's menus in the community,¹² and in childcare centers.¹³

In the absence of national comprehensive feeding guidance for U.S. infants and toddlers and the need to educate the public on such topics, this study aims to incorporate student engagement through an exploratory process of investigating an effective

pedagogical approach for applying UCD to develop educational videos on early feeding practices for parents of young children.

Methods

Study Design

A mixed-method three-phase approach was implemented to explore strategies to create user-centered educational videos. Phase 1 of the study involved a graduate student class, which conducted an in-depth review of the literature using several databases, with the purpose of generating detailed, evidence-based feeding practice guidelines for parents of young children. Phase 2 consisted of a Best Food FITS video contest exercise in an undergraduate class, which involved student development of instructional videos based on the feeding practices guidelines and evaluation of the process of developing the videos. Lastly, Phase 3 involved gathering input from parents on their impressions of a sample of student-generated videos. Parent's input was evaluated using score cards and conducting semi-structured interviews.

Participants and Recruitment

For Phase 1, in spring 2016, 10 students enrolled in a graduate class completed an assignment in which they generated feeding practices guidelines for infants, toddlers and preschoolers. These graduate students also served as research assistants for the contest. For Phase 2, 55 students enrolled in a senior-level nutrition lifespan course participated in the video contest as part of a class assignment. For Phase 3, researchers recruited parents of young children in San Marcos, Texas, a predominantly low-income community, as evidenced by the 75.5% of students who qualify for free or reduced school meals.¹⁰⁷ Enrollment was conducted through child development centers, Head Start/Pre-school

programs, and a public summer program for children. Recruitment efforts involved flyers, school posters, personal interactions, social media, email, and on-site verbal recruitment. All materials were offered in both English and Spanish. Incentives for participation in video development, scoring, and interviews included Best Food FITS t-shirts and cooking utensils. The Texas State University Institution Review Board approved all aspects of this study.

Applying User-Centered Design Using Pedagogy

The conceptual model for the current study was modified from the UCD model⁸¹ to include an additional component: student pedagogy. Figure 2 illustrates the process of applying UCD using student pedagogy. Learning theories were incorporated during each stage to enhance learning of the developer and targeted user.

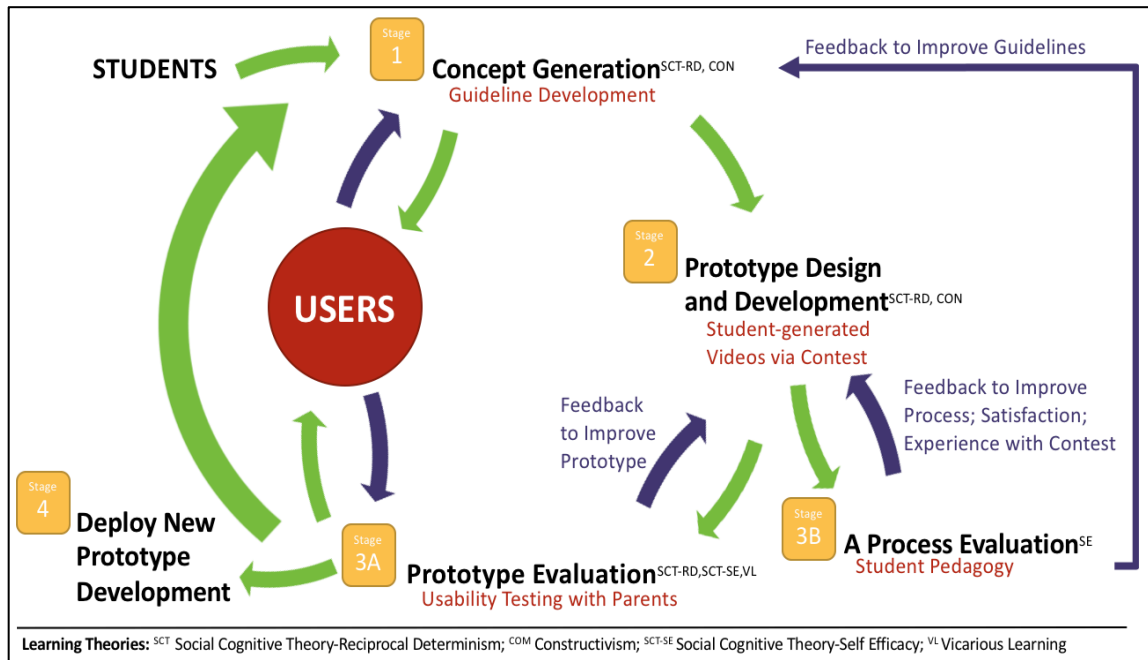


Figure 2. User-centered design using student pedagogy and learning theories

The first stage of UCD is concept generation, during which user needs are identified.⁸¹ In the Best Food FITS video contest, graduate students developed guidelines for the most appropriate feeding practices for parents of young children to follow. Stage 2 of UCD involves the design and development of the prototype,⁸¹ which in the context of this study was student-generated videos.

Per the UCD model, Stage 3A involves an evaluation of the prototype from the intended users (i.e. parents of young children). Parents tested prototype usability in familiar surroundings, such as the home, workplace, or child's school. In order to explore an effective pedagogical approach to support student learning, a process evaluation of the video contest involving student-generated videos was added to the UCD model (Stage 3B). Student feedback on the design and development process enabled researchers to make improvements for future participants.

Phase 1. Guideline Development

Prior to the start of the video contest, nutrition graduate research assistants engaged in evidence-based guideline development through an extensive investigation of the literature concerning early childhood feeding practices. These guidelines were developed to address gaps in knowledge. As part of a research-based course assignment (Appendix A and B), students spent two weeks reviewing and interpreting current research on four pre-chosen categories: breastfeeding, infant formula, complementary feedings, and feeding practices for preschoolers. Each category was further investigated to develop user-friendly feeding guidelines. Specific topics included, general breastfeeding practices, handling and storage of breast milk and infant formula, macro-

and micro-nutrients, and food groups. These guidelines were used as the core curriculum for phase 2 of this study: video development.

Phase 2. Process Evaluation of the Design and Development of Educational Videos

Phase 2 included three components that facilitated a process evaluation of the design and development of educational student-generated videos: 1) a video contest assignment, which included a contest webpage, 2) student evaluation, and 3) selection and preparation of videos to be implemented in the community.

Video Contest Assignment. Using a smartphone or tablet, students generated 30-90 second videos about appropriate feeding practice guidelines for parents of young children from a list of pre-selected guidelines. As part of the class assignment, students were directed to visit the Best Food FITS Video Contest webpage, which was created prior to the study. The webpage provided details about the video study (i.e. general information, criteria, prizes) and prompted students to enter the contest through a four-step process: registration, selection of feeding practice guidelines, video creation, and video submission.

Student Evaluation. Prior to video submission, students provided consent, demographics, and video details (i.e. video name, category, number of videos submitted), and completed a pre-contest survey. Pre- and post- contest surveys and video score cards used throughout the design and development process of educational videos included five-point Likert scales¹⁰⁰ and open-ended questions.

Pre-contest survey questions gathered information about technological difficulties, preliminary research, knowledge gained, skills developed, and preparation for future jobs. Additional questions were asked on satisfaction with the video contest

and performance of creating videos. All submitted videos were viewed and evaluated by class peers using score cards. The students scored each video on entertainment, quality, ability to teach others, usefulness for parents, their overall personal reaction, accuracy, and importance of concepts. The maximum total score for each video was 10, calculated by taking the average of each score card and multiplying it by two. Finally, a post-contest survey was administered to improve the design and development process by gathering students' perceptions and experiences creating videos through a contest assignment. Post-contest survey questions focused on clarity of information and instructions from the contest webpage, use of resources and technology during video development, and motivation and effort in creating educational videos.

Selection and Preparation of Videos. Student score cards were reviewed by the research team and ten videos were selected based on accuracy, variety, clarity, and entertainment. To better accommodate the parent population, two of the videos were translated to Spanish and two additional videos were generated by a contest participant. Fourteen videos (Appendix H) were edited and finalized for parents to evaluate using WeVideo software.⁹⁹

Phase 3. Community Implementation, A Parent Evaluation of Student-Generated Videos

Video Scoring. Prior to watching the videos, parents gave informed consent and answered brief questions about demographics and interest in being interviewed were gathered. Parents then watched and scored 10 required and four optional videos in person or through an online video survey. Each video spanned 30 to 120 seconds in duration.

Using score cards, videos were evaluated based on entertainment, quality, ability to teach others, usefulness, and overall reaction. Voluntary comments were invited.

Interviews. Upon scoring all required videos, parents were interviewed using a semi-structured interview guide,^{101,102} which consisted of 12 questions designed to facilitate 10-minute interviews conducted in person or via phone. Background questions were asked to determine parent expectations and prior knowledge of video concepts. Table 2 illustrates questions founded on UCD user acceptance, perceived usefulness, and perceived ease of use.¹⁰⁸ In addition, adult learning theories such as social cognitive theory and vicarious learning were incorporated to improve self-efficacy, support, and reciprocal determinism.^{82–84}

Table 2. Interview questions founded on UCD^a and adult learning theories

Constructs of UCD^a	Learning Theories	Interview Topic	Interview Question
User Acceptance	Vicarious Learning	Most memorable videos	Discuss which videos stood out to you.
		Perception of trust with video information	Would you more or less likely trust informative videos that come from your child’s school/ WIC ^b / other government nutrition programs?
		Personal experience	Is there anything else you would like to share with me about your experience with watching the videos?
Perceived Ease of Use	Social Cognitive Theory; Self-Efficacy; Vicarious Learning	Gathering food/nutrition information from videos	Think about your experiences with watching videos to gain information about a particular topic—Do you currently watch/ have you watched/would you use videos to gain nutrition or food information?
		Interest in creating/sharing videos about early childhood nutrition	Would you be interested in creating and sharing nutrition/food and feeding practice information through videos? Why or why not?

Table 2. Continued. Interview questions founded on UCD^a and adult learning theories

Constructs of UCD ^a	Learning Theories	Interview Topic	Interview Question
Perceived Usefulness	Social Cognitive Theory; Self-Efficacy	Videos in which the most information was gained	Tell me about the videos in which you gained the most information on feeding practices.
		Helpfulness of videos in improving nutrition knowledge	How helpful were the videos in improving your nutrition knowledge of how to feed infants and children?
		Future videos topics and characteristics	Explain what you would most like to see in videos related to nutrition and feeding infants and young children.
^a User-centered design			
^b Supplemental Nutrition Program for Women, Infants, and Children			

Data Analysis

Descriptive analysis was employed to explore central tendency and differences between groups including features of the participants and evaluation of videos. Frequencies were generated to determine participant characteristics, response rates, pre-contest survey data, video score card responses across groups, and comments of student and parent samples. Independent sample t-tests were applied to compare differences among student and parent samples with respect to the following video score card responses: the ability for video(s) to teach others and if parents would use the information provided in the video(s). Correlation analysis was used to examine relationships between variables including: student motivations to create videos and total outcome scores of videos evaluated by peers, and effort and total outcome scores. Spearman's rho statistic was calculated for each variable. All statistical data analysis was conducted using Statistical Packages for Social Sciences (SPSS version 25, IBM Corp.).

Comment text and interview responses were transcribed then coded and themed using a three-coder model to determine inter-rater reliability.^{102,103} Comment codes were developed to explore student and parent's perspectives of creating and/or evaluating videos as an effective pedagogical method. Inter-rater reliability of the comment coding was calculated by dividing total number of agreements for all codes by the combined total number of agreements and disagreements for all codes.^{103,104} Overall inter-rater reliability of the comment coding was 97%. Major and minor codes of interview responses were developed to gather constructs of UCD. Initial transcript coding had an inter-rater reliability of 73%. Following the reconciliation of coding discrepancies by a lead researcher, codes were collapsed, and the final recoded reliability was 95%.

Results

In Phase 1, graduate students acted as research assistants and were not participants in this study, therefore no characteristics were gathered. Phase 2 consisted of 55 students who completed the class assignment. Five of those students did not provide consent and were removed from the dataset. The mean age for students was 23.9, with 72% ranging from age 18-24 and 24% from age 25-34. The majority were Non-Hispanic White (48%) and Hispanic (36%). Over 75% of the students were females (Table 2). Of the 50 participants, 98% completed the pre-contest survey, submitted a video, and scored peer videos. Forty-three students (86%) completed the post-contest survey. The mean video score by student peers was 8.69/10, with 42% receiving a score of nine or higher. Forty-seven parents provided evaluated the videos.

In Phase 3, the mean age for parents was 33.5, with 55% ranging from age 25-34. Similarly, parents within the sample who were interviewed had a mean age of 32.8, with

63% ranging from age 25-34. Over half (56%) of the parent participants were Hispanic. The majority who participated in an interview were Hispanic (75%). Approximately 26% of the parents had a high school education. Forty percent had some college, an associate's degree or a bachelor's degree. Almost a third (31%) of the parents had a post-graduate degree. Of the parents interviewed, almost half (44%) completed a high school education and almost half (47%) had some college, an associate's degree or bachelor's degree (Table 3). All parents had at least one child.

From the sample of 47 parents, 38 (81%) scored the 10 required videos and 16 (34%) were interviewed. Three of the 47 parents who viewed any of the videos (required or optional) provided comments in Spanish.

Table 3. Student and parent demographics

Participant	Students (n=50)		Total Parents (n=47)		Parents Interviewed (n=16)	
	n	(%)	n	(%)	n	(%)
Female	40	(80)	38	(81)	14	(87)
Race/Ethnicity						
Non-Hispanic Black	3	(6)	2	(4)	2	(13)
Non-Hispanic White	24	(48)	18	(38)	1	(6)
Hispanic	18	(36)	26	(56)	12	(75)
Native Hawaiian/Pacific Islander	2	(4)	1	(2)	1	(6)
Asian	2	(4)	0	(0)	0	(0)
Age (years)						
18-24	36	(72)	3	(7)	1	(6)
25-34	12	(24)	26	(55)	10	(63)
35-44	1	(2)	16	(34)	5	(31)
45+	0	(0)	2	(4)	0	(0)
Education Level						
Less than high school	--	--	2	(4)	0	(0)
High school/GED	--	--	12	(26)	7	(44)
Some college	--	--	7	(15)	2	(12)
Associate's degree	--	--	3	(8)	1	(6)
Bachelor's degree	--	--	8	(17)	3	(19)
Post-graduate degree	--	--	14	(31)	3	(19)
-- Data not obtained						
^a Percent totaling <100 are due to missing data						

Pre- and Post-Video Contest Survey

The correlations between motivation and total outcome score of student participants are found in Appendix N. Student's motivation to produce a high-quality video based on receiving a class grade and being viewed by peers or the community was negatively skewed. There was no statistically significant association between student motivation to produce a high-quality video because it was part of a grade and student's total video score by peers. The association between student motivation to produce a high-quality video because it was to be viewed by peers ($r = .37$; $p = .014$) or the community ($r = .33$; $p = .032$) and student's total video score by peers was statistically significant. Students who were highly motivated to create a high-quality video due to being viewed by a particular audience tended to have higher total video scores by their peers.

Student's reflections on the video contest were gathered from pre-contest survey questions (Table 4). More than half of the students (52%) reported they most enjoyed the video contest because it was fun. Other reasons students enjoyed the contest were interest in their topic (40%), ability to inform parents on feeding recommendations (38%), and the assignment was easy/effortless (28%). Twenty percent of the students reported the video contest to be difficult/time consuming, while 56% of students selected other and reported they enjoyed the contest or provided reasons for not enjoying the contest. Some comments included the contest took a lot of mental preparation, students did not like being on camera, other school demands took priority, and students felt they lacked creativity or experienced technology barriers. Almost half of the students reported improvements in their project, self-organizational, and technological skills. Team work and communication were the most improved skills among students. Only 38% of students

were very or extremely satisfied with their overall performance on creating a video on early feeding practices.

Table 4. Student's reflections on the video contest

	Students (n=50)	
	n	(%)
What about this video contest did you most enjoy?		
I learned a lot	7	(14)
It was fun	26	(52)
I was interested in my topic	20	(40)
It was easy/effortless	14	(28)
I was able to inform parents on feeding recommendations	19	(38)
Other	0	(0)
What about this video contest did you least enjoy?		
I didn't learn much	4	(8)
It was boring	3	(6)
I didn't like my topic	0	(0)
It was difficult/time consuming	10	(20)
Other	28	(56)
After creating a video, how do you rate the level of improvement on the following skills?		
Project and self-organizational skills	24 ^a	(48)
Technological skills	22 ^a	(44)
Teamwork and communication skills	31 ^a	(62)
How satisfied are you with...?		
Your overall performance on creating a video about feeding recommendations	19 ^a	(38)
^a Frequency indicates a 4, moderate/very or 5, substantial/extremely		

Score Card Evaluation

Students and parents who reported very good/likely or excellent/very likely on entertainment, quality, ability to teach, and usefulness for all required videos is shown in Table 5. The percent of students who reported very good/likely or excellent/very likely for all score card response categories (i.e. entertainment, quality) was higher than the percent of parents who scored a four or five for the same categories across each video. Over 90% of students and parents who viewed video 10 (Appendix H), "Choking Hazards", reported the ability for that video to teach others as very good or excellent. Over half of the parents (53-83%) reported that parents would likely or very likely use

the information provided in the 10 videos. Similarly, 62-91% of parents reported the ten videos were good or excellent in having the ability to teach others.

The differences between student and parent score card responses on the ability for a video to teach others and the likeliness parents will use the information provided in a video is shown in Table 6. Parents were different from students on the evaluation that videos one through nine (Appendix H) had the ability to teach others ($p < .05$) and the likeliness parents would use the information ($p < .05$). Mean differences between parents and students on videos one through nine indicated that parents scored videos significantly lower than students with respect to the following; ability of the videos to teach others and likeliness parents would use the information. The difference between the means varied from 0.4 points to less than one point on a five-point score card. Students did not differ from parents on the ability to teach others and the likeliness parents would use the information for video number 10 ($p = .086$ and $p = .251$ respectively).

Table 5. Students and parents who reported positive Likert-scores (4 or 5)^a on entertainment, quality, ability to teach, and usefulness for required videos

Video	Entertainment				Quality				Ability to teach others				Likeliness parents would use information			
	Students (n=50)		Parents (n=47)		Students (n=50)		Parents (n=47)		Students (n=50)		Parents (n=47)		Students (n=50)		Parents (n=47)	
	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)
V1	48	(96)	33	(70)	48	(96)	28	(60)	48	(96)	30	(64)	47	(94)	33	(70)
V2	46	(92)	25	(53)	40	(80)	22	(47)	44	(88)	29	(62)	44	(88)	26	(55)
V3	43	(86)	25	(53)	45	(90)	39	(83)	45	(90)	37	(79)	46	(92)	37	(79)
V4	34	(68)	21	(45)	43	(86)	25	(53)	45	(90)	29	(62)	43	(86)	25	(53)
V5	45	(90)	30	(64)	46	(92)	36	(77)	48	(96)	37	(79)	48	(96)	34	(72)
V6	47	(94)	30	(64)	48	(96)	29	(62)	48	(96)	34	(72)	48	(96)	33	(70)
V7	43	(86)	33	(70)	33	(66)	24	(51)	46	(92)	31	(66)	45	(90)	29	(62)
V8	46	(92)	35	(74)	47	(94)	36	(77)	45	(90)	32	(68)	48	(96)	29	(62)
V9	33	(66)	19	(40)	41	(82)	26	(55)	44	(88)	37	(79)	43	(86)	30	(64)
V10	39	(78)	27	(57)	44	(88)	36	(77)	47	(94)	43	(91)	46	(92)	39	(83)
All	28	(56)	6	(13)	25	(50)	9	(19)	33	(66)	14	(30)	32	(64)	12	(26)

^a Indicates a 4, very good/likely or 5, excellent/very likely.

Bold indicates 90% or more of students and parents scoring a 4 or 5 for a given score card category.

Table 6. Differences between video score card response categories of students and parents for required video

Video Number	Students		Parents		Mean difference	SD error difference	t-value	df	P value (two-tailed)
	Mean	SD	Mean	SD					
Ability to teach others ^a									
V1 ^b	4.92	0.279	4.05	0.925	0.870	0.147	5.933	48.856	0.000
V2 ^b	4.42	0.647	3.95	1.154	0.463	0.199	2.325	64.42	0.023
V3	4.63	0.782	4.24	0.933	0.388	0.177	2.192	92	0.031
V4 ^b	4.57	0.707	3.93	0.998	0.640	0.181	3.530	76.585	0.001
V5 ^b	4.96	0.202	4.44	0.854	0.516	0.133	3.872	46.213	0.000
V6 ^b	4.88	0.484	4.36	0.906	0.520	0.156	3.337	60.463	0.001
V7 ^b	4.63	0.602	4.05	1.154	0.586	0.196	2.993	61.392	0.004
V8 ^b	4.79	0.544	4.14	0.930	0.655	0.161	4.078	68.094	0.000
V9	4.63	0.640	4.16	0.903	0.469	0.162	2.906	91	0.005
V10 ^b	4.76	0.522	4.56	0.586	0.200	0.115	1.738	88.417	0.086
Likeliness parents would use information ^a									
V1 ^b	4.90	0.371	3.93	1.142	0.966	0.182	5.299	49.928	0.000
V2 ^b	4.44	0.649	3.79	1.226	0.647	0.209	3.093	62.248	0.003
V3 ^b	4.69	0.742	4.29	0.944	0.404	0.176	2.298	83.429	0.024
V4 ^b	4.51	0.767	3.80	1.069	0.715	0.195	3.667	77.167	0.000
V5 ^b	4.94	0.245	4.19	1.052	0.751	0.164	4.573	46.068	0.000
V6 ^b	4.92	0.344	4.26	0.912	0.656	0.149	4.403	50.946	0.000
V7 ^b	4.61	0.640	3.95	1.272	0.659	0.214	3.073	60.125	0.003
V8 ^b	4.88	0.334	3.93	1.246	0.943	0.194	4.862	48.662	0.000
V9	4.48	0.799	4.00	0.977	0.479	0.185	2.597	91	0.011
V10	4.63	0.668	4.47	0.726	0.166	0.144	1.155	92	0.251

^a On a scale ranging from 1, poor/unlikely to 5, excellent/very likely.

^b The *t* and *df* were adjusted because variance were not equal.

Significant *P* values are indicated in bold font.

Participant Comments

A total of 566 comments from students and parents were collected from pre-and post-contest open-ended questions and score card feedback. The majority of comments (58%) were gathered from student pre- and post-contest surveys. Almost half of the comments (42%) originated from student and parent score card feedback with 135 comments from parent. Student's experience with the video contest and parent's impressions of selected videos were identified through themes and illustrated using quotes (Table 9). Five themes were revealed from the video contest surveys and score cards: lessons learned, student's motivation, video assignment comparison, positive attitudes, and the need for more detail or clarification. Students reported on what they

learned from the video contest, how the assignment prepared them for future community interactions and career opportunities, and ways the contest compared to other class assignments. Students also shared reasons they were motivated to create videos that would be shared with parents. Parent's impressions of the videos were overall positive, with the expectation that parents expressed the need for detail or clarification on topics related to complementary feeding.

Table 7. Student and parent quotes by theme regarding student's experience with the video contest and parent's impressions of selected videos

Source	Quote
Lessons Learned from Assignment & Professional Competency	
Student Pre-Contest Survey	<p>"I learned that I need to work on my communication skills in order to effectively convey information; I get nervous and forget to include pertinent details." -1002</p> <p>It [this assignment] allows me to engage with future clients in respect to feeding practices with their infant. -1005</p> <p>"One thing I learned from this video, is surprisingly the importance of my body language is and how I communicate the material effectively so others can understand in a professional manner." -1012</p> <p>"I am now less intimidated about using certain technology to provide an educational message and can see myself using a tool like [this] in my future career." -1014</p> <p>"It [this assignment] made me more aware of how I present the information, what format I use and wording, because I want the information to be relevant to my client and not judgmental." -1043</p>
Student's Motivation to Share Videos with Parents	
Student Pre-Contest Survey	<p>I would make a video again for sure. Videos are a great learning tool for parents and children alike. Any amount of education and time I can give to the community is well worth it. -1008</p> <p>Through my time volunteering at wic I learned that families always come in with questions about these different topics. They are also more willing to pay attention if they are watching a video rather than reading another pamphlet. -1015</p> <p>"It would be so rewarding to know that something I created myself could potentially be used to educate and help people." -1014</p>

Table 7. Continued. Student and parent quotes by theme regarding student's experience with the video contest and parent's impressions of selected videos

Source	Quote
Video Contest Assignment Compared to Other Class Assignments	
Student Pre-Contest Survey	<p>"Its [the assignment] good practice for counseling parents in the future. -1003</p> <p>"The collaboration with other people also helps you learn the steps of preparing formula because you are explaining and talking about the steps with your team." -1011</p> <p>"This hands on activity helped me to learn the information quickly. Also, teaching others and saying information out loud helps me to learn." -1041</p>
Positive Attitudes Toward Contest and Videos	
Student Pre-Contest Survey	<p>"I'll never forget the information related to my topic." -1033</p> <p>"This assignment has made me open my eyes to the infant nutrition world." -1013</p>
Parent Score Card Comments on Selected Videos	<p>"When they show you the amount of sugar is when you actually realize it." -3007</p> <p>"This is an excellent and informative video, I honestly did not realize this about iron. You reached me in this video." -3048</p> <p>"Very creative idea for the viewer to be the child- and a great way to demonstrate of how to talk to your child to encourage them to try new things! ... the points were short and to the point and easy to remember." -3036</p> <p>"The message is clear. I think that indicating how to present snacks (for example by colors or shapes) is important. It is also important to mention why the sweets should be replaced by more nutritious snacks" -3047^a</p>

Table 7. Continued. Student and parent quotes by theme regarding student's experience with the video contest and parent's impressions of selected videos

Source	Quote
Need for More Detail or Clarification	
Parent Score Card	“The song format is great, but it really needs video showing him thawing the breast milk in fridge or on the counter, and some sort of image discouraging the microwave. Visuals are so key in teaching concepts- and the video will be more memorable with the song and visuals working together!” -3036 “For parents who have no idea, simply listing the kinds of puree may not be enough. They might need a demonstration & to show them you can use breast milk to soften it would be a great addition.” - 3036 “Might want to discuss what complementary foods means so that is clear.” -3049
Comments on Selected Videos	
^a Translated from Spanish	

Interviews

Parents indicated that they had prior knowledge regarding some video topics, including limiting fruit juice, avoiding choking hazards, eating healthy foods in general, and avoiding unhealthy foods. Table 10 describes parent interview quotes, five content themes, and one emergent themes from constructs within the UCD model. Themes were organized into 2 major constructs, including 1) user acceptance and perceived ease of use, and 2) perceived usefulness. Themes within acceptance and perceived ease of use included entertainment, trust, and relatability. The UCD construct perceived usefulness included 3 content themes: understanding of information, informative, and other video topics.

Within the theme of entertainment, the most popular videos included singing and animations. Parents reported trusting video content because they were viewed through the research collaborative at the school. Relatability was an emergent theme, which classifies

parents desires to identify with the style and how the information way relayed. Parents specifically discussed relatability when viewing the bilingual videos as they spoke English and Spanish in their home. Next, for the UCD construct of perceived usefulness, parents found some videos to be very informative, in particular “Let’s Talk About Iron”, which used animated paper cutouts to explain the importance of iron for infants (Appendix H). Information within the videos was easy to understand when a visual representation was included to demonstrate portion sizes or the sugar content in beverages. Furthermore, future topics on picky eaters, different ways to prepare food, and topics that addressed specific developmental stages were suggested.

Table 8. Themes within the user-centered design model, descriptions and quotes from interviews

Constructs	Themes	Description	Quotes
User Acceptance and Perceived Ease of Use	Entertainment	The most popular videos included rapping, singing, and animation, based on their entertainment value.	Umm the one with puppy was really clever, it was my favorite one. The dad rapping was hilarious. This [video] was tacky, but it was great. Not in a bad way just unexpected. -3032
	Trust	Parents trusted the videos because they were viewed through the research collaborative at the school.	“Umm...that the videos were a great way for parents to learn and came from reliable sources.” -3018
	Relatability	Parents preferred the bilingual videos because their families speak both English and Spanish at home.	“The bilingual ones are really cool because in my house we speak Spanish only.” -3032 [I] really liked bilingual [videos] because had appeal as a family aspect. -3029

Table 8. Continued. Themes within the user-centered design model, descriptions and quotes from interviews

Constructs	Themes	Description	Quotes
Perceived Usefulness	Understanding of Information	Videos on sugar in beverages or portion sizes were easy to understand and recall because they were quantifiable and included visual representations.	“The visual aspect of the video and seeing the quantity [of sugar] stood out.” -3007
	Informative	Parents preferred videos on specific nutrients, such as iron and omega-3s; they were informative.	“I did not know that iron is so important for us to live. I like this video because they told how iron is very essential in carrying oxygen to all parts of our body through blood. Before watching this video, I did not know any of this information.” -3015
	Other Video Topics	Parents expressed other videos should include information on picky eaters, different ways to prepare food, and topics that are about their child’s developmental stage.	“I think the videos were target specific. I only like a couple of the videos; they were good in their own way. I just think the videos are dependent on a target audience. The rap video would be like more by kids. I think it really just depends on the audience.” -3044

Discussion

By incorporating student pedagogy into the UCD of educational videos, this study considered the needs and preferences of the parents along with the need to foster and support student learning among future health professionals. To the best of the researcher’s knowledge, this endeavor is unique. The research has concluded there is a dearth of feeding practice guidelines for parents of young children, in particular children two years of age and younger. In addition to an absence of guidelines, translating evidence-based research for public use is sometimes a challenge. Engaging future nutrition professionals in guideline development and educational videos may help bridge the gap between feeding practice guidelines for parents of young children to follow and a

way to effectively communicate the information. Furthermore, this unique pedagogical approach allowed researchers to explore a new way to connect service learning for students with the community.

Overall, there were positive responses and impressions from student and parents regarding the video assignment and subsequent pilot implementation. The video assignment was an effective pedagogical strategy in teaching senior-level nutrition students about early childhood feeding practices, as described in the post contest survey. The approach allowed students to explore current evidence and challenged students to translate research into parent-friendly information in an interactive and engaging way. Furthermore, the assignment provided experience working with parent populations, an essential skill for applying evidence-based practice in community settings. This assignment was founded on constructivism, designed to build self-efficacy and reciprocal determinism, and foster vicarious learning through student-generated videos.^{82-84,105} With these skills students can further develop techniques for providing nutrition education. Additionally, video education that considers these learning theories may be an effective method to not only teach parents, but enable them the ability to make positive health-related behavior changes. The pedagogical approach enhanced student learning through the implementation of successful videos to teach parents in the community about evidence-based guidelines. The parents were receptive to video-based learning. The experiential nature of videos established an environment for parent vicarious learning on early childhood feeding practices⁸³ and offered an uncommon, but promising educational tool for providing evidence-based guidelines to parents. By applying UCD using student

pedagogy and learning theories to develop educational videos students and parents gained unique experiences.

Student Pedagogy

Few interventions using videos to support student learning exist in the literature, yet none have incorporated nutrition education.^{87,88,97,98} Of the studies, some have shown to have a positive outcomes on long-term memories of student knowledge⁸⁸ and academic performance.⁸⁷ This study explored a topic not used in other video-based learning interventions and was unique in that early childhood nutrition was a relevant and informative topic to the future nutrition professionals involved.

Like Holtzblatt and Tschakert,⁹⁸ this study gathered students perspectives on the video competition assessing professional competency skills, challenges encountered, satisfaction or dissatisfaction with the competition, and suggestions for improvement. Specifically, students reflected on a number of items within the pre- and post- video contest surveys, indicating enjoyment of the technique, self-evaluation, identification of professional skills and learning barriers, comparison to other assignments, and factors of motivation. Overall findings indicated this video contest assignment supported learning and the motivation to learn, improved technological and professional skills, and provided experience in communicating complex guidelines into something parents could easily follow. Similarly, other course assignments that incorporated evidence-based research not only allowed students to strengthen skills in critical thinking and awareness, but also build additional competencies through the development of practice skills such as leadership, problem solving, teamwork, interpersonal communication, and self-organization.^{72,86} A pedagogical approach which includes evidence-based research fosters

the development of professional competency skills that may not be developed by other traditional teaching methods.⁷²

Student's reflections on the video contest assignment revealed components of constructivism (i.e. teaching others and speaking new knowledge). Students were motivated to make videos for parents, mentioned that they were a great learning tool, and reported levels of improvements of professional competency skills. The opportunity for videos to be seen by parents was rewarding for students, which correlated with a higher grade. Interestingly, students tended to have higher grades on their videos when they were highly motivated to create a high-quality video because it was to be seen by peers or the community and not because it was part of their grade. Findings suggest there may be different motivational factors other than the required grade to support student learning and academic performance for certain pedagogical techniques. Further investigation is warranted. The video assignment was ranked highly in comparison to other types of pedagogical techniques students have experienced in the classroom. To further support constructivism, students described the assignment as hands-on, which participants further described as preferential to more formal methods of teaching and evaluation, such as lecture and examination. The pedagogical methodology was described to facilitate learning through the experience of teaching others in the community. Lastly, student's improved in a number of professional skills throughout the assignment; team work and communication being the most superior. Students understood the importance of communicating information in a simplistic and effective way for parents to follow. For example, one student specifically discussed improving their communication skills were essential in effectively conveying information to parents.

Similar to other studies, student-generated videos were seen by class peers.^{97,98} However, this study further engaged the intended users of parents, to whom the videos were created for. This approach not only allowed students to gain knowledge and professional skills, but also served as an educational tool for teaching others about health and nutrition. Findings from Lencastre and colleagues⁹⁷ suggested students were open to the idea of creating videos and having them publicly viewed, which mirrored findings of the current study that led to the implementation of a parent evaluation.

Parent Implementation

Using quantitative and qualitative methods, this study was the first to gather video features from parents of young children to support learning and provide education on appropriate feeding practices. Of the video-based learning studies in the literature, with a variety of population groups, the majority have focused on overall effectiveness of content knowledge and making behavior changes.^{77–80,91–94} A few video education interventions have identified video characteristics.^{77–79,92,93} Studies involving videos have investigated video characteristics with patients,^{77,92,93} teachers of Head Start children,⁷⁸ and childcare providers.⁷⁹ Other video studies with parents only looked at improving parenting practices and increasing parental self-efficacy.⁸⁰ No studies have investigated video features with parents.

In this study, parents reported several video features that contributed to user acceptance, perceived ease of use, and perceived usefulness, all constructs of UCD. Using an evaluation tool, the majority of parents reported the student-generated videos had the ability to teach others and that they would likely use the information provided. Parents described videos as entertaining, trustful, relatable, easy to understand, and

informative. Video features described by parents in this study were similar to findings in other video interventions. For example, Ramsay and colleagues⁷⁹ also identified the video characteristics of relatability and the ability to conceptualize content through visual and auditory cues to support learning. Additionally, other studies reported videos were relatable or familiar, informative, easy to understand, engaging, and provided useful information.^{77,78,92}

Parent impressions on student videos revealed features unique to videos that supported learning. As the researchers hypothesized, parents reported the majority of videos to be entertaining. Videos on the importance of certain nutrients, such as iron and omega-3's reached parents and were an informative way to discuss complex topics. Visual demonstrations (i.e. portion size, and sugar content beverages) were critical in helping parents understand the information. In this study, the video "Choking Hazards" demonstrated food items and portion sizes that were safe or unsafe for small children. More than 90% of parents evaluated the video as good or excellent on the ability to teach others, indicating visual demonstrations may be an important tool to enhance learning.

Other descriptions revealed the emergent theme of relatability, which explained how the information provided was applicable to parents. Parents expressed some videos related to their child's life stage or had similar characteristics of their household, in particular bilingual videos.

Studies that identified videos as relatable reported participants who viewed videos related to real or familiar scenarios and personal experiences;⁷⁷⁻⁷⁹ one of those studies incorporated bilingual videos.⁷⁸ Though parents described acceptance of presented video topics, additional topics were suggested. This was expected as there were not enough

video topics selected to meet the needs of all parents. Similar to other studies, parents expressed further interest in learning about picky eaters, different ways to prepare foods, and topics that pertained to their child's developmental stage.^{8,10,11}

As many video features were identified, the researchers of this study are in agreement with Ramsay and colleges,⁷⁹ that it is essential to understand which features of a video enhance nutrition knowledge and support learning in adults. In conclusion, student-generated videos are a promising pedagogical approach for providing evidence-based guidelines on early feeding practices to parents of young children.

Strengths and Limitations

This study was the first to combine student pedagogy and UCD using adult learning theories. In addition, this study's methodology was a major strength. Gathering quantitative and qualitative data allowed researchers to recognize differences among sample groups and further gather information that could not be described numerically. The open-ended pre-and post-contest survey questions and voluntary comment section on score cards allowed for expansion on the Likert type ranking methodology. Furthermore, the parent interviews allowed us to find further characteristics unique to videos to support learning and determine effectiveness of videos as an educational tool.

This study also included many limitations. One limitation was the use of convenience sampling throughout all phases, indicating analysis of responses from the class assignment and score card evaluations for students and parents in San Marcos, Texas is not generalizable. In addition, there was a slight negative skew to our distribution. The small sample size in both groups may have been contributing factors as we would expect a more normal distribution with a higher participant pool. Not having a

control group for the student sample was another limitation to this study. As a result, researchers were unable to compare the video contest assignment to other pedagogical methods of teaching students about early feeding practices for parents of young children. Spanish and bilingual videos were not part of the original contest. When researchers were asked to create these to best accommodate our parent sample, efforts were taken to mirror outcomes of the videos being student-generated. Because this study was a pilot and included an exploratory process, it was expected that researchers would encounter many obstacles. Despite these limitations, this study supports video-based learning as an effective pedagogical approach to support learning in the classroom and educate parents of young children on topics related to early childhood feeding.

Implications for Research and Practice

This pilot intervention allowed researchers to explore an effective, interactive, and engaging pedagogical approach to support student learning and educate parents of young children on important nutrition concepts related to early feeding practices. University nutrition programs can empower students enrolled in formal coursework to systematically investigate the literature for gaps in knowledge on feeding young children. Furthermore, courses can engage student learning in the classroom by challenging students to translate evidence-based information into educational tools applicable for the intended user. Student-generated videos are a promising pedagogical approach. As videos continue to become a preferred source of food and nutrition-related information for parents, future video-based learning interventions that consider the preferences and needs of the intended user have the potential to enhance knowledge and foster positive behavior changes. Parents were favorable to the approach of learning from videos and were willing

to engage in further evaluation of the student-generated videos. In addition, bilingual videos gained the attention of parents who related to certain aspects of these videos and how information was relayed. There is a need for researchers to further investigate the role of bilingual videos and cultural acceptance as a means of learning about feeding practices for parents of young children. Lastly, as gaps in knowledge on early childhood feeding practices continue to be addressed, further research warrants future video education interventions to gather parents' preferences on specific video topics they want to learn about.

Acknowledgements

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APPENDIX A: GRADUATE NUTRITION COURSE SYLLABUS

Texas State University–San Marcos
Department of Family and Consumer Sciences
NUTR 5306 – Advances in Child Nutrition – Spring 2016 FCS 182

COURSE DESCRIPTION

This course will investigate the historical and current scientific literature addressing the function, dietary availability, and epidemiological trends regarding key nutrients that may be suboptimal in the diets of children but crucial for optimal growth, development, and positive health outlook. The composition of popular complementary foods will also be addressed.

PREREQUISITES & COURSE CREDIT

Graduate standing.

COURSE OBJECTIVES

- Breastfeeding. Describe current issues in breastfeeding research, including key components of breastmilk (nutrient and non-nutrient), and impact of breastfeeding on health. Explain the scientific basis for current recommendations, describe current guidelines, and summarize best practices.
- Infant Formula. Describe types of infant formulas, guidelines for choosing formula, and protocols for mixing and storing formula and for how much formula should be offered to infants at different ages. Explain concerns regarding composition of feeding implements (e.g. plastics). Explain recommendations for mothers who choose to combine breastfeeding and formula feeding.
- Complementary Foods. Explain the recommended age of introduction of complementary foods. Compare methods for introducing complementary foods (i.e. feeding purees versus baby-led weaning). Explain recommendations and concerns regarding introduction of specific complementary foods (e.g. meat, honey, cow milk, cereals, peanut butter). Describe importance of including/restricting specific nutrients in complementary foods (e.g. iron, omega 3 fats, protein, sodium).
- Feeding Children Ages 1-3. Describe resources and recommendations for scientists and parents regarding best practices for feeding young children. Include new 2015 Dietary Guidelines for Americans.

COURSE TEXT & READING

Current scientific literature.

COURSE POLICIES

Class attendance. This class meets only one time per week; attendance at every class is expected. Absences will be excused only as per the Dean of Students (<http://www.dos.txstate.edu/handbook/rules/policies.html>); without an excuse via the

Dean of Students, all work due that day will receive a zero grade. With an excuse from the Dean of Students, additional work will be assigned to make up missed work. Any unexcused absence may lower the final grade by 1 letter grade.

Late work. Complete all assignments before class begins. Late work (or work that is completed after class starts when it was due at the beginning) will be given a grade of zero. It is expected that all students will come to class fully prepared to participate in all aspects of the class.

Final exam. The final exam will be administered according to the published schedule (www.registrar.txstate.edu/).

Academic honesty. All work submitted for credit must be the student's original work. Any plagiarism may result in a grade of zero on that assignment. An assignment that is questionable may be investigated and subject to disciplinary actions recommended under the Texas State Honor Code (see UPPS No. 07.10.01 @ <http://www.txstate.edu/effective/upps/upps-07-10-01.html>.)

Classroom courtesy. No use of electronic items during class. No private conversations. Violations of this policy may result in lowering of class grade by one letter.

Students with disabilities. If you are a student with a disability who will require accommodations for successful participation in this course, please contact me within the first two weeks of the semester, providing documentation from the Office of Disability Services (<http://www.ods.txstate.edu/>).

CLASS MANAGEMENT

Seminar Style. This class uses a lecture format followed by a seminar-style discussion (<http://www.grad.washington.edu/mentoring/memos/graduate-seminar.shtml>), an interactive style that is especially suitable for graduate classes. Facilitated by the restricted size of the class, this seminar format allows students to interact with classmates and with the professor, and provides opportunities for you to learn *how to learn*, how to express what you know, how to listen, and how to pose questions. All participants in a seminar class must prepare for every class. Basic guidelines follow:

- Even if you are not presenting, read the paper provided for each topic. When you read, underline key points, prepare a detailed outline with notes about the material you read, and try to clarify information you don't understand – all before the class meets. Part of your grade in this class will be based on preparation (including the outline you bring to class).
- Critically analyze the reading. Come to class with questions and thoughts.
- Be accurate. It is our mutual task to have a class discussion that is accurate, scientific, and inclusive.
- Foster a positive environment. If it is easy for you to talk, be sure you allow others to have a chance as well. Sometimes, carefully listening is your best contribution to a discussion. Feel free to disagree with others, but do so respectfully. If it is hard for you to talk, use this class to practice.
- When you do participate in class discussion, speak to your colleagues as well as to the professor.
- Always remember to listen.

How the Class Presentations Work. On the first day, each student will sign up to present on 4 topics throughout the semester. Students will work in pairs for each presentation. For 2 topics, the student will be the team leader; for the other 2, the student will be the assistant. For each topic, the team of students will create a presentation to give in class. If a topic is in ALL CAPS, the presentation should be about an hour (45 minutes talking, 15 minutes discussion). If the topic is in lower case, the presentation can range from 15 minutes to 45 minutes, depending on how much information a literature search yields.

Each pair will team will provide a very good article (often a review) for classmates to read by 5 PM on the Thursday before your presentation day. This is the article everyone must read before class. The class presentation will cover more than just the article posted. At least 10 and many more journal articles may be needed to build the lecture. By 5 PM on Sunday night before the presentation, the group will post the PowerPoint presentation or the TRACS worksite. All participants will print the presentation and bring it to class for notes and questions. After each presentation, we will have a discussion.

Class Presentations. On each presentation day, each group will lecture on the assigned topics. To prepare, the class participants will have read and outlined the ‘required’ article(s). The presenting groups will give a thorough, literature-based lecture on their topic, referencing current literature throughout. PowerPoint is strongly suggested.

Notebook. Keep a notebook for this class, organized chronologically, with any printed materials and notes separated by topic.

Outline/Notes. As described above, before class, read and outline the assigned reading as described above. Develop 1-2 thoughtful questions to pose to the presenters. It should be clear by your outline that you have prepared for class.

Class Sheet. Along with your outline, come to each class with a Class Participation Sheet completed with your name, the date, the topics, and at least 2 questions that pertain to each lecture (all word processed). On this sheet (and additional sheets if needed), you will document your class participation. This Class Sheet will be turned in at the end of each class. This sheet will be used by me to grade participation.

Presenters: What to Bring to Class. Each presentation day, all presenting groups will bring a grading rubric (template posted on TRACS) and copy of the PowerPoint (to give to Dr. Crixell before the presentation).

COURSE EVALUATION

Points

Literature Review (ALL CAPS topics) 100 points each x 2.....	200
Literature Review (small caps topics) 50 points each x 2.....	100
Presentation (ALL CAPS topics) 50 points each x 2.....	100
Presentation (small caps topics) 25 points each x 2.....	50

Single Paper provided to classmates for each topic 10 points each x 4	40
Feeding Practices Guidelines for Scientists and Practitioners 25 each x 4 ...	100
Feeding Practices Guidelines Handouts for Parents 25 each x 4	100
Participation (Class Sheet & Notebook) (10 points each x 8 class presentation days)	80
Participation General (subjective assessment by instructor)	25
Video Screening Event Participation	25
Video Scoring and Final Exam	80
Total	900

Grade Calculation (The final grade is calculated by dividing total points earned by total points possible and multiplying by 100.)

- ≥ 89.5 % (A)
- ≥ 79.5 ≤ 89.4 %
- (B)
- ≥ 69.5 ≤ 79.4 %
- (C)
- ≥ 59.5 ≤ 69.4 %
- (D)
- ≤ 59.4 % (F)

INSTRUCTOR

Office Location

Dr. Sylvia Crixell, PhD, RD
Professor
FCS 281
scrixell@txstate.edu

Office Hours

TTH 10:50 AM – 11:50 PM; TUE 1:30-3:30; MON 4:50 – 5:50 AM

These times are available *if you schedule an appointment with me*. If I have no appointments, and if no one talks to me after class, I may not be sitting in my office during office hours (but instead meeting with colleagues or graduate students). If you do need to see me, *please schedule an appointment* - I will be delighted to meet with you. The best time to talk with me is immediately after class, but we can agree upon another time if that does not work.

Communication

The best way to reach me is to speak with me after class. Please reserve email for emergencies (or appointments). Emails should include 4365 and your name in the title, and should be written professionally.

Schedule

Date	Topic
1/25	Syllabus Presentation/Writing Topic Assignments Mendeley Referencing/Citation System Feeding Practices Video Research Project Overview and Assignments
2/1	Classwork and Research Collaborative Research to Create Feeding Guidelines Template
2/8	Crixell: Importance of Early Feeding Practices Current Guidelines for Scientists vs. Current Guidelines for the Consumer
2/15	DUE: Feeding Practices Guidelines Handouts for Parents (Video Contest) Breastfeeding (1) RECOMMENDATIONS (& RESEARCH TO SUPPORT) (2) Handling and Storage (3) Troubleshooting: Problems and Solutions
2/22	Infant Formula (4) COW MILK FORMULA - RECOMMENDATIONS (& RESEARCH TO SUPPORT) (5) Soy milk formula - recommendations (& research to support) (6) Handling & Storage of Formula and Recommended Amounts by Age
2/29	Infant Formula (7) Combination Formula and Breastfeeding Recommendations Complementary Feeding (8) IRON RECOMMENDATIONS (& RESEARCH TO SUPPORT) (9) FATS/OILS RECOMMENDATIONS (& RESEARCH TO SUPPORT)
3/7	Complementary Feeding (10) Sodium recommendations (& research to support) (11) Sugar recommendations (& research to support) (12) CEREAL RECOMMENDATIONS (& RESEARCH TO SUPPORT) (13) Meats recommendations (& research to support)
3/14	Spring Break
3/21	Complementary Feeding (14) FRUIT & JUICE RECOMMENDATIONS (& RESEARCH TO SUPPORT) (15) Vegetables recommendations (& research to support) (16) DAIRY - MILK, YOGURT, CHEESE RECOMMENDATIONS (& RESEARCH TO SUPPORT)
3/28	Complementary Feeding (17) PEANUT BUTTER AND OTHER ALLERGENS (& RESEARCH TO SUPPORT) (18) BABY LED WEANING (RECOMMENDATIONS & RESEARCH)
4/4	Work Day (Dr. Crixell at Experimental Biology Conference)
4/11	(19) GUIDELINES FOR PRESCHOOLERS DUE: Final Feeding Practices Guidelines Handouts (turn in and present to class)
4/18	(20) Containers for Infants and Toddler Foods – Concerns & Recommendations Class Discussion: What Are Young Children Eating? FITS Papers
4/25	Video Screening Event at Caminitos Research Collaborative (Bonham Elementary)
5/2	Class Discussion: Summary Discussion of Feeding Practices Final Guidelines Statements for Scientists and Practitioners Due
W-5/4	Final Exam @ 2:00 – 4:30 PM (Video Scoring)

Assignment schedule for graduate-level seminar style research course			
Assignment	Assignment Details	Deliverable	Due Date
Identifying Feeding Practice Topics and Major Course Assignments	Class discussion allows for learning and understanding of important topics to consider during early feeding. Students will review learning objectives of course and purpose of curriculum development for other phases of this research study.	Class Discussion and Course Syllabus	Week 1
Selection of Group Topics	Students select 4 early feeding practice topics for the semester to research, present, and transcribe into guidelines. Topics are selected based on student preference and availability throughout the semester.	Topic Sign-Up Sheet	Week 1
Collaborative Institutional Training Initiative (CITI) Research Ethics Training for IRB	Students will complete online training and certification for human subject's research needed for further phases of research study.	Online Course and Certification Document	Week 2
Develop Template for Feeding Practice Guideline Statements	Students will develop a template that organizes guideline statements, rationale supporting each guideline, and a list of resources for 1) parents and 2) scientists and practitioners.	Word Document	Week 2-3
Preliminary Review of Literature	The feeding practice guidelines for parents will be generated in 2 stages. Therefore, students will conduct a preliminary review of the literature for all topics assigned to, gathering multiple references.	Literature Search via Web	Weeks 3-4
Submission of Feeding Practice Guidelines Draft for Parents	Students will generate a draft of guidelines for parents that will be used as the core curriculum in a pilot of a video contest research project (Phase 2).	Word Document using Feeding Practice Guideline Statement Template	Week 4
Submission of Single Paper Article	Partners will search the literature and submit a single article over their assigned topic for classmates to read and outline prior to presentation day.	Single Paper and Outline Notes	Weeks 3-12
Partner Literature Review Paper/Presentation	Each student will conduct a literature search and write an extensive literature review with their partner over assigned topics. Partners will then present a literature-based lecture on their topic to their other classmates.	Paper and Presentation	Weeks 4-13
Group Discussion/Feedback	Classmates will engage in group discussion following each presentation by contributing prior knowledge, posing relevant	Group Discussion and Class Participation Sheet	Weeks 4-13

	questions, and providing thorough feedback on recommended guidelines.		
Video Contest Viewing and Scoring	Students will participate in the video contest research project (Phase 2) through viewing and scoring of student-generated videos.	Score Sheets	Week 13
Video Contest Event	Students will serve as research volunteers at a video contest event showcasing student-generated videos for parents to view and evaluate.	CITI Certification Document	Week 14
Submission of Feeding Practice Guidelines Final Version for 1) Parents and 2) Scientists and Practitioners	Students will submit a final version of audience-appropriate generated guidelines on assigned topics.	Word Document using Feeding Practice Guideline Statement Template	Week 15
Peer Evaluation	Students will evaluate their partners by reporting their contribution to the course assignments (e.g. literature paper, presentation, guidelines).	Online Peer Evaluation	Week 15

Adapted from Hesse and Schubert⁷²

APPENDIX B: GRADUATE NUTRITION COURSE ASSIGNMENT SHEET

NUTR 5306 Advances in Child Nutrition
Spring 2016

Focus on Feeding Practices – Information on Assignments

Overview. This semester we will investigate the scientific underpinnings supporting appropriate feeding practices for infants, toddlers, and preschoolers. This is truly a pivotal issue. Early feeding practices reflect the parent/child relationship, establish taste preferences that may persist, impact intake of nutrients that critically affect development, directly impact development of the microbiome, and may have lasting effects on risk for obesity. Despite the importance of early feeding practices, the US has not published a set of dietary guidelines for children less than 2 years of age. Many parents have questions and misconceptions about what, when and how to feed their infants. Those who participate in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) may be at an advantage because participation in the program includes education, and participants can pose questions to WIC staff. However, WIC parents may receive little specific instruction.

Class Assignments. Throughout the semester, students will work in pairs to collect current literature regarding early child nutrition. You will use this information about each of the 4 topics you work on to:

- (1) Collect excellent references regarding your topic and post to Mendeley using tags;
- (2) Write a literature review about the assigned topic,
- (3) Identify a single paper that should be read by the class about your topic before the presentation,
- (4) Develop and deliver a presentation for class,
- (5) Generate feeding practices guidelines statements for scientists and practitioners, and

- (6) Generate feeding practices guidelines handouts for parents.
- (7) Generate a comprehensive exam question regarding your topic.

NOTE: The feeding practices guidelines handouts for parents will be written in 2 phases. On February 15, 2016, an excellent draft of the guidelines statements handouts for parents will be turned in. This draft will be used in a pilot of the Video Contest Research Project. At the end of this semester, you will turn in a final, revised copy of this document.

DETAILS

- (1) Excellent References – For each topic, search for existing guidelines [American Academy of Pediatrics, Government of Canada (<http://healthycanadians.gc.ca/healthy-living-vie-saine/infant-care-soins-bebe/nutrition-alimentation-eng.php>), WHO, etc., Europe (http://ec.europa.eu/food/safety/labelling_nutrition/special_groups_food/children/index_en.htm)] as a starting point. Carefully and thoroughly search the literature for current articles regarding your topic as it pertains to evidence to support (or not) recommendations, and identify a review article (or other excellent article) to be read by the class in preparation for your lecture. The articles you find will support all of your work. Excellent articles used for the review must be uploaded to Mendeley and tagged properly.
- (2) Literature Review – Write a literature review regarding your topic. Before you write, prepare an outline to guide the logic of your review. Suggestions: Include mention of how you went about conducting your research. Include key terms you used in searching PubMed. Include information about the history of the topic (if relevant). Describe any current guidelines (in the US and internationally, if relevant) and describe literature that supports the guidelines. If the literature is discordant, be sure to describe how. End with a list of feeding practices guidelines that are supported by the literature and that you would comfortably recommend to the US community at large. The length of this review will vary depending on the topic. The grade will be based on thoroughness, accuracy, and content.
This literature review document must have your names in the upper right hand corner, the title at the top of the first page, and include page numbers. It must be uploaded into the proper assignment folder before class on the day delivered. NOTE: Upload the file ONLY to the FIRST AUTHOR'S Assignment Folder. Do NOT upload to the Second Author's folder.
 - Literature Review – First ALL CAPS Topic (100 points)
 - Literature Review – First Lower Case Topic (50 points)
- (3) Single Article – On the Thursday before your presentation, your group will provide an article for your classmates to read. This article should be current and very relevant. In general, a review article might provide the most useful information. NOTE: You may use an article that has already been used by a previous group if the information is pertinent. It is important that you choose an article that is well written and useful. The rubric for this assignment is included with the ALL CAPS Presentation Rubric. (10 points)
- (4) ALL CAPS Presentation (50 points) – For topics in ALL CAPS, the presentation should last around 45 minutes, allowing time thereafter for discussion. However, the content that needs to be covered should dictate the length. PowerPoint presentations should be well crafted, include diagrams and/or smart art, and not be made of several slides of text. Text is sometimes necessary, but can become difficult to follow. Please incorporate appropriate images and videos. Include the source of your images and videos. The presentation should be based on your literature review. The day before your presentation (Sunday at 5 PM), the presentation should be posted so that classmates can download and bring to class. On

presentation day, bring the following and hand to Dr. Crixell immediately before presenting:

- a print copy of the presentation (4 slides per page, no slide framing); and
 - a completed ALL CAPS Presentation Rubric.
- (5) Lower Case Presentation (25 points) - For topics in Lower Case, the presentation can range from 15 - 30 minutes, allowing time thereafter for discussion. However, the content that needs to be covered should dictate the length. PowerPoint presentations should be well crafted, include diagrams and/or smart art, and not be made of several slides of text. Text is sometimes necessary, but can become difficult to follow. Please incorporate appropriate images and videos. Include the source of your images and videos. The presentation should be based on your literature review. The day before your presentation (Sunday at 5 PM), the presentation should be posted so that classmates can download and bring to class. On presentation day, bring the following and hand to Dr. Crixell immediately before presenting:
- a print copy of the presentation (4 slides per page, no slide framing); and
 - a completed Lower Case Presentation Rubric.
- (6) Guidelines Statements for Scientists and Practitioners (25 points) – Based on your review of existing guidelines and their scientific underpinnings, list guidelines related to your topic. Under each guideline, provide an explanation supporting the guideline and list resources. This will be done for each topic you present on. The class will develop a template for this document during the first 2-3 weeks of class. NOTE: Upload the file ONLY to the FIRST AUTHOR’S Assignment Folder. Do NOT upload to the Second Author’s folder. Due May 2, 2016 by 2 PM.
- (7) Feeding Practices Guidelines Handout for Parents (25 points) – Based on your review of existing literature, create a user-friendly set of guidelines for parents. Under each guideline, provide an explanation for parents. List parent-friendly resources. The class will develop a template for this handout during the first 2-3 weeks of class. NOTE: Upload the file ONLY to the FIRST AUTHOR’S Assignment Folder. Do NOT upload to the Second Author’s folder. Draft Due February 15, 2016 by 2 PM. Final Version Due April 4, 2016 by 2 PM.
- (8) Comprehensive Exam Question – All graduate students must take a comprehensive exam before graduating. One question will come from this class. Generate a well-written comprehensive exam question based on your topic. Bring to class when you present.

APPENDIX C: SENIOR-LEVEL NUTRITION COURSE ASSIGNMENT SHEET

NUTR 4365 Video Project Assignment- Spring 2016

Background: This project is a class assignment that is part of a research study. Funded by a grant from Texas State University, researchers aim to hold a video contest in Fall 2016 among low-income individuals in the community who are participants in the Special Supplement Nutrition Program for Women, Infants, and Children (WIC), Head Start, and parents of children in preschool. Our ultimate goal is to collect user-generated videos that illustrate appropriate feeding practices for infants and children birth to 4 years of age. This is an important endeavor because there is a need across the state to improve nutrition education for parents of young children. It is possible that some of the videos generated in the pilot and also in the study will be used for education in Texas. As for many research studies, it is important to conduct a pilot to make sure that all pieces of the study work and to help identify areas of improvement before engaging subjects. For that reason, we are conducting a pilot project this semester. Your role is to be a ‘subject’ in the pilot student.

Instructions: You may work on this project in groups of 2-3, but not alone. However, each member in the group will submit one video. Therefore, in working together you can help each other, but your assigned grade will be based on your completion of the project.

Get Started: We will begin recruiting community participants in the fall by providing a flyer through personal invitation during meetings, by posting an announcement at local clinics, and via email. It is our expectation that by following directions on the flyer, potential participants can make it all the way through the study. Thus, to the extent possible, try to follow directions per the 'flyer' below without asking for guidance from me in class. NOTE, when you visit the Best Food FITS Video Contest webpage per instructions below, you will see that there is a way to ask questions about the study. If you have questions while working on the project, please use that interface. For the researchers, this allows your experience to be as similar as possible to what community participants will experience.

Grading: Your grade will be based on completing all aspects of the study and on the quality of the video you enter into the contest. The grading rubric is as follows: Complete registration offered through the Contest website (5); Complete the survey (5); Upload a video as directed (5); Video is of high quality (25); Score videos in class (5); Provide final assessment of the contest (5). The quality of the video will be assessed by scoring by graduate students and peers in class. Note that your name will not be linked to the video during the scoring process. Scoring will be based on likert scales for (a) quality of video (sound, lighting, free of clutter); (b) accuracy of information included; (c) clarity of communication of information; (d) entertainment value (fun to watch); (e) teaching potential (do the viewers think they can learn something from the video). Details on how to make your video is included on the Video Contest website.

Flyer Content:

Greetings! You are invited to participate in a video contest about feeding infants and young children! You can use your smartphone or tablet to make a video. Just by entering the contest, you will receive a free t-shirt. If you submit a winning video, you will receive a high quality piece of cooking equipment. For more information, go to the Best Food FITS Video Contest at:

<https://sites.google.com/site/bestfoodfitsvideocontest/>.

Note the deadline to complete this project is: April 4, 2016.

APPENDIX D: STUDENT WEB PAGE INSTRUCTIONS

Welcome to the Best Food FITS Video Contest!

The video contest is part of a research study conducted by Texas State University. We are collecting videos about early feeding recommendations for infants and young children. Some videos may be used to teach others in WIC, Head Start, at Texas State University, or in the community about feeding recommendations.

The videos can be taken with your smartphone. They can be about 30-90 seconds long and should follow the guidelines we provide.

To participate, you must:

- Use a smartphone or tablet.
- Participate in WIC or Head Start, or be a parent/guardian of a child attending Bonham PreK.

Prizes

- All participants who join the contest and upload a video will receive a Best Food FITS t-shirt!
- One t-shirt per survey participant will be awarded. (T-shirts will be picked up at your WIC Site or Head Start or Bonham PreK.)
- Top Winners (8) will also receive high quality cooking equipment.



How to Enter

Step 1: Register to let us know you are interested in participating.

Step 2: Read the Video Guidelines and choose a topic and participants for your video(s).

Step 3: Create your video(s). Have fun!

Step 4: Enter the contest by completing a survey and submitting your video(s).

NOTE: The deadline to enter the contest is April 4, 2016 at 5 PM.

If you have questions about this contest or need technical support, please email our staff at BestFoodFitsVideo@gmail.com

Step 1: Register

Providing your contact information will allow us to email or text reminders to you about the contest. We will not share your contact information.

Best Food FITS Video Contest Registration

Name

Email Address


Mobile Phone Number

Mobile Phone Provider

How may we contact you?
☐ E-mail
☐ Text Message

Submit

Never submit passwords through Google Forms.

Powered by  Google Forms

This content is neither created nor endorsed by Google.
[Report Abuse](#) - [Terms of Service](#) - [Additional Terms](#)

If you have questions about this contest or need technical support, please email our staff at BestFoodFitsVideo@gmail.com

Step 2: Video Guidelines

Your video can be about any of the following topics (you can upload up to 2 videos for each category)

Category 1: BREASTFEEDING

Breastfeeding Practices

- Benefits of Exclusive Breastfeeding: Infants should be exclusively breastfed for the first 6 months of life. Exclusive breastfeeding means that the baby is fed only breast milk (no other solid or liquid food). Breast milk provides many benefits to the infant such as essential nutrient requirements, promotion of brain growth and development, immune protection, and easy digestion. Breastfeeding also creates a special bond between mother and child.
- How Long? Continue breastfeeding for at least one year, or longer, until mutually desired by both mother and infant. Start adding complementary foods at around 5-6 months. Breastfeeding can continue until 2 years and beyond.
- Water: Infants who are exclusively breastfed or formula fed do not need additional water because breast milk or formula provides all the fluids needed for an infant. Introduce water at around 5-6 months of age or when complementary feeding, which is the addition of other foods, begins. When water is offered, it can be offered in a cup. At first, the infant may have trouble using a cup. However, with practice, the infant will get better!

- Complimentary feeding: Complimentary feeding describes when other foods along with breastmilk or formula are introduced to the infant at the age of 5-6 months. Some examples of complementary foods are: avocado, smashed beans, soft sweet potato, pureed meats, and infant cereal.
- How Often? Breastfeed the newborn "on demand," when the child wants to nurse. This may be about every 2 hours or even more often. During growth spurts, some infants seem to feed quite a lot – this is called “cluster feeding”. Cluster feeding doesn’t last forever! Newborn infants should not sleep longer than 4-6 hours at night without feeding. If a newborn is sleeping longer than 4 hours, he should be awakened and fed.
- Pacifiers and Bottles: In general, avoid bottles and pacifiers in the first few weeks after birth to establish efficient milk supply. However, it is important to work with your health care provider. If the infant is having trouble breastfeeding, it is important to speak with a lactation consultant. A lactation consultant can weigh a baby before and after feeding to make sure that milk is getting transferred. If there is a problem with milk transfer, be sure to get support from your health care provider. The most important thing is that babies are fed!

Handling and Storage of Breast Milk

- Washing Hands: Wash hands with soap and warm water for 20 seconds before pumping milk or handling breast milk. (NOTE: Washing hands can be included in videos, but do not make a video of washing hands with no other content.)
- Refrigeration: Many women pump some milk for use when they are not going to be able to feed their infants directly. Store freshly pumped breast milk in a clean container in the refrigerator at 39°F for up to 4 days. Store breast milk at the back of the refrigerator, away from lights and away from the back wall, to help maintain a constant temperature. Do not store under meat or under anything that may drip onto the container.
- Freezing: If you are going to freeze breast milk, store milk in the freezer in 3-4 oz. containers. Bags can be used, or small glass containers may be used. Be sure to leave about 1 inch of space between the milk and lid of the container because the milk will expand as it freezes. Breast milk can be stored in the freezer for up to 3 months before it loses quality.
- Thawing: When thawing breast milk, place the frozen milk container in the refrigerator for a few hours or place the container in a bowl of warm water on the counter. Do not thaw breast milk in a microwave.
- Labeling: Label each stored container of breast milk with the infant’s name, date, and volume. If you are leaving a bottle of breast milk for your child at day care or with a caregiver, be sure to label the bottle carefully.

Category 2: INFANT FORMULA

Infant Formula Practice

- Choice of Formula: If a child will be formula fed:
 - The first choice should be cow milk based formula, if there is no allergy to cow milk.
 - Use soy-based infant formula only if recommended by a health care provider.
 - Reasons for using a soy formula will be due to the infant being diagnosed with cow-milk intolerance, cow-milk allergy, or a medical condition called galactosemia in which the infant can't digest the sugars in milk.
 - Soy-protein based infant formulas should never be used for premature infants.
 - Some infants have serious digestive troubles. A health care provider will help you decide what formula to use.
- How Much Formula? It is important to provide the correct amount of formula based on the infant's age. Approximate recommendations are:
 - Infants 1-4 days: 2-8 oz./day
 - Infants 0-3 months: 16-24 oz./day
 - Infants 3-6 months: 28-45 oz./day
 - Infants 6-12 months: 28-32 oz./day (infants in this group consume less formula because they are also getting quite a few nutrients from foods).
- Giving Formula to a Breastfed Infant: If the parent chooses to introduce formula to a breastfed infant, try to wait until the baby is at least 1 month old. If you introduce formula earlier and give it to the baby often, it can reduce the mother's milk supply. For the best result, if you give a bottle, the mother should try to pump, as well, so that she keeps up her milk supply. Because breastmilk is best, avoid introducing formula for as long as possible.
- Introducing a Bottle: When introducing formula or breastmilk in a bottle to an infant for the first time, do so when an infant is happy, relaxed, and a little hungry. It may be easier to have another caregiver such as dad or a grandparent offer the bottle.

Handling and Storage of Infant Formula

- Preparing Powdered Infant Formula: When handling infant formula prior to a feed carefully follow the steps so that bacteria don't grow in the formula.
 1. Clean and sanitize the surface you will use to prepare the formula
 2. Wash your hands with soap and warm water for 20 seconds. Use a clean towel or cloth to dry them.
 3. Boil water in a clean pan on a stovetop. Make sure the water comes to a rolling boil, then turn it off to cool. Don't let it boil a long time. Do not use a microwave.

4. Let the water cool to no less than 158° F. Use a sterile thermometer to check the temperature.
5. While the water is cooling, read the infant formula container to find out how much water and powder you will need. (Number of scoops of powder and amount of water may vary so always read the instructions!)
6. Remove the lid from the bottle and place on the cleaned surface. Pour the correct amount of water in the cleaned and sterilized bottle.
7. Add the exact amount of formula powder to the bottle.
8. Place the lid on the bottle and mix thoroughly by gently shaking or swirling.
9. Cool the bottle right away under cold running water or by using a container of cold or ice water. Make sure the when cooling the bottle the water touches below the lid to avoid contamination.
10. Label: Dry the bottle using a clean cloth or towel and label with the infant's name, formula type, date, volume and preparer's name.
11. Before feeding, check the temperature of the formula by removing the lid and dripping a little on the inside of your wrist. Formula should feel lukewarm, not hot. If still hot, continue to cool under running water or in a container of ice water.
12. Once formula is lukewarm, you can feed your infant.
13. Formula that has been at room temperature for two hours should be thrown away.

Storing Prepared Formula. When storing prepared formula at home, follow these steps:

1. Use Glass if You can: Store prepared formula in glass bottles or in BPA-free plastic bottles.
2. Be sure each bottle has a clean and sterilized nipple, with a cap to cover.
3. Label all formula bottles with the infant's name, formula type, date, and volume.
4. Storing Formula: Store infant formula at the back of the refrigerator (39° F or cooler), away from lights and away from the back wall to maintain a constant temperature. Do not store under meat. Store for no more than 2 days (48 hours) before feeding.

Category 3: COMPLEMENTARY FEEDING

Complementary foods are the first foods and beverages offered to infants other than breast milk or formula. It is very important that infants learn to eat healthy foods and that they are not given salty snack foods and junk foods. Infants need to learn to eat fruits, vegetables, grains, meats, and beans.

Introducing Complementary Foods

- When to Start Complementary Foods: Infants should consume only breastmilk or formula for the first 5-6 months of life. Complementary foods can be added around 6 months of age; you can start as early as 5 months. Most infants are not

ready before this time. It is important not to wait longer than 6 months because infants learn about different tastes and textures of food when they are young. They are more likely to accept foods if they are given foods beginning around 5-6 months.

- How to Tell When an Infant (aged 5-6 months) is Ready for Complementary Foods: There are several things to consider when deciding when to start offering solid foods to an infant.
 - The infant has doubled her birth weight.
 - The infant is no younger than 4 months and closer to 6 months of age.
 - She can sit up by herself and hold her head up.
 - She shows interest in other foods by watching you.
 - She can keep food in her mouth.
 - She also begins to seem hungry.
- Relax - It Can take Time: When trying new foods, an infant may refuse the food or make a funny face. Don't give up. In a matter of fact way, offer the food again next time. You may need to offer a food 10-15 different times before the infant accepts it. It may take some infants longer to get used to the taste of some foods. It is important to give infants many chances to learn to like healthful foods such as vegetables.
- What Should I Offer First? There is no one food that should be first offered to your infant. However, first foods should not be salted, and they should be appropriate for babies. Some parents choose to offer avocado as a first food. Others choose pureed vegetables or fruits, either made at home or purchased at the store. It is a good idea to introduce new foods slowly, at least at first, so that the infant has time to learn to eat and so the parents have time to make sure the infant is handling the new experience well. This is a great time to learn more about your baby!

IRON

- Iron is a very important nutrient. Most infants have enough iron stored in their bodies to last until around 4-6 months after birth. Breastfed infants get iron in breastmilk, but by around 6 months their stores are dwindling. When infants start to eat purees and other foods at around 6 months, they need to eat foods that have iron. As your baby gets used to eating solid foods and purees, combine foods high in iron (such as baby food meats, fish, beans) with foods high in vitamin C (such as fruits and vegetables). The vitamin C improves iron absorption. Fortified cereals such as baby oatmeal also provide iron. Babies should have foods high in iron every day.
- Ask the Health Care Provider: Infants 9 months of age should have a routine blood check to determine their iron levels.
- Supplements: Iron supplements may be needed if the infant is iron deficient or cannot eat iron rich food sources. If possible, check with the healthcare provider.
- Signs and symptoms of iron deficiency: The infant may show signs of irritability and lethargy if he or she is iron deficient and should be taken to the health care provider and have his or her blood routinely checked for iron levels.

MEAT

- Baby food meats provide iron. If your family eats meat, offer baby food meats, chicken, and fish to your infant at around 6-8 months.
- Zinc is a very important nutrient. Around 6 months after birth, breastfed infants need to eat foods that contain zinc. Meats and meat alternatives are a good source of zinc and can be introduced at around 6-8 months of age. Lean meat (lean beef, lamb), poultry (chicken or turkey), beans, lentils, and fish are preferred. They should be served fully cooked and ground or finely chopped. There is no reason to offer hot dogs, bacon, lunchmeat, or sausage to young children. These items have too much salt and the fat is not healthy.
- Lean Meats: Choose lean meats, like lean chicken, turkey, fish, or 90% lean beef, for infants instead of hot dogs, sausage, bacon, bologna, and lunchmeats due to the degree of processing and sodium and fat levels in these meats.
- Eggs: At 6-8 months of age, eggs and egg yolks may be introduced into an infant's diet. Eggs can be scrambled or hard-boiled and cut into small pieces before being offered to the infant.

FAT

- Total Dietary Fat: The total fat content of a young child's (6-23 months) diet should be at least 35% of energy, provided by breast milk or formula and complementary foods. Good sources of fat from complementary foods include purees such as avocados.
- Foods that contain fat and cholesterol should not be limited in the infant or toddler's diet. Until age 2, choose foods/beverages that are not low-fat or non-fat.
- Avoid Trans Fat: Always avoid processed foods that contain hydrogenated oils with trans fat.
- Aim for Unsaturated Fats: Offer foods higher in unsaturated fatty acids compared to saturated fatty acids. Once any nut allergies have been ruled out, peanut butter (spread very thin on toast) can be offered. Vegetables can be lightly sautéed in oils such as soybean oil. Avocados are also healthful sources of fat.
- Essential Fatty Acids: With complementary feeding, infants 6-12 months should consume 4.6 g/day of omega-6 dietary food sources such as plant based oils (e.g. corn, sunflower, peanut) and 0.5 g/day of omega-3 dietary food sources such as ground flaxseed, chia seeds, salmon, and soy or canola oils.
- Fatty Meats: Don't serve high fat meats to infants (such as bacon, sausage, lunchmeats).

CEREALS

- Fortified Cereal: It used to be common for parents to offer cereals as a first food, but this is no longer recommended. However, once the infants learn how to eat, fortified cereals can help provide iron to the diet. For example, offer a single grain cereal such as oatmeal, mixed with a little breastmilk or formula. Once the infant gets used to this, you can try mixing in some pureed fruit such as peaches.

- Rice cereal used to be a popular cereal to give infants. However, rice cereal should not be the major cereal, and it should not be offered often. This is because rice and rice products can be high in arsenic. For a daily cereal, choose oatmeal or some other grain, making sure it is iron-fortified.

FRUITS & VEGETABLES

- Fruit Juice: Fruit juice should never be given to infants less than 6 months of age, and older infants do not NEED juice, either. Juice is sweet due to the high sugar content and is not healthful. When young infants consume juice, they begin to expect that foods and beverages should be sweet. It is best to teach children to enjoy water or milk.
- How much fruit? Infants 6 months of age and older can be introduced to fruits that are mashed, strained, or pureed with a blender. Choose a variety of fruits such as berries, bananas, avocados, and peaches. At first, infants may only want one tablespoon. Allow the infant to choose how much to consume.
- Infants should be given many different vegetables during the first year of life. Choose whole food sources instead of juices. It is easy to cook vegetables at home, puree them, and store in small portions in the freezer (you can freeze small portions in an ice cube tray and then shake out the frozen cubes into a bag). Do not add salt to the vegetables when cooking. Baby food vegetables are also good; just make sure that the label does not include salt or sugar. There are many baby food vegetables that are simply made from vegetables and water. Examples of vegetables that can be given to infants include: sweet potatoes, spinach, squash, carrots and peas. When offering vegetables to young infants, begin with a tablespoon per serving. Let the infant decide if she wants more. Serving size recommendations of vegetables for older children are approximately:
 - 1 year: $\frac{3}{4}$ cup/day
 - 2-3 years: 1 cup/day
 - 4 years and older: 1 $\frac{1}{2}$ cups/day
- Transitioning to Whole Foods: When an infant has moved past purees or mashed foods, she can begin eating whole fruits and vegetables. Be sure to cut all foods into small pieces that are easy to chew and swallow. Avoid raw vegetables and large fruit chunks. Large chunks are a risk for choking.

DAIRY

- When to Introduce Cow's Milk? Cow's milk should not be given to infants in place of breast milk or formula milk until 12 months of age. Infants can be given milk with meals or after meals. It is important that they don't consume too much – too much cow's milk can increase the infant's risk for developing iron deficiency. After one year of age, up to 2 cups may be consumed per day.
- Cow milk: Do not replace breastmilk or formula with plain cow milk before the age of one. Cow milk does not provide the necessary nutrients, such as iron, needed for infant growth and development. However, cow milk can be consumed

in small amounts by infants that are eating solids if it is in some foods or recipes. Do not exceed 2 cups of plain cow milk per day.

- Dairy Foods: Dairy items such as yogurt and cheese can be introduced to infants any time after they start eating complementary foods. However, infants should not drink cow milk before they are at least 12 months of age.
- Do not sweeten milk offered to a toddler: Allow the child to develop a taste preference for plain milk. Do not add chocolate, or other sweeteners to milk. Plain milk naturally tastes good.

SUGAR

- How Much Sugar? According to the American Heart Association, children under the age of 2 years should not consume foods or beverages with added sugars, including sugar-sweetened drinks. It is very important for infants to learn to prefer the taste of healthful foods. Offering sugar or sweetened foods to infants can confuse them and teach them to prefer the taste of sweetened foods to all other tastes. Also, young children need nutritious foods in order to grow – adding sugar to their diets can replace healthful foods. To avoid sugar, avoid offering processed foods to young children.

HONEY

- What About Honey? Do not give honey to children under one year of age as it may contain bacteria that can cause botulism in infants.

CHOKING HAZARDS

- Food is the most common cause of choking in infants and young children. When choosing foods think about their texture, size, and shape.
- Avoid foods that are sticky, hard, slippery, dry, or clump together; also avoid foods that are round, rigid, or large; foods that combine texture, size and shape could also be a choking hazard (such as a sticky hard candy with round shape).
- Foods that are choking hazards and should not be given to children under the age of 4 include: hot dogs, candy, popcorn, whole grapes and raw vegetables, nuts, ice cubes, and peanut butter by itself. Of course, hot dogs are not a good idea anyway!

Category 4: FOOD FOR PRESCHOOLERS

- Fruits and Vegetables: For each meal, provide a variety of whole fruits and vegetables. Incorporate different colors and textures on the plate. Try to fill about half the plate with vegetables and fruits.
- Avoid Juice, Sodas, and Chocolate Milk: If children are not offered sugary drinks, they will learn to like plain milk and water. This will make them healthier for their entire life!

- Calcium Sources and Recommendations: Preschoolers may consume up to 2 cups of low-fat or fat-free milk, 2 portions of yogurt, or 2 ounces of cheese to provide calcium. If a child is lactose intolerant, he or she can eat other foods that are high in calcium or drink lactose-free milk. A child should consume no more than 2 cups of milk per day.
- Protein Sources and Recommendations: For preschoolers, incorporate small portions of lean meats such as lean beef, poultry, and seafood or plant-proteins, such as tofu, lentils, and beans. Approximate protein recommendations are:
 - 1-3 years old: 13 g/day
 - 4-5 years old: 19 g/day

Your video can be recorded using your smartphone or tablet and be around 30-90 seconds long.

The video can be creative! For example, you can use signs, props (like cookware or toys or stuffed animals). You can even take a video of a really short play you create.

Who can be in your video?

- You
- Your child(ren)
- A friend (over the age of 18) (When you submit your video, you will need to provide your friend's name, email and phone number so we can have their permission to use the video.)

All videos should be original.

Reminder: The deadline to enter the contest is April 4, 2016 at 5 PM.

Step 3: Create Your Video

The following tips can help you create a high-quality video and increase your chances of winning!

Sound

Choose a **quiet location** for recording. Avoid background noise such as traffic, loud air conditioning, talking, TV, children playing. Turn off noisy appliances and phones during recording.

Lighting

Make your video in a place with a lot of **light**. Natural light is best, so try to set up near a window if recording inside. Don't point your camera directly at the window or your scene will be dark.

Clothing

It is best to wear simple, solid colors, except white.

Setting up Your Shot

- Turn your phone sideways to record **horizontally** rather than vertically.

- Place the phone close to the subject being recorded. Avoid using the zoom on your phone's camera – move the phone closer instead. This will result in better picture and sound.
- Try to make the background simple.
- Keep the camera still and stable while recording. Prop up your phone so that it does not move.

Preparing Your Smartphone

- Make sure the **battery** is charged or plug in your phone while recording.
- Put your phone on **airplane mode** so you won't have any interruptions during the recording.

Practice Makes Perfect!

- **Rehearse** before you start shooting. Make sure your video is no longer than 1 minute 30 seconds. Relax - no need to rush.
- **Record a test video** and play it back to review. Plug in a pair of headphones and listen closely to make sure you can easily hear and understand what is being said. After watching your test video you may want to change the location or move the camera to improve the lighting or sound.

Editing

- You may edit your video if you wish, but it is not required.
- If you want to try editing, **WeVideo** (<https://www.wevideo.com/>) is an editing tool you can try for free.
- Please do not add any headings to the video when editing.
- We may edit your videos later in order to use them.

How the Videos Will be Score

The winning videos will score highest for:

- Quality (sound, lighting, steady)
- Information is clear
- Useful for teaching
- Creative
- Fun to watch

Reminder: The deadline to enter the contest is April 4, 2016 at 5 PM.

Video Tutorials

https://www.youtube.com/watch?v=AfRL2xDdN8A&feature=player_embedded
<https://vimeo.com/144262220>
<https://vimeo.com/118428784>

If you have questions about this contest or need technical support, please email our staff at BestFoodFitsVideo@gmail.com

Step 4: Enter the Contest

To enter the contest, complete the survey. Leave this page open so after you complete the survey you can come back.

[Take the Survey](#) (Survey questions attached in **Appendix V**)

Next, submit your video(s). There are two ways to submit: (1) Use the WeTransfer app to submit your video directly from your phone, or (2) Use the WeTransfer website to submit your video from a tablet or computer. See directions below.

Reminder: The deadline to enter the contest is April 4, 2016 at 5 PM

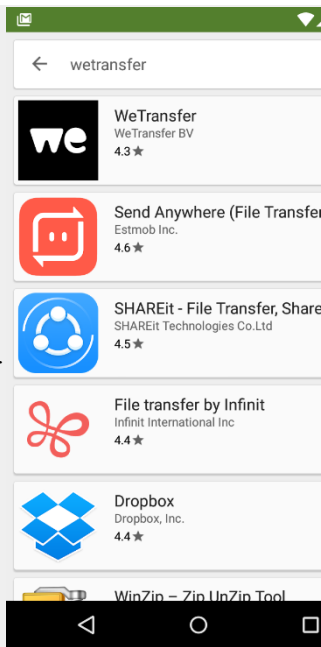
Directions: 1. Submit a video from your phone (Android or iPhone):

*** Important:** Video files are usually very large. Save your data plan by submitting using WIFI. If you submit more than one video, submit them one at a time.

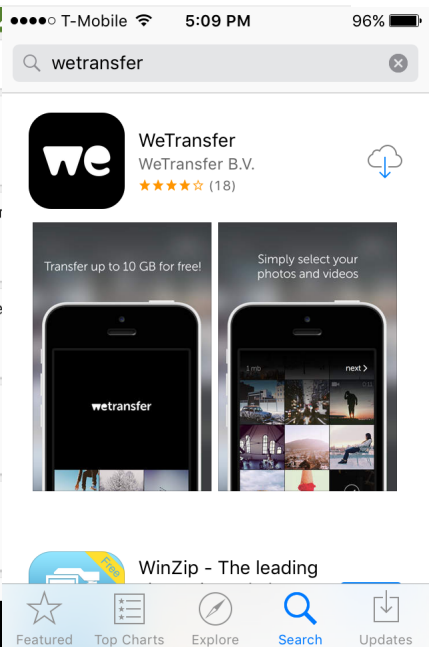
Step 1

Using your phone, go to the Google Play Store (Android) or Apple iTunes Store (iPhone) and search for the "WeTransfer" app. Download and install the app on your smartphone.

Android



iPhone

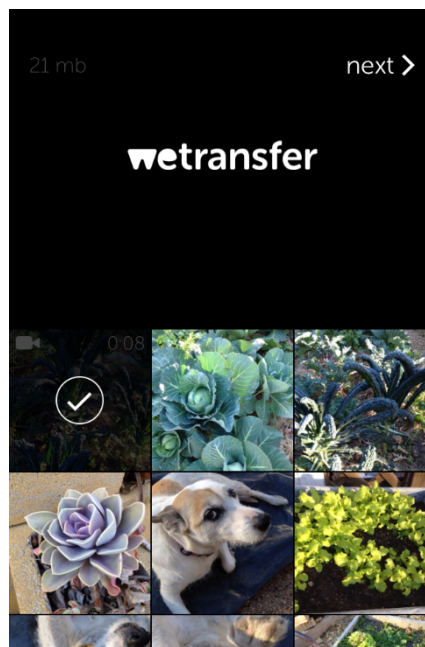


Step 2

Open the WeTransfer app you have installed. Your photos and videos should automatically appear on the screen.

Select the video you wish to submit. Please transfer only one video at a time.

Click the "next" button.

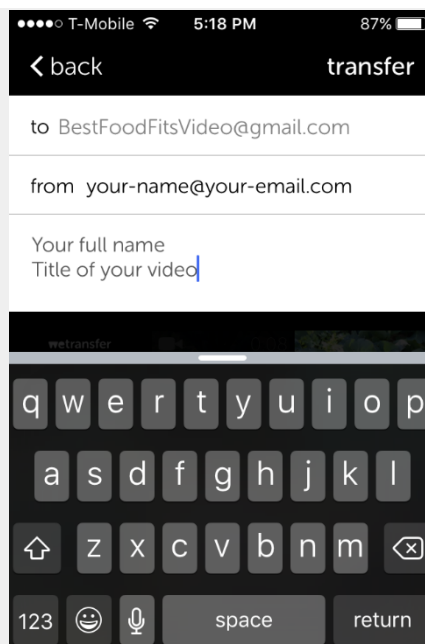


Step 3

Complete the WeTransfer form with the following information:

- To: **BestFoodFitsVideo@gmail.com**
- From: Your email address
- Message: *Your full name and the title of the video*

Click the "Transfer" button to submit your video.

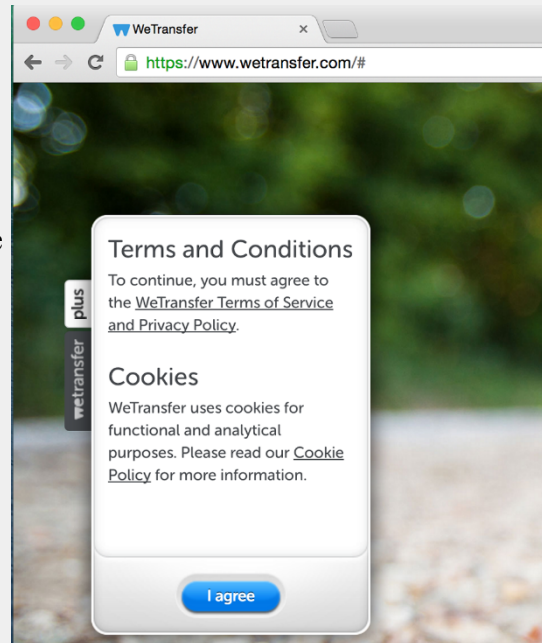


Directions: 2. Submit a video from a tablet or computer:

Step 1

Open a web browser window and go to the WeTransfer website at <https://www.wetransfer.com>

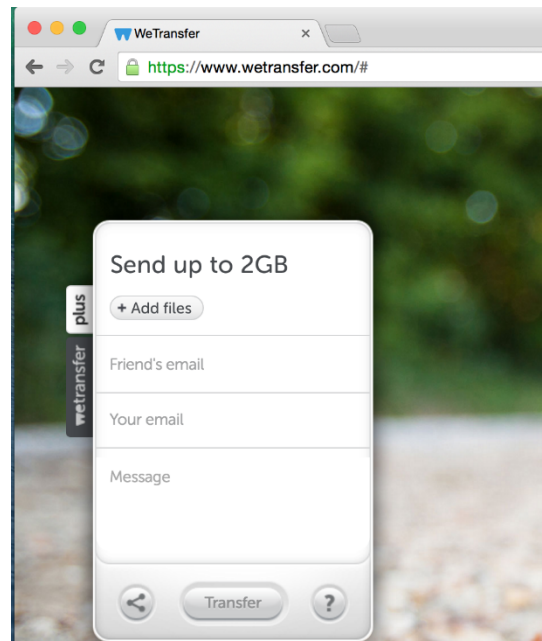
Click the "I Agree" button to begin using the site.



Step 2

Click the "Add files" button.

Select the video file you wish to transfer. Please transfer only one video at a time.

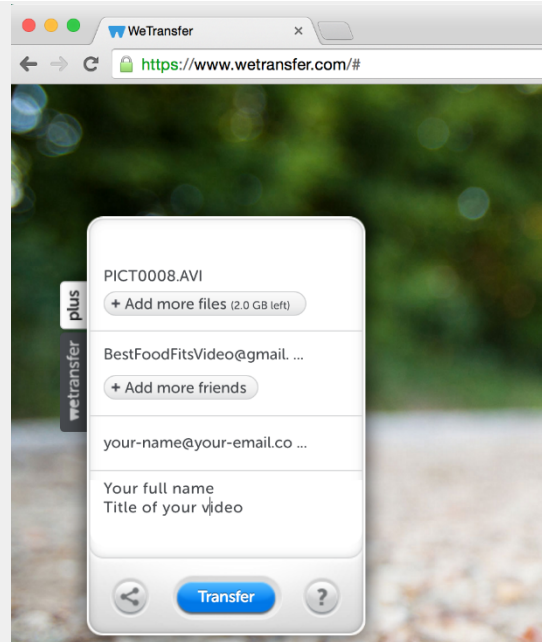


Step 3

Complete the WeTransfer form with the following information:

- Friend's email:
BestFoodFitsVideo@gmail.com
- Your email: *Your email address*
- Message: *Your full name and the title of your video*

Click the "Transfer" button to submit your video.



Thank you!!!! The video contest winners will be contacted after April 18, 2016.

If you have questions about this contest or need technical support, please email our staff at BestFoodFitsVideo@gmail.com

APPENDIX E: STUDENT PRE-CONTEST SURVEY

1. Introduction

Welcome to the Best Food FITS Video Contest!

NOTE: If you are taking this survey with a phone, please hold your phone sideways.

What is this video contest about?

- The video contest is part of a research study conducted by Texas State University.
- We are collecting videos about early feeding recommendations for infants and young children.
- Some videos may be used to teach others in WIC, Head Start, at Texas State University, or in the community about feeding recommendations.

This project [IRB #2016P318] was approved by the Texas State Institutional Review Board (IRB) on 3/29/2016. Questions or concerns about the research should be directed to the IRB chair, Dr. Jon Lasser (512-245-3413 - lasser@txstate.edu) and to Becky Northcut, Director, Research Integrity & Compliance (512-245-2314 - bnorthcut@txstate.edu).

To ask questions about this contest, contact Dr. Sylvia Crixell (sh07@txstate.edu) or at 512-245-2482.

What do you receive for participating in the video contest?

- All who join the contest and submit a video will receive one Best Food FITS t-shirt.
- You will pick up your T-shirt after you submit your video at your WIC Site or Head Start or Bonham PreK.
- Top contest winners (8 total) will also receive nice quality cooking equipment.

Are there any risks with uploading my video?

- There are no risks involved in uploading your video.

How long will the survey and uploading my video take?

- It will take about 5 minutes to complete the survey.
- If you decide not to complete the survey and submit a video, you can stop at any time.
- It will take 1-5 minutes to submit each video.

What will happen to my video when the contest is over?

- By participating in this research project you are giving the researchers the right to use the video(s) for research and education for the public.
- Your name and contact information will never be shared.
- Results of the survey will be used for research only and will never be connected with your personal information.
- Participation in this contest has nothing to do with your participation in WIC, Head Start, or Bonham PreK.
- If you are a student, your work on this project is part of your class grade.

-

Will you allow your responses to be used for the research study?

- ☐ Yes, I consent for my responses to be used for the research study.
- ☐ No, I do not consent for my responses to be used for the research study. ***My survey and video will not be used in the research project. My submitted work will be used for the my class assignment only and will not be enrolled in the video contest or seen at the preschool event.***

2. Contest Participant Information

Enter your email address and phone number so we may contact you so we can contact you about getting your t-shirt and if you are a contest winner.

Name:

Email address:

Verify email
address:

Phone number:

3. Contest Participant Survey Questions

How many children live in your home?

How many adults live in your home (including yourself)?

Are you male or female?

- ☐ Male
- ☐ Female
- ☐ I would rather not say

What is your race/ethnicity?

- ☐ Non-Hispanic Black
- ☐ Non-Hispanic White
- ☐ Hispanic
- ☐ American Indian/Native American
- ☐ Asian
- ☐ Native Hawaiian/Pacific Islander

If Hispanic, please specify:

What year were you born?

What language do you most often speak at home?

4. Video Participant Information

My child(ren) is in at least one of the videos I am entering.

- ☐ Yes
☐ No

Do you consent for your child(ren) to participate in the video contest?

- ☐ Yes, I do consent for my child(ren) to participate in this video contest.
☐ No, I do not consent for my child(ren) to participate in this video contest.

How many other adults besides you appear in your video(s)?

You will be asked to provide contact information for each adult participant in your video(s). We will use this to get permission from each person to use the video. We will not share contact information.



5. List of Video Participants

Please write in contact information for Adult \${Im://Field/1}:

Name	<input type="text"/>
E-mail address	<input type="text"/>
Phone number	<input type="text"/>

6. Video Submission

How many videos are you submitting?

Remember you can submit up to 2 videos for each category. You will be asked to enter a title for each of your videos and the category your video is being submitting under.



7. List of Videos

Title of Video \${Im://Field/1}:

Category of Video \${Im://Field/1}:

Do you consent to give Texas State University the right to use this video in whole or in part without restrictions or limitation for the purposes of education and research?

- ☐ Yes, I consent.
- ☐ No, I do not consent.

8. Prizes

Please select your t-shirt size (NOTE: t-shirts are V-neck in style and a bit fitted):

9. Student Survey Questions for Pilot

Please answer the following questions about the video(s) you and your partner created.

How would you rate the amount of time you spent on technical issues (ie. Editing, lighting, quality)?

- ☐ Not enough time
- ☐ Moderate amount of time
- ☐ The right amount of time
- ☐ Too much time
- ☐ Way too much time

How technologically difficult was it to create a video?

- ☐ Not difficult at all
- ☐ Slightly difficult
- ☐ Moderately difficult
- ☐ Very difficult
- ☐ Extremely difficult

Please describe any technical issues you and your partner encountered.

Did you or your partner do any preliminary research about how to make videos for this project (in addition to the guidelines provided by researchers)?

- ☐ Yes
- ☐ No

Please explain what resources you or your partner used for preliminary research before you created your video(s).

Did you or your partner do any research about feeding practices guidelines before making this video (in addition to the guidelines provided by researchers)?

- ☐ Yes
- ☐ No

Please explain what resources you or your partner used for preliminary research before you created your video(s).

Was creating the video on your selected topic better or worse than other types of assignments in helping you learn about feeding recommendations for infants and young children?

- ☐ Much worse
- ☐ Somewhat worse
- ☐ About the same
- ☐ Somewhat better
- ☐ Much better

Please explain your answer to the previous question.

Besides this assignment being required, did the idea of your video(s) being shared with parent/guardians of WIC, Head Start or Bonham Pre-K make you more or less motivated to make a video on feeding recommendations?

- ☐ More motivated
- ☐ Less motivated

Please explain your answer to the previous question.

How much did you rely on previous experiences with making videos to create your own video(s)?

- ☐ Not at all
- ☐ Slightly
- ☐ Somewhat
- ☐ Moderately
- ☐ Extremely

Did you feel the (video) tutorials increased your ability to create a video on feeding recommendations?

- ☐ Not at all
- ☐ Slightly

- ☐ Somewhat
- ☐ Moderately
- ☐ Extremely

How much did creating a video on feeding recommendations help prepare you for future jobs (i.e. to use technology in conveying information)?

- ☐ Not at all
- ☐ Slightly
- ☐ Somewhat
- ☐ Moderately
- ☐ Extremely

Discuss how lessons learned from this assignment may have affected your professional competency.

With respect to nutrition education, what about this video contest did you most enjoy? Select all that apply.

- ☐ I learned a lot
- ☐ It was fun
- ☐ I was interested in my topic
- ☐ It was easy/effortless
- ☐ I was able to inform parents/guardian on feeding recommendations
- ☐ Other:

With respect to nutrition education, what about this video contest did you least enjoy? Select all that apply.

- ☐ I didn't learn much
- ☐ It was boring
- ☐ I didn't like my topic
- ☐ It was difficult/time consuming
- ☐ Other:

How satisfied are you with your overall performance on creating a video about feeding recommendations?

- ☐ Not at all satisfied
- ☐ Slightly satisfied
- ☐ Moderately satisfied
- ☐ Very satisfied
- ☐ Extremely satisfied

After creating a video with your partner on feeding recommendations, how do you rate the level of improvement on the following skills?

	No improvement	Slight improvement	Some improvement	Moderate improvement	Substantial improvement
Project and self-organizational skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technological skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teamwork and communication skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX F: STUDENT SCORE CARD

Student Score Card

Please circle a number for each of the following:

Video Number

Video Entertainment (fun, enjoyable, creative)				
1	2	3	4	5
Poor				Excellent
Video Quality (sound is clear, lighting is good, picture is clear, picture is steady)				
1	2	3	4	5
Poor				Excellent
Ability to teach others (clear, easy to understand, parents could follow advice)				
1	2	3	4	5
Poor				Excellent
Do you think a parent would <u>use</u> the information in this video?				
1	2	3	4	5
NOT Likely				Very Likely
What is your overall reaction to this video?				
1	2	3	4	5
Poor				Excellent
How accurate was the content?				
1	2	3	4	5
Serious errors				Fully accurate
Did the video teach important concepts (likely providing new, useful information)?				
1	2	3	4	5
Not important				Very important
Comments:				

APPENDIX G: STUDENT POST-CONTEST SURVEY

Default Question Block

Welcome to the Follow-up Survey.

Completing this survey earns 5 points for the Video Contest Project grade. The survey will help researchers learn about your reactions to the contest so that we can improve on the process. Your specific answers will not affect your grade. This survey will take about 10 minutes to complete.

Enter your name below, and then open the following link in another window of your browser (so you can look at this window (to complete this survey) and at the Best Food FITS Video contest website at the same

time: <https://sites.google.com/site/bestfoodfitsvideocontest/home>

Enter: Last Name, First Name ***This is required.**

Questions about the **Welcome Page** of the **Best Food FITS Video Contest**:

	Definitely yes	Probably yes	Might or might not	Probably not	Definitely not
The introduction to the contest was clearly explained.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Additional					

information was
needed to help
me understand.

☐☐☐☐☐

Please explain your perception of the **Welcome Page** here:

Questions about **Step 2: Video Guidelines** (please use the tabs at the top the **Best Food FITS Video Contest** website to get to this page).

Please rate how CLEAR the instructions were for each of the following:

	Very clear	Somewhat clear	Uncertain	Not very clear	Very unclear
The overall presentation of information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Category 1 BREASTFEEDING	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Category 2 INFANT FORMULA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Category 3 COMPLEMENTARY FEEDING	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Category 4 FOOD FOR PRESCHOOLERS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If any answers for the above questions were NOT "very clear" please explain here:

Questions about **Step 3: Create Your Video** (please use the tabs at the top the **Best Food FITS Video Contest** website to get to this page).

In the following table, please indicate whether instructions about each of the following were clear or could be improved. We appreciate any help!

	Instructions were very clear	Instructions could be improved
Sound	<input type="radio"/>	<input type="radio"/>
Lighting	<input type="radio"/>	<input type="radio"/>
Clothing	<input type="radio"/>	<input type="radio"/>
Setting up Your Shot	<input type="radio"/>	<input type="radio"/>
Preparing Your Smartphone	<input type="radio"/>	<input type="radio"/>
How Videos will Be Scored	<input type="radio"/>	<input type="radio"/>

If your answers for the above questions were "instructions could be improved" please explain here:



Did you **Rehearse** before shooting your video?

- ☐ Yes
- ☐ No

Did you **"Record a Test Video"** before shooting your final video?

- ☐ Yes
- ☐ No

Did you **"Edit"** your video before submitting?

- ☐ Yes
- ☐ No

Did you watch the video tutorials before you made your video?

- ☐ Yes
- ☐ No

Of the 3 video tutorials, which one did you prefer?

- ☐ Video 1: Smartphone Video Tips
- ☐ Video 2: 5 tips for first rate video - from your smartphone
- ☐ Video 3: Quick tips; Shooting video with your smartphone

Please explain what you liked or didn't like about the video tutorials.

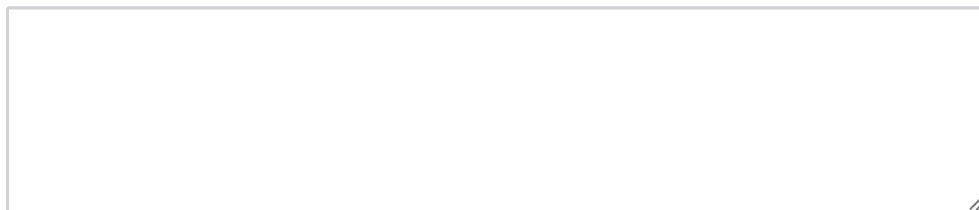


Questions about **Step 4: Enter the Contest** (please use the tabs at the top the **Best Food FITS Video Contest** website to get to this page).

Did you use a phone or tablet or computer to upload your video?

- ☐ Phone
- ☐ Tablet/Computer

Did you encounter any problems downloading the WeTransfer App or submitting your video? Please describe:



Did you encounter any problems downloading the WeTransfer App or submitting your video? Please describe:

The following questions attempt to ‘get at’ how different aspects of participating in this research project as a class assignment might have affected your motivation to produce a high quality video.

	Not at all motivated	Slightly motivated	Moderately motivated	Very motivated	Extremely motivated
How motivated were you because this was part of your grade?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How motivated were you based on the fact that people in the community might see the video?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How motivated were you based on the fact that your peers were going to view	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

your video?

How would you rate the amount of effort you put into this video assignment?

	No effort	Little effort	Some effort	Moderate effort	A lot of effort
How would you rate the amount of effort you put into this assignment?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Rate your video:

	Among the worst	Low average	Average	Above average	Among the best
Compared to the other class videos, mine was:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I you had to do the assignment again, after seeing class videos, how much effort would you put into the video assignment?

	No effort	Little effort	Some effort	Moderate effort	A lot of effort.
How would you rate how much effort you WOULD put into the assignment if	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

you had to do it over again?

APPENDIX H: STUDENT VIDEO DESCRIPTIONS

Description of Student-Generated Videos Viewed by Parents			
Video Number	Category	Title	Description
1	Complementary Feeding	Introducing Complementary Foods	Rap on first solid foods to introduce, no cow milk before age one, and limiting fruit juice.
2	Breastfeeding	Thawing Breastmilk	Song about ways to thaw frozen breastmilk and rationale for avoiding the microwave.
3	Complementary Feeding	Fruits and Vegetables	Explanation of when to introduce fruits and vegetables, preparation techniques, portion sizes, and importance of taste and texture.
4	Complementary Feeding	Iron and Zinc	Explanation of when to introduce solid foods, food sources that contain iron and zinc, preparation techniques for meats, and meat sources to avoid. Video includes a stuffed animal in place of an infant.
5	Complementary Feeding	When to Introduction Complementary Foods?	Computer-generated animation explaining the different signs that an infant is ready for solid foods, importance of exposure to new foods and offering foods often.
6	Complementary Feeding	Let's Talk About Iron	Animation using paper cutouts explaining the importance of iron in complementary foods.
7	Complementary Feeding	Omega-3 Fatty Acids	Explanation of the importance of omega-3 fatty acids, appropriate food sources, and amounts for pregnant and lactating women, and children. Video includes a talking pirate puppet.
8	Complementary Feeding	Introducing Complementary Foods	Illustration of when and how to tell an infant is ready for solid foods. Video uses a dog in place of an infant and includes musical background and notecard text.
9	Preschoolers	Protein for Preschoolers	Explanation of the importance of protein, recommended intake for preschoolers, and food sources. Visual examples include protein amounts/sources to pair with meals.
10	Complementary Feeding	Choking Hazards	Demonstration of foods that are common choking hazards, ways to cut certain foods, and foods to avoid until older.
11	Complementary Feeding	Cuando Introducir Alimentos Complementarios?	Spanish version of video 5.
12	Complementary Feeding	Vamos Hablar de Hierro	Spanish version of video 6.
13	Preschoolers	Aperitivos/ Snacks	A bilingual video that uses a child from camera view to demonstrate trying healthy snacks like carrots and broccoli given by a parent. Parent discusses new foods take time and trying foods yourself can get your child to try them too.
14	Complementary Feeding	Jugo de Frutas/ Fruit Juice	Rationale of why fruit juice should be avoided/limited and to what amounts for infants and children. Video includes visual comparison of the actual amount of sugar found within fruit juice containers. This was a bilingual video.

APPENDIX I: BONHAM PRE-K NUTRITION EVENT FLYER AND POSTER

best food fits Nutrition Videos, Food, and Games
Extravaganza!

Fun for your kids! Visit with community organizations!

Bring your family!!!
JOIN US for an event full of food, fun, entertainment and tips to making your family healthy!

When? April 25, 2016
Where? Bonham Pre-K
Time? 5:00pm-6:30pm

Come watch videos about healthy eating for young children!

FREE food!

Meet the fruit and veggie mascots!

best food fits Vídeos de nutrición, alimentos y juegos
¡Extravagancia!

Diversión para sus niños! Visita con organizaciones de la comunidad!

Trae a tu familia ! Únaete a nosotros para un evento lleno de comida, diversión, entretenimiento y consejos para hacer que su familia coma mas sano!

¿Cuándo? April 25, 2016
¿Dónde? Bonham Pre-K
¿Hora? 5:00pm-6:30pm

Ven a ver vídeos sobre alimentación saludable para los niños pequeños!

¡Comida gratis!

Conoce a las mascotas de frutas y verduras!

best food fits Nutrición Vídeos, Food, and Games
Extravaganza!

Fun for your kids! **Diversión para sus niños!**

Bring your family!!!
JOIN US for an event full of food, fun, entertainment and tips to making your family healthy!

Trae a tu familia ! Únaete a nosotros para un evento lleno de comida, diversión, entretenimiento y consejos para hacer que su familia coma mas sano!

When? ¿Cuándo? April 25, 2016
Where? ¿Dónde? Bonham Pre-K
Time? ¿Hora? 5:00pm-6:30pm

Visit with community organizations!
Visita con organizaciones de la comunidad!

Come watch videos about healthy eating for young children!

FREE food!
¡Comida GRATIS!

best food fits Vídeos de nutrición, alimentos y juegos
¡Extravagancia!

Meet the fruit and veggie mascots!
Conoce a las mascotas de frutas y verduras!

Ven a ver vídeos sobre alimentación saludable para los niños pequeños!

APPENDIX J: MATERIALS FOR ADDITIONAL RECRUITMENT

Head Start Poster



The poster has a light green background. In the top left, a dark green leaf-shaped graphic contains the text "best food fits" in white. To its right, the title "Nutrition Videos!" is written in large green font, with "¡Videos de nutrición!" below it in a slightly smaller green font. On the left, a yellow speech bubble contains the text "JOIN US for an event of entertainment and health tips! Únaete a nosotros para un evento de entretenimiento y consejos de salud!". In the center, a white card with a green broccoli character and the word "broccolicious" is shown. Above it are two green speech bubbles: "Come watch videos about healthy eating for young children!" and "Ven a ver videos sobre alimentación saludable para los niños pequeños!". To the right of the card, a green speech bubble says "FREE shirt! ¡Libre de la camisa!". At the bottom right, event details are listed: "When? ¿Cuándo? May 13, 2016", "Where? ¿Dónde? Henry Bush", and "Time? ¿Hora? 1:30pm-3:00pm".

best food fits

Nutrition Videos!
¡Videos de nutrición!

JOIN US
for an event of entertainment and health tips!
Únaete a nosotros para un evento de entretenimiento y consejos de salud!

Come watch videos about healthy eating for young children!

Ven a ver videos sobre alimentación saludable para los niños pequeños!

FREE shirt!
¡Libre de la camisa!

When? ¿Cuándo? May 13, 2016
Where? ¿Dónde? Henry Bush
Time? ¿Hora? 1:30pm-3:00pm

broccolicious

Head Start Flyer



The flyer has a white background. It is divided into two identical columns. Each column features a dark green leaf-shaped graphic with "best food fits" in the top left. The title "Nutrition Videos!" is in large green font, with "¡Videos de nutrición!" below it. In the center of each column is a white card with a green broccoli character and the word "broccolicious". Above the card are two green speech bubbles: "Come watch videos about healthy eating for young children!" and "Ven a ver videos sobre alimentación saludable para los niños pequeños!". To the right of the card is a green speech bubble that says "FREE shirt! ¡Libre de la camisa!". Below the card, event details are listed: "When? May 12, 2016", "Where? Henry Bush", and "Time? 2:00pm-3:00pm".

best food fits

Nutrition Videos!
¡Videos de nutrición!

Tell us what you think and take home a cooking utensil!

Díganos lo que piensa y llevar a casa un utensilio de cocina!

JOIN US
for an event of entertainment and health tips!

Únaete a nosotros para un evento de entretenimiento y consejos de salud!

Come watch videos about healthy eating for young children!

Ven a ver videos sobre alimentación saludable para los niños pequeños!

FREE shirt!
¡Libre de la camisa!

When? May 12, 2016
Where? Henry Bush
Time? 2:00pm-3:00pm

¿Cuándo? May 12, 2016
¿Dónde? Henry Bush
¿Hora? 2:00pm-3:00pm

broccolicious

CDC Email for Best Food FITS Video Survey

Good afternoon,

I am a graduate student at Texas State University conducting research on if videos can help parents of young children learn more about early childhood nutrition. Best Food for Families, Infants, and Toddlers (Best Food FITS) is an organization in our community dedicated to making children healthier. We want to make it easier for children to eat more fruits and vegetables, fewer high calorie foods, and avoid sugary drinks. **The survey you will be asked to take is for parents/guardians with children who are 5 years old and younger.**

Participants will be asked to provide some demographic information as well as watch and score 10 videos about feeding young children. For completing the survey you will receive a free Best Food FITS t-shirt which will be distributed to you through the Child Development Center (CDC).

Your participation is greatly appreciated!

Please click the link below to gather more information and get started:

*Note: If the link provides an error, please copy the link and paste it into your web browser.

<https://sites.google.com/site/bestfoodfitsvidsurvey/home>

Thanks,

Best Food FITS Video Survey Sign-Up Sheet

Best Food for Families, Infants and Toddlers (Best Food

Texas State University is conducting research on if videos can help parents of young children learn more about early childhood nutrition. We are asking if you will watch 10 short videos about feeding young children and score each video. Please fill in your name and email address so we may send you the URL link to our survey.

Those who complete the survey will receive a free Best Food FITS t-shirt!

Name	Email
1.	
2.	
3.	
4.	
5.	
6.	
7.	

8.	
9.	
10.	
11.	
12.	
13.	
14.	

Best Food FITS Video Survey Email

Good afternoon,

Thank you for your interest in our Best Food FITS Video Survey!

Texas State University is conducting research on if videos can help parents of young children learn more about early childhood nutrition. Best Food for Families, Infants, and Toddlers (Best Food FITS) is an organization in our community dedicated to making children healthier. We want to make it easier for children to eat more fruits and vegetables, fewer high calorie foods, and avoid sugary drinks.

Participants will be asked to provide some demographic information as well as watch and score 10 videos about feeding young children. For completing the survey you will receive a free Best Food FITS t-shirt which will be distributed to you through A. Washington Child Development Center. **You may invite friends with children 5 years old and younger in San Marcos to complete our survey by forwarding this email!** They will receive their t-shirt through their child's school or in the mail. Your participation is greatly appreciated!

Please click the link below to gather more information and get started:

*Note: If the link provides an error, please copy the link and paste it into your web browser.

<https://sites.google.com/site/bestfoodfitsvidsurvey/home>

Thank you,
Best Food FITS Team
School of Family and Consumer Sciences
Texas State University

APPENDIX K: PARENT CONSENT FORM, DEMOGRAPHIC FORM, AND SCORE CARD

Best Food for Families, Infants and Toddlers (Best Food FITS) is organization in our community dedicated to making children healthier. We want to make it easier for children to eat more fruits and vegetables, fewer high calorie foods, and avoid sugary drinks.

Best Food FITS Video Extravaganza – Consent Form

What is **Best Food FITS Video Extravaganza about?**

Welcome! We have some games for kids and healthy food for everyone. We are also showing 10 short videos about feeding babies and young children. As part of a research study at Texas State, we are asking if you will watch the videos, fill out scorecards, and answer some questions during an interview. We want to learn if the videos can help parents of young children learn more about healthy ways to feed young children.

How do I participate in this research project?

- If you agree to be part of this research, we will ask you to watch 10 videos and use a score card to mark if you think they are fun, good quality, and would help parents learn more about feeding young kids.
- After you have scored all 10 videos, you can also participate in an interview conducted by nutrition graduate students. During the interview, the researcher will ask you more about what you think about the videos.

Who is in charge of this project?

Dr. Biediger-Friedman from Texas State University (lb47@txstate.edu, 512-245-7059) is the lead researcher.

Details: This project **IRB CON2016W7881** was approved by the Texas State University IRB on **04-02-2016**. Questions or concerns about the research, research participants' rights, and/or research-related injuries to participants should be directed to the IRB chair, Dr. Jon Lasser 512-245-3413 - (lasser@txstate.edu) or to Monica Gonzales, IRB administrator 512-245-2314 – (<mailto:MEG201@txstate.edu>).

What do you receive for participating?

- If you carefully fill out and turn in all 10 score cards you will get a Best Food FITS t-shirt.
- If you complete an interview here after watching all 10 videos, you can choose one cooking utensils.
- If you complete a phone interview, you will be told about where you can pick up a cooking utensil.

How long will this take? Is there any risk to me?

- Each video is about 30-90 seconds long; scoring will take 1-2 minutes for each video.
- The interview should take about 15 minutes; you can stop at any time.
- There are no risks to you for scoring videos or participating in an interview.

What will happen to the information I give?

- By participating in this research, you are giving the researchers the right to use your responses for research and education.
- Your name and contact information will never be shared.
- Information you write on the score cards or during an interview will never be linked with your personal information.

CONTENT: Please check yes or no for each of these:

My responses on score cards to be used for this study. <input type="checkbox"/> Yes , I consent. <input type="checkbox"/> No , I do not consent.	My interview responses to be used for this study. <input type="checkbox"/> Yes , I consent. <input type="checkbox"/> No , I do not consent.
The researcher to contact me about my responses. <input type="checkbox"/> Yes , I consent. <input type="checkbox"/> No , I do not consent.	The researcher can contact me for a phone interview. <input type="checkbox"/> Yes , I consent. <input type="checkbox"/> No , I do not consent.

Please write your information so we may contact you about this project if needed. We will NOT SHARE your contact information.

Name: _____ Email address: _____

Phone number: _____ Signature _____ Date _____

Parent Demographic Form

Your responses will be used for research and educational purposes only. We will remove your name and use a number instead when we work with the research data.

Name: _____

What is your sex?

☐ Male ☐ Female

How old are you? _____

How many children do you have? _____

What is your race/ethnicity?

- ☐ Non-Hispanic Black
- ☐ Non-Hispanic White
- ☐ Hispanic
- ☐ American Indian/
Native American
- ☐ Asian
- ☐ Native Hawaiian/
Pacific Islander

What is the highest level of education you have completed?

- ☐ Less than high school
- ☐ High school or GED
- ☐ Some college
- ☐ Associate's degree
- ☐ Bachelor's degree
- ☐ Post-graduate degree

What is your relationship to the child(ren) you are with at this event?

- ☐ Mother
- ☐ Father
- ☐ Grandparent
- ☐ Legal Guardian
- ☐ Other _____

Parent Score Card

Best Food FITS Video Extravaganza Score Card

Video Number _____

Please circle a number for each of the following:

Video Entertainment (fun, enjoyable, creative)

1	2	3	4	5
Poor				Excellent

Video Quality (sound is clear, lighting is good, picture is clear, picture is steady)

1	2	3	4	5
Poor				Excellent

Ability to teach others (clear, easy to understand, parents could follow advice)

1	2	3	4	5
Poor				Excellent

Do you think a parent would use the information in this video?

1	2	3	4	5
NOT Likely				Very Likely

What is your overall reaction to this video?

1	2	3	4	5
Poor				Excellent

Comments:

APPENDIX L: PARENT ONLINE SURVEY WITH CONSENT

Welcome to the Best Food FITS Video Contest!

NOTE: If you are taking this survey it is best to do so with a tablet or desktop/laptop. If you are taking this survey with a phone, please hold your phone sideways.

What is the Best Food FITS video study about?

- As part of a research study conducted by Texas State University, we are asking if you will watch 10 short videos about feeding young children and score each video. We want to learn if the videos and this method can help parents of young children learn more about early childhood nutrition.

This project [IRB #CON2016W7881] was approved by the Texas State Institutional Review Board (IRB) on 4/2/2016. Questions or concerns about the research should be directed to the IRB chair, Dr. Jon Lasser (512-245-3413 - lasser@txstate.edu) and to Becky Northcut, Director, Research Integrity & Compliance (512-245-2314 - bnorthcut@txstate.edu).

To ask questions about this study, contact Dr. Lesli Biediger-Friedman (LB47@txstate.edu) or at 512-245-7059.

What do you receive for participating?

- If you score all 10 videos you will receive one Best Food FITS t-shirt.
- You will pick up your T-shirt after you submit your completed score cards. T-shirts will be distributed at your child's school.
- If you complete a phone interview after scoring all 10 videos you will receive cooking utensil. You will be told where you can pick up your cooking utensil.

How long will scoring take and is there any risk to me?

- Each video is about 30-90 seconds long; scoring will take 1-2 minutes per video (10 videos).
- There is no risk to you for scoring the videos or completing a phone interview.

What will happen to the information I give?

- By participating in this research project you are giving the researchers the right to use responses for research and education for the public.
- Your name and contact information will never be shared.
- Results of the survey will be used for research only and will never be connected with your personal information.

Select Video **Scoring** to watch our videos and complete our survey!

Video Scoring

Note: The videos you will watch are to be viewed for this survey **ONLY**. The copyright of these videos cannot be transferred.

- Please complete the following questions on PAGE 1 of the Google form below **before** watching and scoring each video. Then select **continue**.
- Scroll down to watch **Video #1** and complete scoring on the Google form titled **Video #1-Introducing Complementary Foods**. Then select **continue**.
- Watch **Video #2** below and complete scoring on the Google form titled **Video #2-Thawing Breastmilk**. Then select **continue**.
- Do this for all remaining videos. The remaining pages are in order of the video number and title of the video you will watch below.
- **Videos 11 and 12 are bi-lingual and are optional to watch.**
- **Continue** to the end of the survey and click **Submit**.
- We will NOT SHARE your contact information and your responses will be used for research and educational purposes only. We will remove your name and use a number instead when we work the research data.



Video Scoring Survey: Please complete the following questions on this page before watching and scoring each video. Then select continue. We will NOT SHARE your contact information and your responses will be used for research and educational purposes only. We will remove your name and use a number instead when we work the research data.

*** Required**

Will you allow your responses to be used for this study? *

- ☐ Yes, I consent for my responses to be used for this research study
- ☐ No, I do not consent for my responses to be used for this research study

The researcher may contact me for a phone interview. *

***Note:** Those who complete a phone interview will receive a cooking utensil.

- ☐ Yes, I consent
- ☐ No, I do not consent

Name *

(First, Last)

Email address *

Video #1- Introducing Complementary Foods

Video Scoring Survey

Video Scoring Survey: Please complete the following questions on this page before watching and scoring each video. Then select continue. We will NOT SHARE your contact information and your responses will be used for research and educational purposes only. We will remove your name and use a number instead when we work the research data.

* Required

1. **Will you allow your responses to be used for this study? ***

Check all that apply.

- ☐ Yes, I consent for my responses to be used for this research study
- ☐ No, I do not consent for my responses to be used for this research study

2. **The researcher may contact me for a phone interview. ***

**Note: Those who complete a phone interview will receive a cooking utensil.*

Check all that apply.

- ☐ Yes, I consent
- ☐ No, I do not consent

3. **Name ***

(First, Last)

4. **Email address ***

5. **Phone Number ***

6. **What is your sex? ***

Check all that apply.

- ☐ Male
- ☐ Female

7. **How old are you? ***

8. How many children do you have? *

9. What is your race/ethnicity? *

Check all that apply.

- ☐ Non-Hispanic Black
- ☐ Non-Hispanic White
- ☐ Hispanic
- ☐ American Indian/Native American
- ☐ Native Hawaiian/Pacific Islander

10. What is the highest level of education you have completed? *

Check all that apply.

- ☐ Less than high school
- ☐ High school or GED
- ☐ Some college
- ☐ Associate degree
- ☐ Bachelor degree
- ☐ Post-graduate degree

11. What is your relationship to the child(ren) you are taking this survey for? *

Check all that apply.

- ☐ Mother
- ☐ Father
- ☐ Grandparent
- ☐ Legal Guardian
- ☐ Other: _____

12. List the school(s) that your child(ren) is currently attending. *

13. **What is your t-shirt size?**

*Note: You will only receive a t-shirt for having completed scoring of all 10 videos. Incomplete surveys will not be considered.

Mark only one oval.

- ☐ Small
☐ Medium
☐ Large
☐ XL
☐ 2XL

Video #1: Introducing Complementary Foods

14. **Please select a number for each of the following: ***

Mark only one oval per row.

	1 (Poor)	2	3	4	5 (Excellent)
Video Entertainment (fun, enjoyable, creative)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Video Quality (sound is clear, lighting is good, picture is clear, picture is steady)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to teach others (clear, easy to understand, parents could follow advice)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
What is your overall reaction to this video?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. *

Mark only one oval per row.

	1 (NOT Likely)	2	3	4	5 (Very Likely)
Do you think a parent would use the information in this video?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. **Comments (what you liked/needs improvement)**

Video #2: Thawing Breastmilk

17. Please select a number for each of the following: *

Mark only one oval per row.

	1 (Poor)	2	3	4	5 (Excellent)
Video Entertainment (fun, enjoyable, creative)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Video Quality (sound is clear, lighting is good, picture is clear, picture is steady)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to teach others (clear, easy to understand, parents could follow advice)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
What is your overall reaction to this video?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18. *

Mark only one oval per row.

	1 (NOT Likely)	2	3	4	5 (Very Likely)
Do you think a parent would use the information in this video?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. Comments (what you liked/needs improvement)

Video #3: Fruits and Vegetables

20. Please select a number for each of the following: *

Mark only one oval per row.

	1 (Poor)	2	3	4	5 (Excellent)
Video Entertainment (fun, enjoyable, creative)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Video Quality (sound is clear, lighting is good, picture is clear, picture is steady)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to teach others (clear, easy to understand, parents could follow advice)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
What is your overall reaction to this video?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

21. *

Mark only one oval per row.

	1 (NOT Likely)	2	3	4	5 (Very Likely)
Do you think a parent would use the information in this video?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

22. **Comments (what you liked/needs improvement)**

Video #4: Iron and Zinc

23. **Please select a number for each of the following:** *

Mark only one oval per row.

	1 (Poor)	2	3	4	5 (Excellent)
Video Entertainment (fun, enjoyable, creative)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Video Quality (sound is clear, lighting is good, picture is clear, picture is steady)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to teach others (clear, easy to understand, parents could follow advice)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
What is your overall reaction to this video?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

24. *

Mark only one oval per row.

	1 (NOT Likely)	2	3	4	5 (Very Likely)
Do you think a parent would use the information in this video?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

25. **Comments (what you liked/needs improvement)**

Video #5: When to Introduce Complementary Foods?

26. Please select a number for each of the following: *

Mark only one oval per row.

	1 (Poor)	2	3	4	5 (Excellent)
Video Entertainment (fun, enjoyable, creative)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Video Quality (sound is clear, lighting is good, picture is clear, picture is stead)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to teach others (clear, easy to understand, parents could follow advice)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
What is your overall reaction to this video?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

27. *

Mark only one oval per row.

	1 (NOT Likely)	2	3	4	5 (Very Likely)
Do you think a parent would use the information in this video?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

28. Comments (what you liked/needs improvement)

Video #6: Lets Talk About Iron

29. Please select a number for each of the following: *

Mark only one oval per row.

	1 (Poor)	2	3	4	5 (Excellent)
Video Entertainment (fun, enjoyable, creative)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Video Quality (sound is clear, lighting is good, picture is clear, picture is stead)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to teach others (clear, easy to understand, parents could follow advice)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
What is your overall reaction to this video?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

30. *

Mark only one oval per row.

	1 (NOT Likely)	2	3	4	5 (Very Likely)
Do you think a parent would use the information in this video?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

31. **Comments (what you liked/needs improvement)**

Video #7: Omega 3 Fatty Acids

32. **Please select a number for each of the following:** *

Mark only one oval per row.

	1 (Poor)	2	3	4	5 (Excellent)
Video Entertainment (fun, enjoyable, creative)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Video Quality (sound is clear, lighting is good, picture is clear, picture is steady)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to teach others (clear, easy to understand, parents could follow advice)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
What is your overall reaction to this video?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

33. *

Mark only one oval per row.

	1 (NOT Likely)	2	3	4	5 (Very Likely)
Do you think a parent would use the information in this video?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

34. **Comments (what you liked/needs improvement)**

Video #8: Introducing Complementary Foods

35. **Please select a number for each of the following: ***

Mark only one oval per row.

	1 (Poor)	2	3	4	5 (Excellent)
Video Entertainment (fun, enjoyable, creative)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Video Quality (sound is clear, lighting is good, picture is clear, picture is steady)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to teach others (clear, easy to understand, parents could follow advice)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
What is your overall reaction to this video?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

36. *

Mark only one oval per row.

	1 (NOT Likely)	2	3	4	5 (Very Likely)
Do you think a parent would use the information in this video?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

37. **Comments (what you liked/needs improvement)**

Video #9: Protein for Preschoolers

38. **Please select a number for each of the following: ***

Mark only one oval per row.

	1 (Poor)	2	3	4	5 (Excellent)
Video Entertainment (fun, enjoyable, creative)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Video Quality (sound is clear, lighting is good, picture is clear, picture is steady)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to teach others (clear, easy to understand, parents could follow advice)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
What is your overall reaction to this video?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Video #11: Aperitivos

44. Please select a number for each of the following:

Mark only one oval per row.

	1 (Poor)	2	3	4	5 (Excellent)
Video Entertainment (fun, enjoyable, creative)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Video Quality (sound is clear, lighting is good, picture is clear, picture is steady)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to teach others (clear, easy to understand, parents could follow advice)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
What is your overall reaction to this video?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

45. *Mark only one oval per row.*

	1 (NOT Likely)	2	3	4	5 (Very Likely)
Do you think a parent would use the information in this video?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

46. Comments (what you liked/needs improvement)

Video #12: Jugo de Frutas

47. Please select a number for each of the following:

Mark only one oval per row.

	1 (Poor)	2	3	4	5 (Excellent)
Video Entertainment (fun, enjoyable, creative)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Video Quality (sound is clear, lighting is good, picture is clear, picture is steady)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to teach others (clear, easy to understand, parents could follow advice)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
What is your overall reaction to this video?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

48. *Mark only one oval per row.*

	1 (NOT Likely)	2	3	4	5 (Very Likely)
Do you think a parent would use the information in this video?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

49. **Comments (what you liked/needs improvement)**

APPENDIX M: PARENT INTERVIEW GUIDE

Parent Video Project Interview

My name is (Advanced Community Nutrition Student). I am a student at Texas State University. This interview is to help me understand how videos can play a role in informing the community on early feeding practices for infants and young children. Your responses will be used for research and educational purposes only. Your participation in this dialogue is voluntary and you may stop at any time if you decide not to continue. For completing the interview, you will receive an incentive of a cooking utensil. I would like to ask you a series of questions about your experience with watching the videos on feeding practices at today's event. During the interview, I ask that you be as thorough as possible with your responses. While you talk, I am going to try and write notes about what you tell me, to best capture your input. After I process my notes from our discussion, your name will be disassociated with all responses provided throughout the interview.

If there are no questions, do you consent to continue this conversation?

- 1. To begin, tell me about what you most hoped you would learn from attending this health event.**
 - a. In regards to the videos you watched, what did you most hope you would learn from watching them?
- 2. Tell me about what you knew, before today, about what and how infants and young children should be fed. [Feeding Practices]**
 - a. Foods should/should not eat?
 - b. How to promote healthy eating?
 - c. Family meals or setting of mealtime
 - d. Reward/penalty
 - e. Can you tell me more about that?
- 3. Discuss which videos stood out to you.**

- a. Can you describe what about those videos made them stand out?
 - i. Were they entertaining to watch?
 - ii. Did they relate to you on a personal level?
 - b. Could you explain this in more detail?
 - c. What about this video should be in other videos?
- 4. How helpful were the videos in improving your nutrition knowledge of how to feed infants and children?**
 - a. What did they tell you that you did not know?
 - b. Do you think this information would be valuable to others? Why?
- 5. Tell me about the videos in which you gained the most information on feeding practices.**
 - a. Can you further explain?
 - b. Can you describe the point in which you learned something new about feeding an infant or child?
 - i. What did you learn from watching those videos?
- 6. Think about your experiences with watching videos to gain information about a particular topic.**
 - a. Do you currently watch videos to gain nutrition/food information?
 - i. If yes, could you provide an example?
 - ii. How do they compare to the videos you watched today?
 - b. In the past, have you watched videos to gain nutrition/food information?
 - i. If yes, could you provide an example?
 - c. Would you use videos to gain nutrition/food information after watching videos from today's event?
 - i. Why?
- 7. Explain what you would most like to see in videos related to nutrition and feeding infants and young children.**
 - a. Do you think the videos you saw today included topics that you like to see in videos?
 - i. Can you provide an example?
- 8. Would you more or less likely trust informative videos that come from your child's school?**
 - a. Why do you feel this way?
 - b. What makes you trust or not trust these videos?

- 9. Would you more or less likely trust informative videos that come from WIC?
What about other government nutrition programs?**
- a. Why do you feel this way?
 - b. What makes you trust or not trust these videos?
- 10. Would you be interested in creating and sharing nutrition/food and feeding practice information through videos? Why / Why not?**
- 11. What did you enjoy most about this event? (write an example – not everything/ nothing)**
- 12. Is there anything else you would like to share with me about your experience with watching the videos?**

Conclusion

To conclude, I am going to summarize some of the major components I heard throughout the interview.

- Summarize comments [No more than 2 minutes]

Did I cover everything?

Thank you for taking the time to participate in an interview with me. After processing my notes, your name will be disassociated with all responses you provided throughout the interview. For completing this interview you can select an item of a cooking utensil. Ask them if they know anyone else who would like to interview (here at the event).

**APPENDIX N: CORRELATION OF STUDENT'S MOTIVATION AND TOTAL
OUTCOME VIDEO SCORE**

Correlations^a			Student's graded video score by peers	Q: How motivated were you because this was part of your grade?
Spearman's rho	Student's graded video score by peers	Correlation Coefficient	1.000	.158
		Sig. (2-tailed)	.	.312
	Q: How motivated were you because this was part of your grade?	Correlation Coefficient	.158	1.000
		Sig. (2-tailed)	.312	.

a. Listwise N = 43

Correlations^b			Student's graded video score by peers	Q: How motivated were you based on the fact that your peers were going to view your video?
Spearman's rho	Student's graded video score by peers	Correlation Coefficient	1.000	.374*
		Sig. (2-tailed)	.	.014
	Q: How motivated were you based on the fact that your peers were going to view your video?	Correlation Coefficient	.374*	1.000
		Sig. (2-tailed)	.014	.

*. Correlation is significant at the 0.05 level (2-tailed).

b. Listwise N = 43

Correlations ^b			Student's graded video score by peers	Q: How motivated were you based on the fact that people in the community might see the video?
Spearman's rho	Student's graded video score by peers	Correlation Coefficient	1.000	.328*
		Sig. (2-tailed)	.	.032
	Q: How motivated were you based on the fact that people in the community might see the video?	Correlation Coefficient	.328*	1.000
		Sig. (2-tailed)	.032	.

*. Correlation is significant at the 0.05 level (2-tailed).

b. Listwise N = 43

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