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EDIBLE LEARNING: SCHOOL FOOD SERVICE PROGRAMMING AND
EXPERIENTIAL EDUCATION THAT PROMOTE SUSTAINABLE AGRICULTURE
AND BETTER NUTRITIONAL HEALTH

A Dissertation

Presented to

The Faculty of the Educational Doctoral Program in Educational Leadership

San José State University

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Education

by

Kristina Grasty

May 2023

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The Designated Thesis Committee Approves the Dissertation Titled

EDIBLE LEARNING: SCHOOL FOOD SERVICE PROGRAMMING AND
EXPERIENTIAL EDUCATION THAT PROMOTE SUSTAINABLE
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by

Kristina Grasty

APPROVED FOR THE EDUCATIONAL DOCTORAL PROGRAM IN EDUCATIONAL
LEADERSHIP

SAN JOSÉ STATE UNIVERSITY

May 2023

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ABSTRACT

EDIBLE LEARNING: SCHOOL FOOD SERVICE PROGRAMMING AND EXPERIENTIAL EDUCATION THAT PROMOTE SUSTAINABLE AGRICULTURE AND BETTER NUTRITIONAL HEALTH

by Kristina Grasty

The typical American diet, which involves the consumption of processed foods high in saturated fats, sodium, and refined sugar, is known to be unhealthy. Millions of students in the U.S. suffer from symptoms of malnutrition, making them susceptible to compromising health conditions such as type 2 diabetes that may persist into adulthood. Well-designed school nutrition programs and action learning that promotes sustainable agriculture have the potential to enhance students' nutritional well-being as well as their understanding of the ecological systems needed to support good nutrition. This dissertation uses documentary film as an exploratory, qualitative research method to investigate approaches used in school nutrition programs and nutrition-related education that can have a positive impact on students' lives. The result is a documentary film called *Edible Learning: Promoting Better Nutrition in Schools*. Several themes emerged from this study suggesting that experiential lessons to educate students about sustainable food systems should permeate throughout a school—in the cafeteria, in garden learning environments, and through school-community partnerships. Supportive, non-exploitative partnerships can be leveraged to overcome institutional challenges faced in promoting greater nutritional health. Recommendations are given for optimal practices in school food service programs and curricula, including courses of study such as agroecology, in order to positively impact students' health and their understanding of the importance of optimal nutrition and the ecology of food systems.

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Chapter 1: Introduction

“If we could just get to students before they were indoctrinated by the pervasive fast food world around them, then perhaps there could be a chance for deep, long-lasting change” –Alice Waters (2021), *We Are What We Eat*, p. 4

In his eye-opening, sociopolitical critique *Fast Food Nation*, Eric Schlosser (2002) exposed the fast food industry as being a dominant, inextricable, omnipresent force in American life. Over decades, starting in the latter half of the 20th century, the corporate fast food industry transformed our nation’s economy, culture, and diet—and adversely impacted human health (Schlosser, 2002). The typical American diet, which emphasizes ready-to-eat foods, processed meat, and dairy and is high in saturated fats, sodium, and sugar, is known to be unhealthy (Walker, 2015). Specific dietary factors that are common to a Western-style diet, including a high intake of sodium and processed meat products and low intake of fruits and vegetables, have been associated with 45.5% of all cardio-metabolic deaths in the U.S. (Kahleova et al., 2017). Studies indicate that an unhealthy diet is a leading contributor to the development of diseases such as type 2 diabetes, cardiovascular disease, and cancer and can also adversely affect the brain (Jacka et al., 2015, Kahleova, et al., 2017; Molteni et al., 2002).

Schlosser (2002) described how the growth of the fast food industry accelerated “when sophisticated mass marketing techniques were for the first time directed at small children, and when federal agencies created to protect workers and consumers behaved like branch offices of the companies that were supposed to be regulated” (p. 8). Marketing efforts were conducted by prominent fast food and beverage companies in hundreds of school districts across the country, including in school food service programs (Schlosser, 2002). In addition,

large food corporations within the industrial food system in the U.S. have benefited for many years from a wide variety of government subsidies while imposing a homogenizing, unhealthy influence on American dietary habits (Schlosser, 2002). Schlosser (2002) pointed out, as an example, that “for years some of the most questionable ground beef in the United States was purchased by the USDA—and then distributed to school cafeterias throughout the country” (p. 218). The U.S. government has played a significant role in promoting certain foods that are produced by our industrial food system, and these foods then in turn have been utilized in meal preparation in school cafeterias across the country (Nestle, 2013; Schlosser, 2002). Foods high in sugar such as sweetened cereal, cereal bars, and flavored milk are frequently served in school food programs. The USDA’s Food and Nutrition Service (2022) conducted an analysis of 2011-2016 data from the Centers for Disease Control and Prevention that revealed that 92 percent of schools prepared breakfasts and 69 percent of schools prepared lunches with 10 percent or more of the calories coming from added sugars, thus hitting or exceeding the 10 percent added sugars limit that was articulated in the 2015-2020 Dietary Guidelines for Americans (U.S. Department of Agriculture, 2022).

It is a known fact that over 30 million American students eat one or two meals a day at the public schools they attend (Bean et al., 2019; Poppendieck, 2010; U.S. Department of Agriculture, 2019). Starting at the beginning of the 2022-23 school year, California became the first state in the U.S. to implement a Universal Meals policy, which requires the provision of breakfast and lunch free of charge each school day to any student in grades TK-12 requesting a meal (California Department of Education, 2022a). However, despite receiving meals at schools, over 14 million of our nation’s students experience health injustices, as they

suffer from malnutrition and are thus susceptible to experience compromising health conditions such as type 2 diabetes that are on the rise in this country and may persist into adulthood (Fryar et al., 2021; Hales et al., 2017; Nollen et al., 2007; Ogden et al., 2014; Poppendieck, 2010). While the problem of incurring adverse health conditions as a result of poor nutrition is not solely incumbent on schools to solve, it is also nonetheless a known fact that many of our nation's students unfortunately access nutrition programs in TK-12 public schools that provide foods of less-than-optimal nutritive value, exacerbating an already massive societal problem of poor nutritional health experienced by many youth living in the U.S. (Joyce et al., 2018; Munoz et al., 2018; Nollen et al., 2007; Poppendieck, 2010). Because millions of students rely on schools to provide them with food for sustenance, it is important that school districts make it a priority to provide students consistently with nutritious meals and to educate them about healthy, sustainable food production and healthy eating habits (Colombo et al., 2020; Crawford et al., 2011; Weaver-Hightower, 2011).

This dissertation study investigates the need to more deliberately address U.S. students' health injustices through implementing high-quality school food service and experiential nutrition education programming that promotes sustainable agriculture. Research conducted for this study uncovers serious health, developmental, and social problems that many students in this country face due to malnutrition and investigates the broader context surrounding the provision of food service in public schools as well as education about ecologically sustainable food systems. The literature review for this study also takes into account recent California Universal Meals program legislation, which mandates that all TK-12 students in the state who request meals are provided breakfast and lunch at school free of

charge. This dissertation helps to create a case for critically rethinking how schools might consistently provide nutritious meals for students and, concomitantly, how schools should educate students about the importance of healthy nutrition and ecologically sustainable food systems. This dissertation articulates a need to explore how educational leaders, educators, and school food service personnel might make substantive improvements to current practices in order to make students' nutritional health and learning about sustainable agriculture a high priority in schools. This study involves using documentary film as an exploratory, qualitative research method to investigate and identify specific challenges as well as positive strategies used in nutrition-related school services and courses to enhance students' health and nutritional as well as environmental consciousness.

Background and Context of the Problem

The quality of the food provided to students through school food service programs and the awareness that students gain in schools about the importance of healthy dietary habits matter greatly. A large percentage of students eat meals provided by schools and are, as a result, impacted by the quality of food served to them (Mobley et al., 2012; Scalora, 2016). According to the HEALTHY Study Group from the University of Nevada at Las Vegas, access to food and beverages in school “influences dietary behaviors associated with the increasing early prevalence of chronic health conditions in youth, including overweight, obesity, and type 2 diabetes” (Mobley et al., 2012, p. 82). School nutrition programs have the potential to offset what many students might not otherwise have access to, food-wise, since millions of students receive meals through school food programs each year (Crawford et al., 2011; Poppendieck, 2010; U.S. Department of Agriculture, 2019). However, the variation in

school food service production and nutrition education in schools across the country is wide-ranging (i.e., from those which place a priority on nutrition to those not centering nutrition as a priority); therefore, the resultant impact on our nation's students is also wide-ranging (Joyce et al., 2018; Poppendieck, 2010). The wide differential in the quality of food service implementation and nutrition education across schools and districts in this country is of serious concern and demands an ecocritical lens through which to study this systemic problem (Lupinacci et al., 2019).

An ecocritical framework, which will be discussed further in the literature review, can provide a useful lens through which to challenge dominant, prevailing, entrenched socioeconomic patterns stemming from Western industrial culture that, in turn, affect students in schools. An aim through this research study is to identify and emphasize essential components of a major shift with regard to the provision of healthy school food and nutrition-related education. It is essential to deliberately prioritize in practice optimal nutritional health and well-being for all students in conscientious, sustainable ways—as opposed to capitulating (even if tacitly) to the prevailing industrial fast food complex in the U.S. and the related harms caused by it. We can no longer ignore the plight of millions of students who suffer from adverse health conditions, often exacerbated by living in impoverished conditions where healthy food sources are not easily accessible. This exploratory research study seeks to draw attention to a complex, integrated area of need, i.e., educating students about sustainable food systems, promoting good nutrition in schools, and heightening awareness about the critical importance of adopting healthy school food service

practices in order to effect positive change for all students, including those who may be economically marginalized and more susceptible to food insecurity and malnourishment.

Problem Statement

Despite the fact that a large percentage of students in the U.S. eat meals provided by schools (Bean et al., 2019; Poppendieck, 2010; Scalora, 2016; U.S. Department of Agriculture, 2019), research indicates that public schools are not consistently providing nutritious food for all students or at least not as effectively as possible (Joyce et al., 2018; Morgan & Sonnino, 2008; Poppendieck, 2010; Taber et al., 2012; Waters, 2021). Given the fact that millions of American students eat one or two meals a day at the schools they attend (Bean et al., 2019; Poppendieck, 2010; U.S. Department of Agriculture, 2019), a goal of this research is to shed greater light on the following central problem: *current school nutrition programming and related education are failing overall in their ability to provide and have students consume nutritious foods on a consistent, widespread basis*. This problem has implications for students' ability to be well, feel well, learn well in school, and develop into healthy adults, and therefore, society as a whole should be concerned.

Purpose of Study

This study concerns shortfalls in school nutrition programs' ability to provide and have students consistently consume high-quality, nutritious foods. Admittedly, this topic is large in scope, as nutrition programs vary in design from school to school, and food production and food service implementation issues as well as the underlying, systemic, political, and socioeconomic factors contributing to the issue are complex. Nevertheless, "school food" is a topic in need of breaking down into subtopics and studying these subtopics in greater detail

in order to better identify how to help ameliorate health harms facing our nation's youth via school nutrition programs and related education that have potential to make a profound, positive impact on children's lives.

First, there is a need to be aware of significant, adverse health and learning impacts on students caused by malnutrition (Fryar et al., 2021; Holden, 2007; Jacka et al., 2015; Lalonde, 2014; Molteni et al., 2002; Nollen et al., 2007; Ogden et al., 2014). Second, there is a need to understand the historical background of school nutrition programs including the negative effects caused by competitive foods sold in many schools, as well as the context involving the recent implementation of the Universal Meals Program in California schools (California Department of Education, 2022a; Crawford et al., 2011; Nollen et al., 2007). Third, there is a need to examine the significant nutritional variances in school-produced meals, revealing nutritional inequities that students experience when being offered school food and the federal policies that contribute to these inequities (Joyce et al., 2018; Mortazavi, 2011). Fourth, there is the problem caused by the mass-production and plastic packaging of FDA-approved food that is sold to schools and used in school meals leading to the absorption of a type of chemical that potentially causes a harmful impact on children's health (Munoz et al., 2018). Fifth, there are strong ties between the federal government and agribusiness that impact the composition of federal nutrition guidelines and policies, as well as the options of food sold to and used by schools in the production of meals (Hall, 2013; Nestle, 2013). Sixth, the cafeteria environment, variety and types of food choices offered, and training of and professional regard for staff who prepare and provide food are additional issues impacting the quality of food service provided to students in schools, and thus in need of further study

(Crawford et al., 2011; Nollen et al., 2007; Poppendieck, 2010; Sharma et al., 2015).

Furthermore, education that incorporates teaching about the ecology of food systems, culinary arts, and environmental nutrition has the potential to positively impact students' eating habits for the long term (Francis et al., 2011; McVety, 2009; Petrini, 2005; Waters, 2021).

Significance of Study

There has been ample research conducted regarding school food, covering topics ranging from menu planning to chemicals present in processed food to competitive foods in schools and more (Bhatia et al., 2011; Cohen et al., 2020; Colombo et al., 2020; Munoz et al., 2018). However, most research about school food is currently located in nutrition, medical, science, and/or health journals. Some educational research considers food in its scope but more often in a limited fashion that avoids the complexity of implementation issues or the totality of the impacts that food service has on students in schools (Weaver-Hightower, 2011).

There is currently a need to connect more research about nutrition programs for youth directly to educational practice. According to Boser and McDaniels (2018),

Studies have shown that practitioners prefer research that can inform their own improvement efforts, rather than effectiveness research. This type of research can include traditional improvement science, but also descriptive analyses of how national issues affect a specific district or school... (p. 3)

In other words, descriptive or qualitative studies can serve to inform educational practitioners' improvement efforts, especially since, as Boser and McDaniels (2018) mention, studies reveal that practitioners prefer research that can help spotlight areas where improvement is needed so that they can be informed to take appropriate action. Therefore, keeping Boser and McDaniels' (2018) statement in perspective, this study focuses on

providing an in-depth examination through descriptive, qualitative research in the form of a documentary film to reveal how a prevailing public issue such as poor dietary habits that are strongly influenced by the prevailing, industrial fast food system in the U.S. might be better addressed through identifying certain instructional and school service practices that could make substantial impact on students' health and development. The scope of this study involves showcasing specific strategies currently in practice in a few California public schools that promote sustainable agriculture and good nutrition, in terms of innovative school food service design and nutrition-related instructional programming, in order to cultivate an ecological awareness of healthy food systems and positively impact students' nutritional habits throughout their lives.

Research Questions and Preview of Design

The quality of school meals provided in schools across the country is important to examine since the provision of meals impacts the nutritional health of millions of students. Thus, the area I chose to focus my research on is grounded in a primary interest to answer this fundamental question: *What are impactful ways to address significant health problems facing a large number of children and adolescents through nutrition programs and related education in TK-12 public schools?*

Since it would be challenging for me, as the principal investigator, to conduct comprehensive national research resulting in a quantification of different approaches in schools across the country that can positively impact students' nutritional health (i.e., especially since there are well over 100,000 K-12 schools in the U.S.), I have chosen instead to investigate what could be considered model or signature practices happening in a sampling

of schools in California, the first state in the U.S. that has enacted a Universal Meals policy in all TK-12 schools, starting in August 2022. In the context of this recent policy enactment, this study investigates challenges that California schools face with regard to prioritizing education and practices having to do with promoting good nutrition and sustainable food systems, as well as successful practices that might be able to be replicated more broadly.

Specifically, this study attempts to answer the following additional questions:

Which practices and procedures are currently being implemented in successful school food service programs to positively impact students' health and well-being?

Which courses of study and/or instructional units are currently being taught in schools and how, so that they positively impact students' understanding of sustainable agriculture and nutrition and so that they influence the development of healthy habits?

The research conducted for the literature review for this study led to the creation of an exploratory documentary film that elucidates some of the challenges and positive practices occurring in California schools (in cafeterias, science classes, and community-based educational activities) with regard to school nutrition and related education that have the potential to be replicated in schools across the country in order to make substantial, positive impact on students' health and well-being and deepen students' understanding of environmental nutrition.

Three California schools that are using innovative, healthy, replicable practices are spotlighted in the documentary film. One is Los Gatos High School, a public school at the southern tip of Santa Clara County. LGHS has had "garden education" in its programming since the 1920s (Ness, 2022). LGHS's Agroecology program has also partnered with a local

chef to enhance student learning about sustainable agriculture (Ness, 2022). The second school in this study is Lowell High School, a public high school in San Francisco. Lowell High School offers an Advanced Placement Environmental Science program that incorporates outdoor education in a school garden and also participates in a community-based agricultural program. The third school in this study is Cambria Grammar School, located in Cambria, a rural, central coast community in California. CGS has been the home of an outdoor garden education program since 2017 (One Cool Earth, 2021). Students receive weekly, hands-on instruction from teachers who have been trained in providing outdoor, environmental learning (One Cool Earth, 2021). Cambria Grammar School's garden learning program also integrates parent participation with after-school farmers' markets as well as cooking lessons that include parents, teachers, and children learning together (One Cool Earth, 2021). An intention from this research study is to draw out themes from different interviews conducted at each site to be able to make specific recommendations for more widespread practices in schools.

Definition of Key Terms

Agroecology – Farming which centers on food production that makes the best use of nature's goods and services, while not damaging these resources (AgroEcology Fund, 2020).

Childhood Obesity – Having a body mass index (BMI) at or above the 95th percentile defines children ages 10 through 17 as “obese” (National Survey of Children's Health, 2019).

Competitive Foods – “Individual foods and beverages sold in vending machines, school stores, and [school] cafeterias (à la carte) [which] have historically been exempt from federal regulation except for restrictions on the sale of foods of minimal nutrition value” (Taber et

al., 2012, p. 452). Competitive foods, in general, tend to be foods of “high caloric density and low nutrient density” (Taber et al., 2012, p. 452).

Environmental Nutrition – This concept stems from an understanding of “the complex interactions of food systems with the health of the planet and the populations that share its resources” and concerns “the connection between diet, environmental sustainability, and human health” (Sabaté, 2019, p. xiii).

Farm or Food Subsidies – Financial aid supplied by a government to farmers, industry, and/or consumers in order to make low-cost food available to citizens. In most countries, the government tries to influence the price that consumers pay for food, yet goals of subsidy policies and programs vary across countries (Pinstrup-Andersen, 1988). Such goals “may include desires to improve the real purchasing power of all or certain groups of consumers, to reduce or eliminate calorie and nutrient deficiencies in low-income population groups, to maintain low urban wages, to assure social and political stability,” as well as other possible goals (Pinstrup-Andersen, 1988, p. 1).

Free- and Reduced-Price Lunch Eligibility – A student from a household with an income at or below 130 percent of the poverty income threshold is eligible for free lunch in U.S. schools; a student from a household with an income between 130 percent and up to 185 percent of the poverty threshold is eligible for reduced-price lunch (Snyder & Musu-Gillette, 2015).

Malnutrition – Malnutrition refers to not having enough to eat or not eating enough nutritious food and includes undernutrition (e.g., wasting, stunting, being underweight),

receiving inadequate nutrients, being overweight, and obesity—and resultant diet-related, non-communicable diseases (World Health Organization, 2021).

Processed or Ultra-Processed Foods – These are food products “made from processed substances extracted or refined from whole foods—e.g., oils, hydrogenated oils and fats, flours and starches, variants of sugar, and cheap parts or remnants of animal foods—with little or no whole foods” (Moodie et al., 2013, p. 671). Most processed or ultra-processed foods are “made, advertised, and sold by large or transnational corporations,” “are very durable, palatable, and ready to consume,” and “are typically energy dense; have a high glycaemic load; are low in dietary fibre, micronutrients, and phytochemicals; and are high in unhealthy types of dietary fat, free sugars, and sodium” (Moodie et al., 2013, p. 671).

Scratch Cooking – Cooking “from scratch” involves preparing a meal using raw ingredients. According to Lavelle et al. (2016), a “more inclusive, modern” definition of scratch cooking is the method of preparing a meal “with natural, fresh and unprocessed ingredients being key components” (p. 385).

Sustainable Agriculture – Sustainability as it pertains to the food and agriculture system involves resource conservation and the prevention of environmental degradation while generating and distributing agricultural products to support the nourishment of human beings (Allen et al., 1997). “A sustainable food and agriculture system is one which is environmentally sound, economically viable, socially responsible, nonexploitative, and which serves as the foundation for future generations” (Allen et al., 1997, p. 5). It involves larger environmental, social, and economic systems in which agriculture as an industry is situated. Sustainable agriculture emphasizes “optimum production over maximum

production, the long term along with the short term, the public’s best interest over special interests” and “is based upon the whole-systems, interactive nature of all aspects of the agricultural system” (Allen et al., 1997, p. 5).

Universal Meals Program – Starting at the beginning of the 2022-23 school year, California became the first state to implement a Universal Meals Program for all school children, not just needy children, which entails providing a “nutritionally adequate breakfast and lunch” free of charge to students; this program is built upon the foundation of the federal National School Lunch Program and School Breakfast Program (California Department of Education, 2022a).

Scope and Limitations of Study

This study is expected to contribute insights to the existing literature that exposes health harms due to poor nutrition faced by millions of our nation’s students who attend TK-12 schools. It provides greater insight to specific school strategies that improve the implementation practices of school nutrition programs, drawing upon cases in California schools that are implementing the new Universal Meals program and that engage students actively in learning about sustainable food systems. It showcases specific types of instruction that occur in school courses to enlighten students’ understanding of environmental nutrition, sustainable food production, and healthy eating habits.

A perceived limitation is that this study involves exploratory research using documentary film as the primary method and therefore is only able to spotlight a limited number of signature practices in a select few schools. However, the careful curation and illustration of key research findings identified in the process of creating the film will hopefully lead to

heightened awareness by viewers and thereby positively influence the quality of education and food service practices taking place in schools and districts across the country so that more students may benefit. The scope is potentially large-scale in terms of viewer and reader impact with a broad aim to positively affect students' health and well-being through improved nutrition program implementation and instructional practices in schools across the country for the long term. Therefore, in this study, documentary film as a form of exploratory research serves as an agent of positive social and institutional change.

Summary

The quality of nutrition services and nutrition-related education provided by schools is definitely an area worthy of further exploration to be able to more directly impact students' awareness of nutritional health and address health-related harms caused by malnutrition that are currently faced by millions of students in this country. Schools across the country face challenges with providing healthy food to students on a consistent basis. Identifying specifically how to improve TK-12 school nutrition programs and related education so that students have greater opportunity to develop healthy eating habits and to consume healthy, nourishing meals on a consistent basis is a central issue that is examined through this exploratory, qualitative research study.

Chapter 2: Literature Review

Introduction

The literature reviewed for this study explores, in general, the relationship between school nutrition programs, nutrition-related education, and the health and well-being of our nation's youth. This literature review covers primarily six main topic areas, with subtopics broken down within each, to help illuminate the broader context of the complex interrelationship between students' health, school nutrition services, and education about sustainable food systems that students may (or may not) be receiving in public schools in the U.S. Specific problems of practice currently in need of being more deliberately addressed are summarized near the end of this chapter.

Literature Topics

The first main topic of this literature review involves the relationship between poverty, malnutrition, health, and the context of public schools. The second topic area that informs this study is the historical background of school nutrition programs, including when they began to be funded at the federal level, student participation over time, and program implementation issues, such as competitive foods, nutritional variances, and adverse health impacts. Third, some recent, innovative cafeteria improvement strategies to positively impact health are discussed. The fourth topic covered in this literature review involves motivational factors affecting students' food choices, such as familial and sociocultural influences, advertising, and concentrations of study in schools. The fifth topic showcases a signature educational program with specific elements that have the potential to be replicated across more schools in the U.S. in order to effect enduring social change. The sixth topic includes

relevant theoretical concepts and principles informing this study, as they spotlight a direction for making systemic improvements in school nutrition programs and courses of study to positively impact student health and well-being. Last but not least, significant problems of practice and gaps in educational research about school nutrition programs and their efficacy have been identified (Bhatia et al., 2011; Cohen et al., 2020; Colombo et al., 2020; Gabrielyan et al., 2017; Hall, 2013; Joyce et al., 2018; McVety, 2009; Nestle, 2013; Poppendieck, 2010). Finally, based on the identified problems of practice and research gaps, the direction for the focus of an exploratory documentary film on this subject matter is articulated in the chapter summary.

Malnutrition as a Result of Poverty

Several researchers have noted that many of our nation's students live in impoverished neighborhoods with limited access to healthy foods (Anyon, 1995; Berliner, 2006; Gould & Lewis, 2012; Morland et al., 2002). A household food security survey conducted by the U.S. Department of Agriculture in 2007 found that 36.2 million Americans were living in households (13 million households) that lacked access to adequate food because of poverty (Poppendieck, 2010). Among these 13 million households, 4.7 million had "very low food security" (Poppendieck, 2010, p. 7).

Literature concerning household poverty emphasizes that students from low-income families living in urban as well as rural areas have limited access to healthy food options (Hall, 2013; Poppendieck, 2010; Silva, 2020; Yousefian et al., 2011). On one hand, Hall (2013) highlighted the "lack of access to healthy and affordable food among dispossessed urban schoolchildren" in the U.S. (p. 674). On the other hand, Yousefian et al. (2011)

emphasized the need to address challenges to obtaining access to quality food experienced by the rural poor:

Although the meaning of food desert may be different in rural areas than in urban, it does not negate the fact that low-income rural families are struggling. The...challenges that rural low-income families face call for more rigorous study to identify promising interventions for increasing food access and quality in these communities. (p. 1)

Growing up in poverty, whether in an urban or rural area, puts human beings at a disadvantage when it comes to accessing and being able to consume healthy, nutritious foods. Research shows that food insecurity is negatively associated with health (Gundersen & Ziliak, 2015). Food insecure households tend to have disrupted eating patterns, reduced food intake, and/or reduced access to or ability to afford healthy foods (Gundersen & Ziliak, 2015). Studies have found that children who are food insecure are at least twice as likely to report being in “fair” or “poor” health and at least 1.4 times more likely to have asthma, compared to children who are food secure (Gundersen & Ziliak, 2015). Food insecurity, simply put, is an issue plaguing poor families across the U.S. and has created a massive health crisis (Silva, 2020).

The coronavirus pandemic worsened food insecurity, more than doubling the rate, affecting as many as 23 percent of households (Silva, 2020). School districts around the country, even prior to the pandemic, reported more children living in poverty and more homeless children in recent times (Poppendieck, 2010). Many families who once saw themselves as working class or middle class have experienced unemployment or underemployment due to economic factors, and therefore we have seen a marked increase in numbers of children who are going without adequate nutrition (Poppendieck, 2010; Silva,

2020). Inadequate nutrition tends to result in one or more of a variety of health problems, whether having to do with not having enough to eat or not eating enough nutritious food (World Health Organization, 2021).

Malnutrition Negatively Impacts Students' Health and School Success

Malnutrition has been identified as significantly interfering with brain and physical development. In his neurological research, Holden (2007) claimed, “Malnutrition is real, is a worldwide health problem, exists in many forms, affects the developing and mature nervous system, and has acute and chronic health implications” (p. 19). Molteni et al. (2002) studied how the typical American diet (which is rich in saturated fats and refined sugars) negatively affects neuronal plasticity in the brain, which involves the “critical capacity to compensate for challenges, involving cellular and molecular mechanisms of synapse formation and function, neurite growth, and behavioral adaptation” (p. 803). Jacka et al. (2015) conducted a longitudinal study that concluded that the typical Western-style diet (i.e., higher in saturated fats and refined carbohydrates) is associated with a smaller hippocampus. Their meta-analysis concluded that there is a relationship between dietary quality and both depression and cognitive health (Jacka et al., 2015).

In addition, malnutrition has increasingly had harmful effects on children’s physical health in this country. For example, the prevalence of childhood obesity and children being overweight in the U.S. has increased substantially over the past several decades (Nollen et al., 2007). In 2015, reportedly 18.5 percent of youth in the U.S. were obese (Hales et al., 2017). Fryar et al. (2021) cited that in 2017-18 the prevalence of childhood and adolescent obesity in the U.S. was 19.3%, affecting approximately 14.4 million students. Ogden et al.

(2014) indicated that “one-third of the US children/adolescents in the general population are currently overweight or obese” (p. 806). The high percentages of youth in the United States experiencing being overweight or obese cannot be ignored. Research indicates that overweight and obese youth are more likely than their healthy-weight peers to experience compromising health conditions (e.g., type 2 diabetes, high blood pressure, high cholesterol, etc.) that may persist into adulthood (Nollen et al., 2007).

Lalonde (2014) cited research revealing additional devastating impacts on impoverished students when they face chronic, limited access to fresh, nutritious food:

When children lack consistent access to healthy food, as they move through school, they are more likely to experience behavioral problems, be suspended from school, see a psychologist, score lower on achievement tests, and have lower academic progress in math and reading (Alaimo et al., 2001; Jyoti et al., 2005). (p. 167)

Limited access to or infrequent consumption of nutritious food on an ongoing basis exacerbates the conditions that contribute to a cycle of poor health and academic underachievement, especially for impoverished, marginalized young people in this country (Lalonde, 2014). Children who do not get enough healthy food to eat can find it difficult to concentrate, are easily distracted, get sick more often, and miss school more often than well-fed children (Poppendieck, 2010).

Medical researchers who have studied the incidence of malnutrition and the related epidemiology of disorders caused by malnutrition have noted the magnitude of diseases related to malnutrition as well as the major importance of early treatment (Holden, 2007; Rodriguez-Salinas et al., 2007). Weaver-Hightower (2011) asserted, “Food and eating play vital roles in education that education researchers might explore...one does not have to focus

largely or exclusively on food itself to take its impacts seriously” (p. 16). An implication is that schools can play a critical and potentially even transformative role in addressing some of the negative health impacts caused by limited access to nutritious food as faced by millions of students in this nation. In short, the quality of students’ nutritional health impacts their ability to learn, and negative health impacts related to malnutrition should be addressed starting when children are young.

Historical Background of School Nutrition Programs and Competitive Foods

The National School Lunch Program (established under the National School Lunch Act in 1946) and the School Breakfast Program (established under the Child Nutrition Act of 1966) were founded and supported by the federal government with the intention of “providing nutritious meals to students at participating schools” (U.S. Department of Agriculture, n.d.-a, n.d.-b). Growth in participation in school nutrition programs in the late 1960s and early 1970s was particularly massive due to an increase in public concern about hunger in the U.S., which led to the establishment of national standards for eligibility for free- and reduced-price meals and related differential reimbursement rates for schools (Poppendieck, 2010). The number of children participating in school nutrition programs (the NSLP and SBP) rose from an average daily participation in 1969 of 19.4 million to 24.9 million in 1975 (Poppendieck, 2010). These programs have continued to grow over time and feed more than 30 million children each school day (U.S. Department of Agriculture, 2019).

Over the years, however, food service programs in many public schools in the U.S. have evolved to become essentially dual-pronged operations, which include the federally reimbursable programs as well as competitive, à la carte options that extend beyond the

scope of public programs funded by the government. Crawford et al. (2011) echoed this fact, that school food service in the U.S. includes two competing arms—the federally regulated reimbursable

National School Lunch and School Breakfast programs and the competitive foods marketplace, which expanded substantially during recent decades. ...During a typical day in the first five years of the 21st century, 55% of high school students and 44% of middle school students consumed competitive foods at school, frequently instead of school meals. (p. 1)

Competitive foods include “individual foods and beverages sold in vending machines, school stores, and cafeterias (à la carte) [which] have historically been exempt from federal regulation except for restrictions on the sale of foods of minimal nutrition value,” which include only a few specific items such as “hard candies, gum and soda” (Taber et al., 2012, p. 452). Competitive foods in general tend to be foods of “high caloric density and low nutrient density” (Taber et al., 2012, p. 452). Also, according to Taber et al. (2012), even though there have been federal policy initiatives such as the Hunger-Free Kids Act of 2010 and California state legislation (Senate Bill 12, effective in 2007, and Senate Bill 965, effective in 2009) that were designed to regulate the nutritional content of competitive foods, nonetheless “school food environments tend to become progressively less healthy at higher grade levels” due to the inclusion of competitive foods in their offerings to students (p. 452).

À la Carte Offerings: A Case Study

Research indicates that school cafeterias across the country have a history of offering à la carte items separately from NSLP and SBP meals, meaning that the distinctly different offerings represent a separate class of food service historically not accessible to low-income children (Bhatia et al., 2011). A case in point is the situation that occurred until

approximately one decade ago in the San Francisco Unified School District. In 2007, 54% percent (31,321) of SFUSD students qualified for free- or reduced-price meals; however, NSLP participation rates of qualified students in middle and high schools were only 42% and 34%, respectively (Bhatia et al., 2011).

Through field observations conducted by the San Francisco Department of Public Health at school sites in SFUSD to study the lack of full participation in the NSLP, a two-tiered system was identified with NSLP meals and a cash-only à la carte competitive meal available in separate lunch lines (Bhatia et al., 2011). Research by the SFDPH spotlighted that “offering different lunch services [for which] access is based on a child’s financial status appears contrary to norms of equality in public school services” (Bhatia et al., 2011, p. 1383). Thus, the SFDPH exposed through their observations within the SFUSD how offering competitive foods in schools created potential conditions for discriminatory effects and social stigmatization (Bhatia et al., 2011).

Findings by Nollen et al. (2007) also indicated that approximately 90% of public schools in the same time frame offered an à la carte food program and that à la carte offerings are generally not healthy for students. Furthermore, over 80% of high school students were found to have access in their schools to vending machines, school stores, or snack bars, which offer items consistently found to be low in nutrients and high in fat, calories, and/or sugar (Nollen et al., 2007). Although school cafeterias may offer healthy items (e.g., fruit, vegetables, bottled water) as part of à la carte or other supplemental offerings, research shows these items are less likely to be available and/or less likely to be purchased by students than other foods and beverages that are less healthy (Nollen et al., 2007).

Nutrition Standards: Variances in Implementation Influenced by Policies

Public schools are supposed to abide by health standards that apply to food service operations and the types of foods served to children (U.S. Department of Agriculture, n.d.-a). School lunches must meet NSLP requirements to receive reimbursement from the federal government (U.S. Department of Agriculture, 2019). Additionally, the Healthy, Hunger-Free Kids Act of 2010 established updated nutrition standards for school meals and for non-USDA foods (“competitive foods”) sold at schools participating in USDA's school meal programs (U.S. Department of Agriculture, 2013). These standards were intended to be applied to all meals in public schools, so that there would not be vastly differentiated nutritive values of the food that students consume (U.S. Department of Agriculture, 2019).

In 2018, Joyce et al., conducted a comparative study to determine whether there are significant differences in nutrient content and nutritional quality between different school menus meeting NSLP requirements. Results of their study indicated the possibility for significant variation in nutritional quality of NSLP-qualifying lunches (Joyce et al., 2018). Also, Cohen et al. (2020) identified that an exemption to the Healthy, Hunger-Free Kids Act of 2010 allows reimbursable meal entrees that do not meet the nutrition standards to be sold as “‘competitive entrees’ on the same day they are served in the reimbursable meal, and the following day”; currently “proposed rollbacks would enable these competitive entrees to continue to be sold on a third day, increasing the availability of competitive foods exempt” from nutrition standards (p. 1). The implication of this research is that the proposed USDA rollbacks to selling competitive foods that do not meet nutrition standards are projected to

“potentially add approximately 662 mg of sodium and 3 g of saturated fat over three days (1103 mg sodium and 5 g saturated fat over a week) on average” (Cohen, 2020, p. 1).

Furthermore, Mortazavi (2011) noted that, on the surface, the Healthy, Hunger-Free Kids Act of 2010, which, as mentioned, applies to school food service subsidized by the federal government (i.e., the federal NSLP and SBP) as well as competitive food offerings in schools, “appears to make a significant shift away from the food paradigm of the past” (p. 1699). Yet upon closer scrutiny “it fails to unwind the tangled connections between domestic eating habits and longstanding farm subsidies” (Mortazavi, 2011, p. 1699). Mortazavi (2011) explained that the Farm Bill, which dates back to 1949,

creates incentives for farmers to grow more of certain products, and...prioritizes products that can either be used as animal feed or processed and stored such as corn, soy, and wheat. This policy renders subsidized products inexpensive and abundant, and other foods, such as fresh fruits and vegetables, costly in comparison. (p. 1711)

An inference that may be drawn from this legal analysis is that farm subsidies have contributed substantially to the prioritization of certain processed foods being mass produced, and in turn foods that are subsidized are sold to schools, produced in school meals, and consumed by students (Mortazavi, 2011). As Mortazavi (2011) clarified, “The Farm Bill encourages schools to overprivilege commodity crops relative to ‘specialty crops’ as a matter of economics” since school nutrition programs have limited budgets (p. 1712). Current Farm Bill subsidies “create additional surpluses of already abundant crops...[and] benefit large agribusinesses over local family-owned farms” (Mortazavi, 2011, p. 1711). Mortazavi (2011) specifically argued that Congress should “reallocate subsidies in the Farm Bill to increase production of fresh fruit and vegetables, thereby lowering their cost” to schools and

consumers (p. 1715). However, the federal government has not reallocated Farm Bill subsidies for the purpose of increasing the production of fresh fruit and vegetables in order to lower costs for schools.

Additional Danger of Consuming Mass–Produced Foods in School Lunches

Phthalates are chemical compounds which are commonly used in the processing of and plastic packaging for mass-produced foods, including those used in preparation of school lunches (Munoz et al., 2018). Phthalates are known to transfer from food packaging to food to ingestion (Munoz et al., 2018). Munoz et al. (2018) cited this scientific research about the health detriments of phthalates:

Evidence suggests that phthalates are endocrine disruptors, with effects on androgenic (Gray et al., 2006) and thyroidal activity (Huang et al., 2018; Huang et al., 2007). Exposure during childhood has been associated with abnormal pubertal development (Meeker and Ferguson, 2014; Wolff et al., 2014; Wen et al., 2017), asthma and allergy (Hoppin et al., 2013; Bertelsen et al., 2013), increased blood pressure (Trasande and Attina, 2015; Trasande et al., 2013), and perturbations in thyroid hormone levels (Weng et al., 2017). (p. 287)

Munoz et al. (2018) additionally studied the association between eating lunch prepared at U.S. schools and phthalate metabolites (substances made when the body breaks down food or chemicals ingested) present in children’s urine. They found that children ages 6-11 who reported “always eating school lunch” on the NHANES (National Health and Nutrition Examination Survey) demonstrated significantly elevated urinary concentrations of the following phthalate metabolites: Σ DEHP (the molar sum of di-(2-ethylhexyl) phthalates), MCOP (mono-(carboxy-octyl) phthalate), and MnBP (mono-*n*-butyl phthalate), compared to those who said they “never ate” school lunches (Munoz et al., 2018, p. 294). This finding suggests the potential need for school food service programs to investigate alternative

sources of ingredients and ways of providing food that include different kinds of packaging for school meals than those typically packaged in plastic containing phthalates, in order to reduce harmful exposure to students.

Improving School Food Service: “Climate-Friendly,” Plant-Based Options

Bean et al. (2019) proposed that “strategies to enhance the school cafeteria environment to encourage healthier meal selections within the NSLP have the potential to impact the overall dietary quality of the most vulnerable, high-risk youth” (p. 159). They also claimed that “school food service personnel are in a unique position to make cafeteria-based environmental efforts designed to enhance students’ dietary selection patterns” (Bean et al., 2019, p. 164).

Colombo et al. (2020) conducted a research study in Sweden to develop greenhouse gas emission-reduced, nutritionally sufficient, and affordable school lunch menus. Their findings demonstrated that “school meals can successfully be improved regarding health and environmental sustainability using linear optimization, without negative effects on food waste, consumption or cost” (Colombo et al., 2020, p. 1). Their multipronged approach (to address GHGE, nutrition, and affordability) “offers the necessary flexibility to tailor menus towards a host of priorities and could therefore be transferred to other types of meal services” (Colombo et al., 2020, p. 1). This research included specific analysis of dietary elements included in school food service programs. A result was the creation of a food list that is more “climate friendly” (“40% lower in greenhouse gas emissions”), meets nutrient recommendations for school meals, and is more cost-effective (“11% less compared to baseline”) (Colombo et al., 2020, p. 1).

It is perhaps well-known that the typical Nordic diet emphasizes whole grains, fruits, vegetables, seafood, and eggs, whereas the typical American diet tends to include more processed white flour, red meat, dairy, and dessert (Leech, 2019). In their research, Colombo et al. (2020) also explored potential risks of compromising nutritional adequacy when substituting animal products with plant-based foods in school meals. However, they found that a perceived loss of nutrients “such as iron from the reduction of red meat was compensated by nutrients from more climate friendly foods such as lentils which increased in amount to meet constraints on both reduced GHGE and nutritional adequacy” (Colombo et al., 2020, p. 11).

Colombo et al. (2020) showed that certain healthy, plant-based foods can replace less healthy foods in the composition of nutritious school meals. Additionally, Mozaffarian and Ludwig (2010) advocated focusing on “nutritious foods” as opposed to “nutrients” (p. 682). They pointed out a “discrepancy between theory and practice: the greater the focus on nutrients, the less healthful foods have become” (Mozaffarian & Ludwig, 2010, p. 682). They emphasize that as dietary guidelines may be updated over time by different national and international institutions, “nutrient targets should largely be replaced by food-based targets” (Mozaffarian & Ludwig, 2010, p. 682).

U.S. Nutritional Guidelines Continue to Favor Meat and Dairy

The current image representing nutritional guidelines in the U.S. is the *MyPlate* graphic, which includes grains, meat, dairy, and fruit and vegetables (U.S. Department of Agriculture, 2015). This pictorial is a more modern rendition of the “food pyramid” of the past; it indicates recommended nutritional categories that daily meals should consist of (U.S.

Department of Agriculture, 2015). The combined size of the sections in the current *MyPlate* graphic for grains, meat, and dairy exceeds that of fruit and vegetables combined (U.S. Department of Agriculture, 2015). Regarding the *MyPlate* portrayal of optimal daily food intake, Hall (2013) asserted, “Given what is commonly understood about nutrition, it would make sense that successive updates to the pictorial would emphasize plant-based foods over a heavily animal-based diet. This, however, has not been the case....” (p. 660). Hall (2013) maintained that the reason for the USDA not revising more substantially the nutritional contents or proportions of types of food represented by the *MyPlate* graphic is due to “tensions between nutrition advocates and the agribusiness bottom line” (p. 660). Nestle (2013) revealed that for decades the U.S. food industry has used its considerable lobbying power to influence the nutritional suggestions in federal food guidelines. For instance, in 1991, the USDA withdrew from publication the *Food Guide Pyramid* in response to protests launched by meat and dairy producers (Nestle, 2013). Nestle also presented the fact that “food companies lobby government agencies, forge alliances with health professionals, market directly to children, sell junk food as health food, and get laws passed that favor corporate health over human health” (p. xiv).

The Cafeteria Environment: Importance of Time, Lines, Ambiance, and Choices

Time is a variable that impacts students’ food choices in school food service environments (Sharma et al., 2015). Sharma et al. (2015) studied the time available for school lunches and whether the amount of time affected secondary students’ food choice preferences. Students interviewed said that they “rarely had enough time to eat school lunch and that the lunch line waiting time strongly or very strongly influenced their food choices”

(Sharma et al., 2015, p. 3191). Poppendieck (2010) similarly pointed out in her extensive research how cafeteria conditions can deter students, including those who are eligible for free- and reduced-price meals, from participating in school lunch programs, citing cafeteria location (e.g., some are in basements with no natural light), odor, lack of cleanliness, long lines, and noisy, crowded conditions as having a bearing on whether students choose to participate.

In the study by Sharma et al. (2015), involving cost-benefit analysis, students who were cognizant of the limited lunch time available, as well as how long it took to get through the line “were more likely to prefer limited food choices in several categories of the school lunch menu” (p. 3210). This investigative research concerning the economics of school food service suggests that fewer choices in the different food categories could potentially improve not only the efficiency of the lunch lines but also the nutritive quality of the food selections students make, since less healthy options can be eliminated (Sharma et al., 2015). Crawford et al. (2011) likewise agreed in their analysis with reducing the number of food choices in schools to maximize prospects for healthy consumption: “school authorities are responsible for offering foods from which the child can select but limiting choices to those that provide nutritional benefit rather than harm” (p. 3).

Key Staffing Components: Enhancing Roles, Perceptions, Training, and Treatment

The study conducted in Sweden by Colombo et al. (2020) revealed a key staffing role to better ensure the consistent provision of nutritious school food: “The approach used in this study required the help of an experienced and creative meal planner who had the skills to design new menus from the optimized food list” (p. 11). The acknowledgement of the value

of this personnel role sheds light on the merit of school food service programs having the involvement of skillful meal planners who possess the relevant knowledge and training to design and implement nutritious, “climate friendly” menus for students (Colombo et al., 2020, p. 11).

In their qualitative research conducted in the United States assessing staff perceptions of their own food service programs, Nollen et al. (2007) noted that “principals and food service personnel believed that obesity was a problem in general; however, they did not feel it was a problem at their school, despite nearly one-fourth of students having a BMI \geq 85th percentile” (p. 8). Nollen et al. (2007) also found that “while some [food service personnel] acknowledged that improvements to the food environment could be made, the majority expressed satisfaction with their food service program and saw little need or room for change” (p. 9). Nollen et al. concluded, “Before modifications to the school food environment are successfully implemented, it may first be necessary to educate food service personnel on the relationship between competitive food availability and the nutritional quality of student’s [sic] food choices” (p. 9). Their research signals the importance of food service staff receiving appropriate training so that they are mindful of the kinds of foods they prepare and offer for students to choose from and consume.

When presented with a variety of options for food in schools, including competitive food options, individual students have the choice to select different foods of varied nutritional content. As Bean et al., 2019, found: “...the nutritional content of foods and beverages selected (and consumed) by students can vary” (p. 159). One such example is the choice between juice and water. “Juice is considered a fruit in the NSLP, although pediatricians and

public health experts discourage juice consumption in children, as it is correlated with overweight and obesity in this population” (Bean et al., 2019, p. 165). The sugar intake of young people “from both foods and beverages far exceeds recommendations,” and “most children do not consume the recommended number of fruits and vegetables” in their diets (Bean et al., 2019, p. 158).

School food service personnel, as mentioned, arguably have the potential to make a significant impact on the options students have in their respective food service programs (Bean et al., 2019). Gabrielyan et al. (2017) studied characteristics of innovative school food service directors, and their “results indicate that career building activities, such as trainings (seminars, webinars, online training, lecture/talk, or other) and participation in professional organizations, generally promote and actuate positive changes in school lunchrooms” (p. 78). As this research implicates, it would be practical for school districts to provide appropriate, ongoing professional training and support for school food service personnel to be able to consistently provide nutritious foods to students in school cafeterias.

Additionally, Poppendieck (2010) cited “learning opportunities being missed” when it comes to school systems’ omission in treating cafeteria workers as respectable, talented, professional employees (p. 277). Some schools and districts, due to their not prioritizing the importance of providing excellent food service and not prioritizing the role of food service workers, have been unable for years to promote or help students see food service workers as other than negative, popular culture stereotypes which paint unflattering and derogatory pictures of “grumpy cafeteria ladies” (Poppendieck, 2010; Weaver-Hightower, 2011). With all this said, there is great potential for schools to elevate the stature of the role of food

service workers and thereby help to model and integrate the value and importance of providing and consuming nutritious food in children's education.

Motivation Toward Food Choices: Familial and Sociocultural Influences

Children learn their eating habits through “direct experiences with food and by observing the eating behaviors of others” (Birch et al., 2007, p. 1). Research has shown that adolescents who share meals with their families tend to experience more positive health outcomes, including diets of higher nutritional quality (Larson et al., 2013). Russell et al. (2014) asserted that children develop food preferences largely through repeated exposure to certain foods and that parents are an important, if not the most important “environmental variable affecting the development of children's food preferences due to their role in determining which foods children are exposed to” (p. 1019). Russell et al. (2014) found that parents who were more motivated by health or ethical concerns had children with healthier patterns of food preferences; parents who were motivated by what their children desired had children with unhealthier patterns of food choices (p. 1023). However, Birch et al. (2007) noted how an authoritarian parenting style may negatively impact children's food preferences, even when a parent emphasizes healthy eating. When parents place high demands on children regarding their eating, yet offer low responsiveness to their emotional needs, they risk promoting overeating, becoming overweight, food rejection, and picky eating in children (Birch et al., 2007).

As studied by van der Velde et al. (2019), extended family and friends can significantly influence children's eating and food purchasing behaviors: “Eating with friends was generally more associated with having a nice time than with healthy eating. ...Eating at

family gatherings mostly negatively influenced dietary intake, as family gatherings were often accompanied by unhealthy eating, overeating and sometimes setting bad examples” (van der Velde et al., 2019, pp. 6-7). This conclusion from van der Velde et al. (2019) came from conducting a qualitative study based on a sample of 242 participants in disadvantaged neighborhoods in the Netherlands. The researchers coded interviews into themes and examined the sociocultural context involving adult role models eating meals together with children, leading to the conclusion that eating with family members and friends influences children’s food intake tendencies and, in large social gatherings, actually includes the modeling of unhealthy eating habits (van der Velde et al., 2019).

It is important to keep in mind the familial and socio-cultural influences on children’s eating habits noted in the aforementioned research as discrepancies currently exist between the recommended intake and children’s actual intake of “fruits and vegetables, water, sugar-sweetened beverages, food variety and non-core (i.e., energy-dense, nutritionally poor) foods” (Russell et al., 2014, p. 1018). Healthy eating patterns, therefore, “need to be taught and reinforced in family, school and community environments throughout childhood and adolescence” (Birch et al., 2007, p. 54).

Motivation Toward Food Choices: Influence of Food and Beverage Advertisements

Kelly et al. (2010) conducted an international study about food advertising on television and its effects on children. This collaborative study involved 13 research groups in Australia, Asia, Western Europe, North America, and South America. In total, they found that food advertisements consisted of 11 to 29 percent of television advertisements, and noncore foods (i.e., foods that are high in undesirable nutrients, such as fast-food restaurant meals and

confectionary foods) were featured in 53 to 87 percent of food advertisements. These noncore food advertisements were more likely to be featured during children's peak television viewing times—that is, between three and nine food advertisements per hour per channel (Kelly et al., 2010). Kelly et al. (2010) concluded that “considerable scientific evidence establishes a link between unhealthy food marketing and children's food choices, purchases, and consumption” (p. 1735). They advocated for the prohibition of advertising unhealthy food when a significant percentage of children watch television programming.

Chaffee et al. (2021) stated that food companies in the U.S. spend \$1.8 million dollars each year to market mostly unhealthy foods and beverages to children and adolescents. They conducted a cross-sectional health behavior survey in seven rural schools in California between 2019 and 2020 involving 815 student participants in grades 9 and 10. Their research involved participants viewing six different beverage advertisement images with telecommunication product advertisements being used as an internal control. Student receptivity to the products was determined as a result of their “recognizing, liking, and identifying the displayed brand” (Chaffee et al., 2021, p. 525). In addition, students' weekly consumption of sugar-sweetened beverages was measured through a quantitative food frequency questionnaire and individual ratings of perceived harm caused by sugar-sweetened beverages according to a Likert scale (e.g., ranging from “no harm” to “a lot” of harm). The results of this study concluded that beverage advertisement receptivity in adolescents was associated with greater sugar-sweetened beverage consumption and less perceived harm of sugar-sweetened beverages (Chaffee et al., 2021). Furthermore, an implication drawn from this study was that certain policy strategies such as marketing restrictions or counter-marking

campaigns could potentially reduce sugar-sweetened beverage consumption and improve overall health in youth (Chaffee et al., 2021).

In sum, research conducted on the topic of food and beverage advertisements targeted to young people implicates in general that children and adolescents are influenced by the kinds of food and beverage advertisements they are exposed to, and that there is purposeful targeting of marketing to children of unhealthy food and drinks. As stated, research shows there is evidence of an association between the marketing of unhealthy food and unhealthy beverages and the consumption of unhealthy food and beverages by children and adolescents (Chaffee et al., 2021; Kelly et al., 2010).

Motivation Toward Healthy Food Choices: Integrating Education in TK-12 Schools

School environments are potentially an optimal place for students to receive education about healthy eating and cooking that could influence their eating patterns positively (McVety, 2009). However, Hegarty (2004) emphasized the lack of prioritization of scholarly study of culinary arts and nutrition education: “Culinary arts and gastronomy education have received little serious scholarly attention to date” (p. 1, as cited in McVety, 2009). Also, an absence exists in having national content and performance standards for culinary arts or statements of the competencies needed to teach culinary arts in high schools (McVety, 2009).

Within the hierarchy of education, career and technical education (CTE) and vocational education often face lesser priority than or limited esteem compared to other traditional academic content areas in public high schools (Bender, 2002). Secondary schools, often due to financial constraints, tend to reduce or eliminate career and technical education in their programming (Erickson, 2008). However, there is potential for career and technical

education devoted to areas such as culinary arts and/or agroecology to positively enhance students' understanding and awareness of the importance of good nutrition and the systems needed to support good nutrition. Research supports this notion.

Francis et al. (2011) studied seven different cases in Nordic countries in Europe and Midwestern states in the U.S. to examine how different educators integrate teaching the ecology of food systems along with an action-learning component. They advocated that the interdisciplinary field of agroecology has implications for lasting learning, especially when teachers and students collaborate to use a whole-system approach involving life-cycle analysis (which takes into account environmental effects) and a consideration of long-term impacts on sustainable farming and food systems (Francis et al., 2011).

Carlo Petrini, who is the founder of the international “Slow Food” movement, which began in Italy in the mid-1980s, advocated that there is a need for the learning process about gastronomic science to include an “exercise of the senses” and that it should be taught to children:

Telling children where the raw material comes from, letting them touch it, handle it, cook it, and eat it themselves, is the most effective method of teaching them to recognize it, so that they can appreciate the products of their own area and the recipes of their own tradition...[it] is the way to teach them about the nutritional culture to which they belong and to equip them with the tools they will need to choose, discriminate, buy, and evaluate different kinds of food. (Petrini, 2005, p. 154)

Petrini's vision for actively teaching young people about healthy ingredients, which includes imparting an understanding of the systems involved in producing, purchasing, and preparing food, is perhaps more relevant now than ever, given the seriousness of health

issues children face in our country and the apparent crisis we face in needing to address these issues head on.

Signature Educational Program Potentially Worthy of Replicating

One signature nutrition education project implemented in U.S. public schools is the Edible Schoolyard Project, which was inspired by Chef Alice Waters in Berkeley, California in 1997 and began when a Berkeley newspaper interviewed her about food culture (Drimmer, 2018). Waters was quoted as complaining about the food service program at nearby Martin Luther King, Jr. Middle School in Berkeley (Drimmer, 2018). She said that after that article was published, the principal, having read it, called her, and asked for her help. Waters then partnered with the school to support the development of the acre of empty land that was part of the school's grounds. The bare grounds were transformed into a garden that served as a living classroom. As Waters stated in an interview, students then were able to learn at school "about the biology of plants by actually growing them" and ate "the foods of other countries while they're learning about the history of those places" (Drimmer, 2018, p. 19). Waters emphasized through her work with the Edible Schoolyard Project the importance of students learning many important environmental science lessons through growing and preparing their own food, such as climate change impacts (e.g., issues of water scarcity and drought) as well as the chemistry of composting (i.e., breaking down plant materials into fertilizer to help other plants grow) (Drimmer, 2018). Since its inception in the late 1990s, the Edible Schoolyard concept has expanded to many other schools in different parts of the country and globe. According to an Edible Schoolyard Project Annual Report from 2018, the organization

has expanded to being “an active network of close to 6,000 like-minded kitchen and garden programs around the world.”

Knapp et al. (2019) studied participant perceptions of school-based kitchen garden programs implemented through “Edible Schoolyard New Orleans” in four middle schools attended by predominantly low-income, African-American students. They collected qualitative data through ten semi-structured, 45-minute focus group sessions. Their results produced four primary themes suggesting the importance of this type of active teaching and learning: 1) the development of important life skills (e.g., growing produce, shopping decisions, cooking, self-sufficiency); 2) an increased understanding of the link between diet and health; 3) a positive impact on transferring skills to the home environment; and 4) positive social benefits gained by close interaction with peers and the teacher through experiential, participatory learning (Knapp et al., 2019). While the data for this study was anecdotal, reflecting comments made in focus groups by a select number of parents, students, and teachers from just four middle schools, it nonetheless is important research to spotlight since the benefits as described about the impacts of this kind of active learning, in particular for minoritized students, regarding growing, preparing, and consuming food, are tangible and suggest implications for affecting behavior positively for a longer term.

Theoretical Concepts and Principles

There are theoretical concepts and underlying principles informing this study to potentially frame how to address the challenges that our nation’s youth face with regard to receiving adequate nutrition on a daily basis in schools they attend. Certain principles spotlight an appropriate philosophical rationale and a direction for impacting practice, i.e.,

making specific improvements in school practices to address inequities students experience in school nutrition programs in the United States. These concepts and principles include the universal rights of children, a shared social concept of the common good, “ecocritical” pedagogy, a networked model of ecological systems theory, pedagogy regarding the creation of inclusive school spaces, and organizational theory related to building social relationships.

Universal Rights to Health, Education, Welfare, and Nutrition

First, all children have rights to health, education, and welfare, as acknowledged and articulated by the United Nations. Regardless of family income, every child has a “right...to a standard of living adequate for [a] child’s physical, mental, spiritual, moral and social development” (United Nations Convention on the Rights of the Child, 1989, art. 27, para. 2). Also, all children deserve “the provision of adequate nutritious foods” so they can benefit from dietary advantages that allow for “the enjoyment of the highest attainable standard of health”—and it matters that they “have access to education” that supports this objective (United Nations Convention on the Rights of the Child, 1989, art. 24, para. 1-2).

Concept of the Common Good

The concept of the common good is known to be rooted in moral and political philosophy and has been expressed by classical thinkers over time. Smith (1999) stated that while the term has been used in several different ways, it is generally acknowledged to have Aristotelian roots and refers to a universal good that is appropriate for and attainable only by the community and that is individually shared by its members.

Applying this concept from a contemporary economic and social perspective, as it relates to school food service, Hall (2013) investigated corporate control of food in relation to low-income and culturally-minoritized schoolchildren and articulated that

all—including those with social and political power—would...truly benefit by channeling their energy into changing the system for everyone. This would involve dislodging the wedges between communities and nations and focusing on commonality. It would also involve a commitment to the concept of a public good. (p. 674)

Crawford et al. (2011) likewise suggested that “the concept of the common good justifies actions that may appear to conflict with freedom of choice of children, parents, and school staff, or with the interests of food and beverage companies” (p. 1). They added, “Schools provide an opportunity to address social inequities so that children from disadvantaged families have an equal opportunity to become productive citizens” (Crawford et al., 2011, p. 4). I concur with the sentiments made by Crawford and Hall as they reinforce the notion of a common, universal good which classical philosophers advocated for centuries ago and is likewise incredibly relevant today. We are living at a time when the socioeconomic divide between human beings on this planet is greater than we have ever seen, with environmental and dietary harms to humans also being great, and therefore promoting a greater good by trying to address gross disparities in children’s health and well-being through the education and services provided in TK-12 schools is arguably more important than ever.

Ecocritical Pedagogy as a Theoretical Framework

A potential guiding theoretical framework to use in schools is an “ecocritical” approach when seeking to address health problems students face due to malnutrition (Lupinacci et al., 2019). Lupinacci et al. (2019) advocated for leading school improvement efforts using

“ecocritical pedagogy” as a foundational guidepost. Ecocritical pedagogy entails that educators and educational leaders take responsibility for critically addressing and rethinking current dominant conceptual frameworks that constitute schools and communities (Lupinacci et al., 2019). One aspect of ecocritical pedagogy is to “examine and identify how to teach or share skills and habits...which support socially just and environmentally sustainable communities” (Lupinacci et al., 2019, p. 2). It is arguably logical to apply an ecocritical framework—which challenges a dominant U.S. cultural paradigm of serving mass-produced, processed, unhealthy food to citizens—to the study and implementation of food service programs and nutrition-related curriculum and courses taught to students in schools.

Networked Model of Ecological Systems Theory

Ecological Systems Theory is a relevant lens through which to approach research about school nutrition programs because it is multidimensional and involves the interplay of complex social dynamics. Ecological Systems Theory (EST) was developed by Bronfenbrenner in 1977 and “is among the most widely adopted theoretical frameworks for studying individuals in ecological contexts” (J. W. Neal & Z. P. Neal, 2013, p. 722). EST emphasizes the importance of interdependent and multilevel systems on human development. Bronfenbrenner “described ecological systems at different levels as *nested* within one another” and viewed each system as emanating from a setting in which people interact, such as a school (J. W. Neal & Z. P. Neal, 2013, p. 723).

A classic, visual representation of Bronfenbrenner’s (1979) ecological systems theoretical model involves a set of concentric circles with individuals (e.g., students and staff at a school setting) being located in the center or “microsystem” (as cited in J. W. Neal & Z. P. Neal,

2013). J. W. Neal and Z. P. Neal (2013) explained that the microsystem is nested within a larger “mesosystem,” which involves interactions between two or more microsystems (e.g., interrelations between focal individuals at two or more settings). The third circle is the “exosystem,” which relates to two or more settings or experiences, that do not directly involve developing focal persons as active participants yet still impact these persons in the center (e.g., district policies, curriculum and instruction decisions, etc.). The fourth circle is the “macrosystem,” which entails social patterns and dimensions of influence that are further removed from the individual but still influence individual experiences, behaviors, and opportunities. The macrosystem relates to public policies, social norms, and cultural patterns. The most outward circle in Bronfenbrenner’s (1979) model is the “chronosystem,” which involves an historical effect on the biological development of individuals, e.g., examining human development over time with regard to conditions contributing to the acquisition of diseases related to malnutrition.

While EST can help researchers better identify impacts that a single change may impose on other circles, J. W. Neal and Z. P. Neal (2013) argued for a conceptualization of Bronfenbrenner’s concentric circles within ecological systems as *networked* rather than nested:

The ecological environment is an overlapping arrangement of structures, each directly or indirectly connected to the others by the direct and indirect social interactions of their participants...it is individuals’ patterns of social interactions with another that determine how systems relate to one another. (J. W. Neal & Z. P. Neal, 2013, p. 728)

J. W. Neal and Z. P. Neal (2013) stated that a networked approach to ecological systems theory “shifts the focus of attention away from *where* students interact and toward *how* and

with *whom* they interact” and “allows researchers to examine more complex relationships among ecological systems, including a multiplicity of different microsystems that...partially overlap” (p. 733). Using J. W. Neal and Z. P. Neal’s (2013) networked model of ecological systems as a framework for this study, individual students’ health can be viewed as being influenced in any given school setting as a result of multiple overlapping systems interacting with the individual at once, such as school staff interacting with students on a day to day basis, the quality of food service provided to students, the type of education students receive, school interactions with other outside entities or community partners, program policies and staffing decisions made by a school district, as well as public policies and prevailing social norms that affect staff and students.

Creating Inclusive School Spaces

In his research about school leadership, Khalifa (2019) focused “on the school space, and how school leaders must embrace inclusionary school practice” (p. 56). Khalifa (2019) argued that schools intrinsically reproduce systems of privilege or oppression “without intentional effort or thought” (p. 56). “Research time and again has demonstrated that schools are often not inclusive of minoritized students, and thus they do not feel a sense of belonging in school” (Khalifa, 2019, p. 56). Even spaces such as school cafeterias have to be examined critically and addressed by school leaders as is necessary in order to make sure that environmentally, spatially, aesthetically, culturally, and symbolically, they are designed to be inclusive, welcoming spaces for all students on campus. All students deserve to feel valued, affirmed, and appreciated in school, especially in common spaces such as school cafeterias. Research from New Zealand shows that schools that promote a “shared lunch” concept,

involving an inclusionary, participative style of sharing meals, help to foster positive social interaction and in building greater school connectedness (Neely et al., 2014, p. 566). The research from both Khalifa (2019) and Neely et al. (2014) can be drawn from in viewing the cafeteria as one of the critically important spaces on school campuses to prioritize with regard to ensuring inclusivity (e.g., in terms of design and ambiance, as well as with regard to healthy practices occurring in that space, the quality of interactions between human beings in that space, etc.), especially since these spaces have potential to serve entire student populations in schools.

Organizational Theory Related to Social Relationships in Schools

Zisman and Wilson (1992) explored racial integration in adolescent social groups in schools. They applied Selznick's (1943) early organizational theory to the school model, explaining how students generally have "two coexisting strands of relationships" (Zisman & Wilson, 1992, p. 203). One consists of "the voluntary social relationships that either have been formed in pre-existing primary-group relationships in the community, or that grow out of secondary-group social contacts within the institution" (Zisman & Wilson, 1992, p. 203). The second type of relationship emerges from the "'nooks and crannies' of the school in which students seek personal, voluntary interaction with one another as refuge from the demands of the official organization" (Zisman & Wilson, 1992, p. 203).

Zisman and Wilson (1992) described how "loose-knit" student groups are ones that offer social permeability and form in places like school cafeterias "with a lot of comings and goings of students" (p. 205). They noted that the "apparent fluidity of these groups is caused by the movements of table-hoppers, since they can gain entrance to the conversations at more

than one table during a lunch period or over a number of lunch periods” (Zisman & Wilson, 1992, p. 205). This research is based on early organizational theory, while several decades old, still has significance. It seems that a school that cares about students’ well-being would want to create a cafeteria environment that would allow opportunities for permeable social groups to form, rather than promote cliques, to help create a more inclusive campus culture. Creating a greater sense of well-being through a school cafeteria environment that is conducive to social permeability could potentially have a positive impact on school engagement and academic performance.

Problems of Practice as Presented in the Review of Scholarly Literature

The scholarly literature that was reviewed for this qualitative research study indicates that a number of problems of practice currently exist with regard to TK-12 school food service implementation as well as the types of education that have potential to heighten students’ consciousness and habits about growing, preparing, and eating healthy foods. The following is a summary of critical problems of practice that the literature review for this study revealed. These identified problems of practice will also be referred to again in Chapter 5, which will discuss the implications of the research findings obtained through this study.

- Even though the Healthy, Hunger-Free Kids Act of 2010 was intended to provide nutrition regulations for all food served in schools, research shows that variance exists in the nutritional quality of school meals students are offered and consume (Joyce et al., 2018; Poppendieck, 2010). This variance in implementation across schools in the U.S. is a problem of practice in need of being addressed.

- In one recent study, the average Health Eating Index (HEI) scores of “competitive entrées” in schools were found to be nearly 30-points lower than governmentally reimbursable school lunches, suggesting that competitive foods might best be eliminated since they are less healthy, or at the very least should be restricted if the health value is low (Cohen et al., 2020).
- Furthermore, schools that sell competitive foods create potential discriminatory and stigmatizing effects on students who may not be able to purchase those foods due to cost, revealing another reason to eliminate or restrict competitive foods (Bhatia et al., 2011).
- The USDA’s recommended food guidelines are strongly influenced by the corporate food industry and include a large fraction of meat and dairy (Nestle, 2013). Many foods that are served in schools and that meet federal guidelines are highly processed. However, research suggests including a greater proportion of “climate-friendly,” plant-based foods (e.g., fresh fruits and vegetables) in school meals (Colombo et al., 2020, p. 11; Hall, 2013; Mortazavi, 2011).
- There is a lack of prioritization by local, state, and national educational leaders of the teaching of nutrition, culinary arts, and agroecology in public schools. Content areas and hands-on learning related to nutrition and gastronomy provide instruction about healthy nutritional habits that have potential to be life-long as well as “opportunities for the comprehensive engagement of students that few other subjects have to offer” (McVety, 2009, p. 90).

Summary

Research shows that millions of students in the U.S. eat meals at schools they attend, and millions of students also experience compromising health conditions due to poor nutrition. Research also reveals that despite a number of current problems of practice related to nutrition services and nutrition-related education in public schools, certain critical public health and environmental objectives, such as promoting student health and sustainable food systems, can be better supported through more thoughtfully-planned school food service implementation efforts (Bean et al., 2019; Colombo et al., 2020; Crawford et al., 2011). Additionally, if more schools and districts prioritized education about nutrition, agriculture, and health, and if students received specific, nutrition-related education in disciplines such as the culinary arts, environmental science, and agroecology (i.e., farming that centers on food production which makes appropriate use of natural resources while not damaging them), they potentially might understand how studying a relevant and useful nutrition-related curriculum with a focus on environmental sustainability would have intrinsic value in positively impacting human behavior (AgroEcology Fund, 2020; Hegarty, 2004). The next chapter will impart information about the research methodology that was used to explore and study these areas in greater depth.

Chapter 3: Methodology

Introduction

A main purpose of this descriptive study is to expose the need to prioritize, design, and implement high-quality nutrition programs and nutrition-related education in TK-12 public schools, in order to increase and deepen students' understanding about sustainable food systems and promote healthy eating habits and well-being. To conduct this study, documentary film was used as a method of exploratory, qualitative research. The film created for this study adds to existing, traditional forms of research conducted regarding health harms facing youth in the U.S. due to poor nutrition, as well as existing research about school nutrition programs and nutrition-related types of education. It showcases current practices happening in a few select schools so that viewers may gain insights that can potentially lead to positive transformation of practices happening in other schools.

The process of creating the documentary film for this study involved identifying schools with programming relevant to the focus of this study and asking specific, yet open-ended, interview questions of different school stakeholders so that the subjects (e.g., students and staff) could describe aspects of the programming that their school offers and/or that they are receiving. Asking open-ended questions was done with the intention of documenting individuals' authentic voices about their experiences with school nutrition services and educational programming related to sustainable food systems. The footage from the interviews was analyzed and sorted according to specific themes that were identified through the analytical process involved in the creation of the film. Selected excerpts of interviews have been woven into the film, along with footage of actual nutrition services and related

content area instruction happening in select California schools in order to elucidate practices occurring in sample California public schools to learn from and potentially cross-apply to other schools.

The theoretical frameworks and principles undergirding this study as described in Chapters 1 and 2 served as an integrated lens through which related themes from the video recordings were identified, analyzed, and organized. Those theoretical frameworks and principles included the following:

1. Students' Universal Rights to Health, Education, Welfare, and Nutrition (United Nations Convention on the Rights of the Child, 1989, art. 27, para. 2);
2. The Concept of the Common Good (Crawford et al., 2011; Hall, 2013; Smith, 1999);
3. Ecocritical Pedagogy (Lupinacci et al., 2019);
4. Ecological Systems Theory (Bronfenbrenner, 1979; J. W. Neal & Z. P. Neal, 2013);
5. Inclusive School Spaces (Khalifa, 2019; Neely, 2014);
6. Organizational Theory Related to Social Relationships in Schools (Selznick, 1943; Zisman & Wilson, 1992)

All of these frameworks have relevance to the personal narratives and observations included in the documentary film that was created for this research study.

Research Questions

The initial research that I, as principal investigator, conducted about school nutrition programs and nutrition-related education spanned a number of fields (including health, nutrition, medicine, science, and education) and led me to investigate the following research questions:

Overarching Question #1: What are impactful ways to address significant health problems facing a large number of children and adolescents through nutrition programs and related education in TK-12 public schools?

Research Question #2: Which practices and procedures are currently being implemented in successful school food service programs to positively impact students' health and well-being?

Research Question #3: Which courses of study and/or instructional units are currently being taught in schools and how, so that they positively impact students' understanding of nutrition and influence healthy eating habits?

Research Design: An Overview

In pursuit of finding answers to the aforementioned questions, I conducted descriptive, exploratory, qualitative research through the creation of a documentary film that examines how school nutrition programs and nutrition-related education could be optimally designed and implemented using ecocritical and environmentally-sustainable approaches, in light of the theoretical frameworks presented in the literature review for this dissertation and in the introduction of this chapter. For this particular research study, I visited some model nutrition and nutrition-related educational programs in TK-12 public schools in an attempt to study how they are able to impact students' awareness, health, social well-being, eating habits, and/or the environment, through thoughtfully-designed food service programs, intentional components within the cafeteria environment itself, and related curricular and instructional offerings. Successful school programs and courses with positive impacts on students' healthy nutritional development and awareness (albeit not without challenges faced by schools in the

implementation process) have been spotlighted to point out practical directions for future school improvements that potentially can be made on a more widespread scale.

Documentary Film as a Research Method

This exploratory, qualitative research study utilized documentary film as a method of collecting and analyzing pertinent descriptive research data to illuminate examples of possible means to address health injustices facing students through school nutrition programs and nutrition-related education in TK-12 schools. Fitzgerald and Lowe (2020) articulated the position of “documentary filmmaking as a legitimate approach to informing the collection and analysis of research data rather than simply being a research output relying on audio-visual methods” (p. 3). Qualitative research, such as that conducted using the documentary method, involves experiential understanding; the researcher’s role in conducting qualitative research is more personal than impersonal (Stake, 2010). More specifically, the process to create a documentary film involves a researcher making personal observations, collecting interviews, and analyzing narratives (i.e., the research artifacts), which are important aspects of conducting qualitative research (Stake, 2010). Regarding the interviewing component, Riessman (2008) stated, “The goal in narrative interviewing is to generate detailed accounts rather than brief answers or general statements” (p. 23). While narratives collected through interviews can “come in many forms and sizes, ranging from brief, tightly bounded stories...to long narratives,” nonetheless the researcher, in the process of conducting interviews, creates possibilities for extended narration which “requires investigators to give up control” and “encourages greater equality (and uncertainty) in the conversation” (Riessman, 2008, p. 23-24).

There are four primary reasons behind my decision, as the principal investigator, to use documentary filmmaking as a method for this research study. First, documentary films have been recognized as a valid means of research to bring to the forefront critical issues of social justice in education and can inform viewers about changes that need to take place (Friend & Caruthers, 2016; Gubrium & Harper, 2013). Friend and Caruthers (2016) asserted that adopting documentary film as a research method “creates opportunities to share stories from schools that illuminate diverse perspectives of voice, which can be used to transform school communities” (p. 33). Recorded evidence, provided in this case through documenting experiences on film of different education and service elements as well as different stakeholder experiences, serves to communicate model program practices and innovations in the preparation of educators and educational leaders (Friend & Militello, 2015). Second, the process of creating a documentary film provides participants with an opportunity to speak directly for themselves as they share personal experiences and ideas (Kemmitt, 2007). For this research study, interviewing individual stakeholders (e.g., students, parents, staff, and school partners) and recording interviews at different educational settings elicited authentic input from sources directly involved with the issues at hand in places where actual lived experiences take place. Third, utilizing documentary film as a research format allows for greater transparency of the research process, due to authentic visual images and voices recorded in real time (Weber, 2008). In settings of study, the documentary format communicates visually a narrative of “what happened rather than an imaginative interpretation of what might have happened” (Nichols, 2010, p.11). Fourth, a documentary film approach ultimately has potential to affect a wider, more diverse audience than writing a

dissertation alone might be able to. Hopefully, this documentary film will be seen by and resonate with a broad audience, including academic researchers, educational decision-makers, and a variety of school stakeholders such as students, parents, school staff, and interested community members (Gubrium & Harper, 2013). An intention is to utilize broadcasting resources and different viewing avenues, including, but not limited to, educational websites, social media outlets, public cable television stations, and/or potentially other educational forums through which to disseminate the completed film (Friend & Militello, 2015).

This exploratory, qualitative research study aims to show viewers specific challenges as well as practical, successful steps taken in a few California schools regarding nutrition services and nutrition-related education programs that impact students' learning and lives. An intention is to identify and emphasize what has actually taken place in schools that positively impacts students' experiences, rather than hypothesize or speculate what could or might happen, similar to how inferences might be more likely to be drawn from more traditional forms of research (Nichols, 2010). The film approach seeks to reveal true experiences happening in schools in order to learn directly from them.

Documentary Film: Qualitative and Technical Research Components

Conducting an exploratory, qualitative investigation using documentary film as a research method incorporates some traditional aspects of qualitative research, i.e., collecting and analyzing data, yet does so creatively and technically (Friend & Caruthers, 2016). The documentary research conducted for this film involved the following critical components of a qualitative research investigation: 1) site and setting selection, i.e., which schools to film,

where on campus to film, as well as where to position the camera and microphone at each location; 2) participant selection, i.e., whom to film as well as the process of obtaining consent from each participant following university-approved research consent procedures; 3) data collection, i.e., designing questions for interviews and steps for observations to be made on location during the filming process, identifying the procedures for recording audio and video footage for the interviews and for the related surroundings in schools, using appropriate camera and sound equipment for collecting footage, and storing the actual video footage; 4) data analysis, i.e., analysis involved in reviewing, selecting, and sequencing appropriate audio/visual clips during the editing process for inclusion in the film; 5) findings and recommendations, i.e., making meaning through synthesizing main points from the recordings as a result of sequencing selected clips in a logical order, deciding to incorporate relevant audio/visual elements, and drawing conclusions from the storyline told through the film; and finally, 6) sharing results, i.e., disseminating the results through the creation and distribution of the documentary film (Friend & Caruthers, 2016).

Initial Procedures

An important initial aspect of the exploratory research process is the need to build trust with school leaders, staff, and students. Fitzgerald and Lowe (2020) emphasized the value of building trust with interviewees in the documentary research process: “When trust and rapport are truly established between the filmmaker and the subject, the result can be one that is authentic, genuine and truly enlightening” (p. 6). Prior to visiting each school site and prior to conducting interviews, I created a recruitment flyer to distribute to potential interviewees to explain the scope and purpose of the project prior to gaining permission to film at the

school sites (Appendix A). I requested an initial meeting in order to gain approval to be able to film on site and to distribute the consent/assent forms to students and staff in advance (Appendices B and C). Students under 18 were given a parent permission form as well (Appendix D). I spent time at each site introducing myself in advance of filming, to help participants feel comfortable and at ease about the interviewing and filming process and about me conducting these steps as a researcher. My aim during site visits was to be an observer and documenter who does not interfere with the teaching and services going on in schools. Participation in interviews was voluntary (and for students under 18, participation was also voluntary and with parental consent). My intention as primary investigator was to be careful not to harm anyone and to document voluntary input through this study. My goal was to record actual practices and authentic narratives about experiences taking place in schools to be able to share findings outward with other school leaders, educators, researchers, and interested stakeholders.

Setting: Site Selection

The environments in which I conducted this study included TK-12 school campuses, kitchens/cafeterias, classrooms, and garden classrooms. The schools that were chosen for this study represent a demographically diverse range of students, administrators, and staff. This study was conducted in three different locations, two high schools and one elementary school, from three different public school districts in California, in order to document findings that could potentially be cross applied to different school settings. This study included three participating institutions:

(1) *Los Gatos High School*: This California public high school serving over 2100 students is located in a suburb at the southern tip of Santa Clara County. Los Gatos High School's cafeteria services program has evolved over recent years from being a heat-and-serve to a cook-from-scratch kitchen. Los Gatos High School also has a long-standing agroecology program that involves students learning experientially about climate change, soil science, and agriculture in an outdoor garden setting on campus. Agroecology is an elective science course at LGHS. In other words, students choose the course; it is not mandatory to take. It is open to all students in grades 10 through 12. There are three periods of this course currently offered at the school. I gave the teacher of this course parental consent/student assent forms to distribute to participating students in their classes, to inform them about the project, and they (students and parents) indicated whether they wished the student to participate on the form by signing it. Students over 18 years of age were permitted to give consent for themselves. Since there were more students interested in being interviewed than I had time to interview, I selected at random from the class rosters a few students to interview, in accordance with the purposeful sampling technique I used for this study (Patton, 2002). Regarding this technique, students who directly experience hands-on learning in an outdoor garden setting and students who consume food in the school cafeteria served as "information-rich" cases; therefore, "purposeful sampling" (which will be discussed more in depth later in this chapter) was relevant to this study as the decision to interview students taking the Agroecology class and who engaged in school food services programming provided rich, relevant insight to the topic being examined (Patton, 2002).

(2) *Lowell High School*: Lowell High School, located in the San Francisco Unified School District and serving over 2600 students, is situated north of Lake Merced, east of the San Francisco Zoo, and northwest of San Francisco State University, in the lower Sunset district of the city. Lowell High School is an urban school accessible to its students via the San Francisco Municipal Railway (Muni). As a city school, it is perhaps unique compared to other city schools in that it has a large outdoor school garden that is maintained and used throughout the year by Advanced Placement Environmental Science classes. Lowell High School students learn to grow and raise produce for a community-based agriculture program in which they actively participate. At Lowell, I interviewed the two AP Environmental Science teachers who teach outdoor garden lessons weekly with students and who also advise the community-based agriculture program as a key component of their class.

(3) *Cambria Grammar School*: Cambria Grammar School, a small elementary school serving just over 200 students, is located near the central coast of California in the Coast Unified School District. Agriculture, viticulture, and food services are significant industries in the vicinity of the school. CGS offers opportunities throughout the school year for students to engage in garden learning and for students and their parents to participate in an optional, after-school garden nutrition program that engages with local nonprofits such as a regional food bank and an environmental education organization that promotes sustainable food systems. At this school I interviewed the Principal (who also serves as an Assistant Superintendent for the district) and a garden educator who taught lessons to classes in the school garden and was a contracted employee through One Cool Earth, a local nonprofit devoted to environmental education. As the principal investigator, I documented learning in

action that was happening during the school day as well as at the after-school farmers' market program open to students and families.

I gave consent/assent forms in English and Spanish to the Principal of Cambria Grammar School in advance to give to parents of students who participated in garden learning during the school day as well as in the after-school farmers' market program to indicate whether they do/do not wish to participate and/or have their child(ren) participate in the study and indicate consent for the children to participate on the consent form.

Regarding staff consent at all three schools, I gave the research flyer along with the consent form to staff members who participated in the filming of interviews (e.g., teachers, cafeteria staff, contracted staff, students), so they could be aware of this research study and could ask any questions they might have about participating before they consented to participating.

Sample Population and Participant Selection

A sample student and staff population from three California public schools, one elementary and two high schools, was an appropriate and logical choice as this study concerns impacts of school nutrition services and related education on TK-12 students, and since the Universal Meals policy was enacted in the state of California at the beginning of the 2022-23 school year, and all three of these schools were affected by it. The schools chosen were identified by me (the principal investigator) to have nutrition education programs and/or nutrition services that were worthy of study based on what they offered students programmatically, e.g., food service operations adapting to the mandates of the Universal Meals policy and outdoor garden learning programs.

A sample subset of the stakeholders at each school consisting of selected staff members, contracted partners or consultants, and students, who gave consent and volunteered to participate in the study (and if minors, were given permission by parents to participate in the study), were interviewed by asking simple questions that prompted narrative responses, to help bring the descriptive research to life. Experiences of students (related to school nutrition services and nutrition-related learning) were important to include in the study to capture meaning “as seen and heard through each student’s voice and lived experiences” (Friend & Caruthers, 2016, p. 36). Esteban-Guitart and Moll (2014) described “lived experiences” as “the result of any transaction between people and the world, emphasizing the subjective significance of the situation on the person” (cited in Friend & Caruthers, 2016, p. 36). Voices of children and adults, including school staff members and school partners, helped to provide additional authentic “data” and context for the lived experiences shared by participants in this study.

At Los Gatos High School, there are eight food service workers, a cafeteria manager, a chef consultant, and a menu planner that collaborate to run the school nutrition service operation. I observed these staff persons in their daily work and interviewed selected staff. The food service program is open to all students and staff, and, typically, greater than 40 percent of the students participate in it daily. I interviewed students who participate in the school food service program who also were involved in the school’s Environmental Outreach Club, the Advanced Science Research program, or else volunteer in the school cafeteria. Also, I interviewed some students who were enrolled in the school’s Agroecology class. At Los Gatos High School, there is one Agroecology teacher and a teacher’s aide who assists

students in garden learning. The students in the Agroecology program are in grades 10-12. There are three Agroecology classes with approximately 25 students in each class, for a total of approximately 75 students. The number of participants at Los Gatos High School included the sum total of Agroecology students (75), the food service staff (9), partners who support the food service staff (2), and for the interviews, some teachers and administrators (6), two parents (one whose child attends LGHS and one who visited LGHS from a nearby school district to observe our food service program), and a sizable sampling of students who participate in the food services program, some of whom participate in at least one other program in the school related to the topic area of this study (25).

At Lowell High School, there are two Advanced Placement Environmental Science teachers who collaborate to manage the school garden. Both teach their science classes in the garden space as well as in a traditional classroom. Lowell students may take AP Environmental Science in the 11th or 12th grade. When I visited in September 2022, I was able to observe instruction taking place in the outdoor garden classroom during two different class periods taught by the two APES teachers. I only interviewed the two teachers of this class when I visited the school but was able to capture on film several observations of garden learning taking place with students actively learning.

At Cambria Grammar School, there are approximately 205 students enrolled in grades TK-5. All students receive some garden education during each of their years at the school. There are also approximately 50 students and parents who participate in the after-school garden nutrition program. The student population as a whole is comprised of a majority of Hispanic students, many of whom, according to the principal, speak Spanish in their homes. I

observed and recorded participants both in the garden learning and after-school farmers' market program. I also observed and documented their food service program in action. The participants for this study from Cambria Grammar School included the principal (who is now the Assistant Superintendent for the district), the garden educator, students and teachers who participated in the garden learning during the school day, as well as students, parents, and food bank volunteers who engaged in the after-school farmers market program (approximately 50). Only a small subset of these participants was interviewed: the principal and the garden educator. The reason for this decision had largely to do with the limitation of time and not wanting to interrupt the learning activities taking place.

Demographic data for the 2021-22 school year for the three schools involved in this research study comes from DataQuest from the California Department of Education (2022b).

Los Gatos High School student demographics:

- 2127 students, 7.8% Socioeconomically Disadvantaged
- 58.3% White
- 16.3% Asian
- 10.2% Two or More Races
- 9.9% Hispanic
- .5% Filipino
- .3% African American/Black
- .2% Pacific Islander
- .2% Native American
- 4% Not Reported

Lowell High School student demographics

- 2,652 students, 35.6% Socioeconomically Disadvantaged
- 48.6% Asian
- 17.7% White
- 14.1% Hispanic
- 6.4% Filipino
- 6.4% Two or More Races
- 1.9% African American/Black
- .4% Pacific Islander
- .2% Native American
- 4.3% Not Reported

Cambria Grammar School student demographics

- Approximately 205 students, 76% Socioeconomically Disadvantaged
- 70.7% Hispanic
- 23.9% White
- 4.4% Two or more races
- .5% Asian
- .5% Native American
- 0% Not Reported

Table 1, shown below, presents a list of participants interviewed, their position or title, and their institutional affiliation. A total of 43 individuals were interviewed for this research study; two were interviewed twice in order to ask follow-up questions that came up after

reviewing initial interview transcriptions. The majority of the interviewees were from Los Gatos High School. I had greater access to that school as that is the school where I work.

Table 1:
Individuals Interviewed

<i>Name</i>	<i>Date</i>	<i>Position/Title</i>	<i>Location</i>
Student A	8/12/22	Co-President, Environmental Outreach Club	LGHS
Student B	8/12/22	Co-President, Environmental Outreach Club	LGHS
Student C	8/17/22	Past President, Environmental Outreach Club	LGHS
Student D	9/19/22	Student Athlete, Cafeteria consumer	LGHS
Student E	11/14/22	Cafeteria volunteer	LGHS
Student E (2 nd interview)	12/16/22	Cafeteria volunteer	
Student F	11/25/22	Advanced Science Research Program Participant, Published Student Researcher	LGHS
Students G, H, I, J, K	5/27/22	Agroecology students working in the garden	LGHS
Students L, M, N, O, P, Q, R, S	12/7/22	Students in the cafeteria line	LGHS
Students T, U, V, W, X, Y	12/8/22	Students in the cafeteria line	LGHS
Paul Boundas	8/8/22	Chef Consultant, Country House Kitchen Company	LGHS
Paul Boundas (2 nd interview)	12/7/22	Chef Consultant, Country House Kitchen Company	LGHS
Colleen Malone	8/9/22	Cafeteria Menu Planner and Consultant, Country House Kitchen Company	LGHS
Amelia DeLaPaz	8/9/22	AP Environmental Science and Biology Teacher	LGHS
Cathy Messenger	8/11/22	Science Department Chair, Advanced Science Research Teacher, AP Biology Teacher	LGHS
Bill Sanderson	8/11/22	Superintendent	LGSUHSD
Orfa Escalante	8/15/22	Cafeteria Worker	LGHS
Philip Rosenblum	8/16/22	Agroecology Teacher	LGHS
John Juarez	9/19/22	Cafeteria Worker/Prep Cook	LGHS
Tyler McGlashan	9/19/22	Social Studies Teacher	LGHS
Kevin Buchanan	10/4/22	Principal	LGHS
Pam Carlino	1/12/23	Cafeteria Manager	LGSUHSD
Tina Lau	1/20/23	Parent, School Site Council Member	Milpitas Unified (visited LGHS)
Sandy Gordon	1/23/23	Parent, Wholesome Food Advocate	LGHS
Maria Ramirez	1/26/23	Cafeteria Worker	LGHS
Kathy Melvin	9/19/22	AP Environmental Science Teacher	Lowell HS
Shawn Lawryns	9/19/22	AP Environmental Science Teacher	Lowell HS
Valen Lambert	5/31/22	Garden Educator, One Cool Earth	Cambria Grammar School
Jill Southern	10/15/22	Principal/Assistant Superintendent	Cambria Grammar School/Coast Union School District

Data Collection

Interviewing

The interview questions that were asked of participants were designed to elicit open-ended, descriptive responses particular to their own experiences. Regarding types of interview questions for narrative research, Riessman (2008) stated, “It is preferable, in general, to ask questions that open up topics, and allow respondents to construct answers in ways they find meaningful” (pp. 24-25). An intention, therefore, was to use simply worded, open-ended questions to elicit spontaneous, truthful responses from interviewees about practices used and personal experiences in schools. All participants were informed that they did not have to answer all of the interview questions and that they were free to stop an interview at any time. I also asked at the end of many of the interviews if there was anything else that the respondents wanted to say but didn’t have a chance to yet. As a result, some respondents offered longer narrations that meandered more in areas of personal interest related to the topics of this dissertation and, thus, they were able to share aloud what they personally found meaningful or relevant.

Purposeful Sampling. Interview questions were asked of a much smaller subset of subjects than entire school populations based on “purposeful sampling,” a procedure utilized in the process of creating an exploratory, qualitative study, as in this case, a documentary film (Patton, 2002; Suri, 2011).

The logic and power of purposeful sampling lie in selecting information-rich cases for study in depth. Information-rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the inquiry, thus the term purposeful sampling. Studying information-rich cases yields insights and in-depth understanding rather than empirical generalizations (Patton, 2002, p. 230).

For this procedure, once a topic is covered, the researcher moves on to another aspect of the research questions in order to more fully explain the issue or tell the story. In the case of this research study, several of the individuals interviewed contributed “information-rich” narrative responses that, in collective, told a larger story, as conveyed by the sum total of the narrative excerpts that were ordered in a logical sequence based on the content of responses given in order to create the film.

Generating Narrative Storytelling. Friend and Militello (2015) discussed the value of storytelling as “an effective means [for] communication and relationship building” and also referenced storytelling as an example of “participatory action research,” which is an umbrella term for approaches that engage the researcher and participants in trying to understand social issues in order to bring about social change (p. 84). In the process of interviewing individuals for this film, interviewees occasionally told anecdotes or short accounts as a means of conveying significant experiences they had with regard to nutrition services or nutrition-related education. These anecdotes were considered authentic forms of data that were incorporated in some cases into the film, as warranted, to illustrate key points. Riessman (2008) pointed out, “Generating narrative requires longer turns at talk than are customary in ordinary conversations” (p. 24). As stated, effort was made in the line of questioning by me to generate possibilities in the interviews for extended narration (e.g., through asking open-ended questions), so that authentic storytelling about personal experiences emerged.

Interview Questions. Primary interview questions were designed to be straight-forward, direct, and yet open-ended so that individuals could offer responses that would illustrate how they personally have experienced nutrition services or nutrition-related education at their

setting. For the different types of participants at each school (staff, teachers, administrators, school partners, and/or students), interview questions included the following:

School Staff/Teachers/Administrators:

1. What do students learn through this program (or class or service)?
2. How does learning this way (or this information) benefit students?
3. How does your food service program benefit students? Please describe.

High School Students:

1. What are you learning through this program (or class)?
2. How does learning this way (or this information) help you?
3. What do you like about your school cafeteria? Or what are your thoughts about the services your school cafeteria provides? Please describe.

School-Employed Partners (Chef, Menu Planner, Garden Educator):

1. What are students learning/gaining through this program (or class)?
2. How does learning this way (or this information) help or benefit them?
3. What are your thoughts about the services your school cafeteria provides? Please describe.

Questioning Techniques. McGrath et al. (2018) suggested conducting test or practice interviews prior to embarking on official data collection; test interviews may involve practicing with peers or volunteers first before interviewing actual participants in the study. They also said that test interviews “furnish the researcher with an opportunity to explore language, the clarity of the questions, and aspects of active listening” (McGrath, et al., 2018, p. 1003). With McGrath’s suggestion in mind, I practiced by asking my advisor and some of

my immediate family members interview questions before conducting the actual interviews for the documentary film. Doing so helped me identify possible follow-up questions to ask, which then allowed me, arguably, to enhance the quality and authenticity of the results I was hoping to achieve in trying to elicit narrative responses that told a story which would allow viewers to gain new insights. During some of the actual interviews, I added questions I thought of that were related to responses given to the initial questions, in order to elicit additional explanation or help draw out someone's train of thought on a topic mentioned. As stated, I initially posed straightforward, open-ended questions (as previously listed), but depending on responses provided by the interviewees, I sometimes probed further, through asking a few follow-up questions related to initial answers provided. This type of a semi-structured interview process based on a set pre-written questions is supported by Friend and Caruthers (2016), who argued for conducting semi-structured interviews "typically organized around a set of predetermined, open-ended questions," which "allow the researcher to ask all participants the same questions and to contextualize the interview process according to the unique experiences of each participant" (p. 38). Also, McGrath (2018) made a good point about making sure during interviews to actively listen to interviewees by "respecting silence" and not filling in blanks to drive the conversation (p. 1004). Therefore, as an interviewer, I also strove to be conscious of the need to remain quiet behind the camera, especially after posing a question, to allow the interviewee to take the time that was needed, uninterrupted, to express independent thoughts aloud in as uninhibited a way as possible. Some of the interview footage included in the film contains natural pauses taken by participants, showing how they genuinely took time to put together their thoughts.

English as the Language for Interviewing. The interview subjects for this study communicated verbally in English in response to questions asked in English. Since Cambria Grammar School has a significant number of Spanish speakers in the school population, I coordinated with the Principal of Cambria Grammar School in advance of my visits to have a Spanish translator available on the date of filming, given the participants she knew would be attending. However, I decided not to interview any of the students or parents at Cambria Grammar School in the process of making this film. The primary reason had to do with the limitation of time that was available while I was on site. I also decided I did not want to interrupt learning experiences while they were naturally happening and filmed them as a researcher-observer, not as an interactive participant.

Using the Camera and Framing Shots

I used a Canon digital single-lens reflex (DSLR) camera for most of the recording done to create the documentary film. According to Anderson et al. (2016), “high-end DSLR cameras...are designed with a large complementary metal oxide semiconductor (CMOS)...which takes high-resolution images, notably superior to those from previous versions of video cameras” (p. 117). The relatively lightweight and small camera body size allowed for easier portability and perhaps provided more situational comfort for interviewees, as a “large camera might impede intimacy” (Anderson et al., 2016, p. 117). Video shots of interviewees were taken with the camera pointed toward the participant, with the researcher filming from behind the camera and the participant, in most cases, looking at the interviewer’s face but not directly at the camera. Video shots of student learning and food service in context were taken at a distance as well as close up. Some of these shots were

taken with an iPhone, in addition to the DSLR camera, and were incorporated as supplemental footage in the film to provide additional context for what was being said in the interviews.

Petrarca and Hughes (2014) provided insights for camera usage in their examination of researchers who used documentary film in educational contexts. One of their interviewees described using the camera in different ways, such as setting up a camera “to record from a wide-angle position” as well as holding a camera by hand “to capture moments in the teaching and learning process from a closer perspective” (Petrarca & Hughes, 2014, p. 568). Likewise, I experimented with different types of camera usage and framing (e.g., different distances, angles, etc.), in part because I am a novice documentary filmmaker (and therefore experimented with different kinds of angles and shots as I was simply “learning by doing” how to conduct the filmmaking process) and also because I genuinely sought to be able to obtain a variety of visual points of view in order to tell a story. For the process of making the documentary film, variations in camera angles as well as different proximities to subjects and the context helped to convey actual school conditions and experiences of students and adults learning and working in the schools.

During a substantial amount of the filming, the camera was placed on a tripod to avoid unnecessary movement, except when needed to be able to illustrate the local environment and particular aspects of school garden or cafeteria settings. Manual focus on the camera was used to frame the shots. The shots were framed such that the interviewees’ eyes appeared in the top one-third of the frame. The audio recordings for the individual interviews were also captured on a camera using a clip-on (lavalier) microphone or shotgun microphone.

Additionally, as stated, some of the “B-roll” (secondary footage) was taken on school sites using an iPhone, to obtain additional contextual footage that was more spontaneous and captured moments at hand, in order to complement the primary film footage, which consisted of the interviews (i.e., the “A-roll”).

Storing and Editing Video Recordings

The files containing the majority of the video recordings (all of the interviews, with the exception of some B-roll footage taken at Los Gatos High School on my iPhone) were stored initially on an SD (secure digital) card within the camera, and then I later transferred the files from the card and my iPhone to an external computer hard drive where I stored all of the video footage. I created file folders for the different individuals interviewed as well as for the B-roll footage taken at the different locations. I labeled these folders once video recordings were downloaded and thus was able to catalog the video files I saved, so that they could be easily referenced, located, retrieved, and used during the film editing process.

Adobe Premier Pro is the video editing software I used to create the documentary film. There are many special features of this software that allowed me to edit and “stitch” different video clips together creatively in order to create one seamless documentary film. Out of over seven hours of film footage, I culled what I determined to be the most essential clips needed to tell a story that addressed the research questions and then wove the selected footage into a final product that yielded a film slightly over 30 minutes in length. A decision was to try to keep the film to half an hour so that there would be a greater likelihood of viewership. Time in this busy world we live in is precious, especially for people who work in the field of education, so my thinking was that a tightly-made, shorter-length film would have greater

potential for viewership than a longer film (which viewers might not be able to have enough spare time to watch, and, furthermore, a longer film might not reveal main points as efficiently as a shorter, more tightly-constructed film).

Data Analysis

Journaling and Transcribing

I kept a hand-written journal throughout the investigative research process of creating the documentary film. Journal notes reflected details observed and impressions made during the process of recording interviewees, notes relevant to composing the film, notes from information sessions for the doctoral program that were relevant to the research process, as well as notes about themes that emerged during the interviews. Notes also included documentation of observable practices (e.g., in food service, as well as experiential learning and instruction) happening at school sites as well as suggestions from my dissertation advisor for shots and possibilities for sequencing ideas so that selected footage would be able to be put in an order that told a coherent story to viewers.

I decided to transcribe all of the interviews captured in the video recordings, as part of the analytical process, so that the language of the respondents could be studied for thematic abstraction. I used the online transcription service called Otter.ai to assist with the transcription process. (Otter.ai is a subscription-based speech-to-text software program which creates transcripts from audio files uploaded into the system.) As stated by Saldana (2011), “Through fieldnote writing, interview transcribing, analytic memo writing, and other documentation processes, you gain cognitive ownership of your data, and the intuitive, tacit, synthesizing capabilities of your brain begin sensing patterns, making connections, and

seeing the bigger picture” (p. 90). Transcribing and studying the actual words said by individuals who were interviewed allowed me as a researcher to track descriptive word patterns and themes that emerged across interviews, thus allowing me to make connections and to identify key points to emphasize in the making of the film. Noting different themes that were emerging through this process of linguistic analysis allowed me to be able to identify which sections of different interviews to use and the order in which to connect interview comments in a narrative sequence, i.e., in a logical sequence in which one idea from one speaker leads to another idea from a different speaker that is related in theme but yet extends the storyline to a new point, thus creating a larger story reflecting a greater sum of perspectives from the research data (the film footage) that was collected.

As stated, throughout the research process used to create the documentary film, keeping a journal was helpful to document ideas for different steps taken throughout the filming experience; these notes served as cause for points of reflection, potential further exploration, and possible inclusion or omission of certain aspects. Riessman (2008) stated that the practice of keeping a journal “encourages methodological awareness” (p. 191). Furthermore, a reflective journal helped me as a researcher to serve as an audit trail that would be useful to substantiate credibility in the way the study was conducted (Merriam & Tisdell, 2016). In other words, the journal I kept serves as a means to reveal some of my process steps, including notes about the interviews and some of the analysis and synthesis of ideas involved. Written journal reflections were helpful, for instance, in the process of thinking about the A-roll footage that I would use and in deciding upon which B-roll supplemental footage to include in the final composition of the film, as well as the findings I might

conclude. The journal also served as a helpful research instrument as I decided midway through the research process to go back out and collect additional footage, including interviewing for a second time two of the subjects I had already interviewed, in an effort to delve deeper into certain points that were important to explore further in the course of making the film.

Analytical Procedures Involved with Editing Film

Over seven hours of video footage was analyzed, sifted, sorted, and arranged through the editing process involved with producing the documentary film. As stated, video footage was collected and stored on an external hard drive. Adobe Premiere Pro was the video editing software I used to organize, assemble, and edit the video and audio clips. The data analysis and video-editing steps involved analytical, creative, and aesthetic sensibilities. These steps related to an overall aim of documentary films: to be able to tell an authentic story (Petrarca & Hughes, 2014). “Video editing is an extremely time-intensive endeavor and...the repeated viewing of the same clips gives the researcher-editor an intimate connection with the data” (Petrarca & Hughes, 2014, p. 570). This aspect of poring over video footage and transcriptions of the footage multiple times in order to identify the precise clips to include in the film allowed me as researcher to tell an authentic story in order to inform the audience about critical issues of importance that related to the focus of this dissertation: school nutrition services and nutrition-related education.

Reviewing and Cataloging. The first step in the analysis involved viewing and cataloging all of the raw video footage. Cataloging footage included the interview transcriptions and noting in some cases some of the points that were recorded in the clips to

develop tentative ideas about categories, themes, and relationships (Maxwell, 2013).

Reviewing video footage and transcriptions multiple times helped me identify themes and specific patterns of importance to analyze and include in the film. The analytical process was, without a doubt, recursive in nature. As stated by Bloomberg and Volpe (2018) in their text describing a process for conducting a qualitative dissertation: “Each phase in this multistage process leads logically to the next, yet you will most likely cycle through the phases more than once, looping back and revisiting earlier phases in an ongoing effort to narrow and make sense of the data” (p. 235). Likewise, I underwent a painstaking process of looping back and revisiting video footage collected in order to select and sequence key segments to be able to construct a logical, coherent story with common themes that would be comprehensible to a viewer.

Triangulation. According to Stake (2010), a qualitative study that is done well is likely to be “well triangulated, with key evidence, assertions, and interpretations redundant” (p. 16). The recursive process that involved a distillation of main points that emerged through the interviews served to confirm and validate key themes relevant to addressing the research questions. Given that multiple points of view were obtained (e.g., students, educators, administrators, cafeteria staff, and school partners) and different choices of words and language patterns were used by the different subjects, many of the narrations nonetheless contained similar ideas that triangulated one another, and what emerged was an interrelated coherence of ideas and themes that the documentary film reveals. Triangulated themes were important to include. Dominant themes that recurred are shared in the findings chapter (Chapter 4) of this dissertation.

Preserving Authenticity. Additionally, I endeavored to be conscientious of ethical decisions of inclusion and omission, as I strove to tell an authentic story that was true to what happens in school settings and true to what I witnessed and recorded—and yet I also needed to make decisions about what to include and not include in the film. I did not want to overstate or underrepresent an aspect or issue related to my topic areas of focus and yet I strove to get to the point with selecting certain segments from the interviews to tell the story. Capturing genuine descriptions of lived experiences from the individuals experiencing them was essential to this process to be able to uncover truths. Friend and Caruthers (2016) described the potential power that documentary film has in illuminating issues of social justice: “Film captures authentic voices and lived experiences of students, educators, and community members with diverse perspectives in order to share knowledge and experiences that have the potential to contribute to equity and democracy in education” (p. 34). Additionally, Riessman (2008) mentioned how strong narrative research utilizes precise words spoken: “Providing descriptive evidence of the precise words spoken...by narrators strengthens persuasiveness” (p. 191). Thus, I captured and included authentic forms of speech made by individual participants so that the film’s content would expose diverse perspectives as well as resonate as believable and persuasive. Powerful comments told through a range of authentic voices from different school settings that are woven into a single film such as this one hopefully contribute to revealing truths, leading to a larger process of catalyzing positive change in schools.

Incorporating Supplemental Footage and Final Touches. The later stages in the editing process involved the incorporation of B-roll to accentuate comments made by

interviewees, including natural sounds and student utterances that were made. Also, final touches included the incorporation of text, including titles, identification of speakers, and credits. Those textual inserts were created using Adobe Photoshop. I sought advice throughout this entire research process from my dissertation advisor at San José State University, Dr. Robert Gliner, who has extensive experience with documentary filmmaking. In our meetings, I listened intently, took notes, and learned from him helpful perspectives on sequencing ideas (e.g., going from a specific to a more general idea and vice-versa, leading with student voice, etc.) and how to incorporate relevant technical and aesthetic touches into the film.

Limitations of the Study

This research study is limited to exploring a segment of educational service practices and student experiences at selected sites and is not representative of the over one-hundred thousand schools in the nation, but rather, features a small, selected sample to highlight specific practices of focus. The documentary format of the study involves a limitation in the relatively small selection of schools and the set of participants whose interviews were chosen for inclusion in the film. The segments of interviews selected cannot fully capture the perceptions of a school's entire student body or staff as a whole—or what other students and staff in other schools might experience. Thus, this study's generalizability to other schools may be limited. Findings from this study were dependent on the participants' responses as recorded during the interviews. What I observed at each of the sites was also limited to what was available to be seen and documented on the dates and at the times I was filming, yet I strove to capture footage of relevant education and services happening in real-time.

Positionality and Limitations as Researcher

My personal and professional background are assets but also limitations for this study. My current role as an administrator at Los Gatos High School is one I have held for the past fourteen years, nine as an assistant principal and five as principal. Before that, I was a teacher for fifteen years (thirteen years at Los Gatos High School and two years at the elementary and middle school levels in Howard County, Maryland). I have California teaching credentials in English, German, and Home Economics. I have taught English, Advanced Placement English, English Language Development, and International Cuisine at the high school level. In Maryland, I taught “English to Speakers of Other Languages” at two elementary schools and one middle school, as well as a distance-learning “English to Speakers of Other Languages” class broadcast live from a public cable TV station to students from five different middle schools.

My mother’s family immigrated to the U.S. from Albania at the outset of WWII. It is from being raised by my mom and interacting with relatives (who worked in food service businesses for most of their lives) that I became understanding of the plight of those who immigrate to the U.S. in hopes of a better life. I also learned from my family how hard the food service business is. As a young man, my father was a cook for the National Guard at Fort Ord in California during the Vietnam War. Later, my parents were owners and managers of two food production and distribution businesses that interacted with each other. In addition, my maternal and paternal grandparents owned and worked in restaurants, and my paternal grandparents also owned and operated a poultry and egg farm. I also participated in 4-H programs as a child through high school and have first-hand experience raising animals

(rabbits) and growing and preparing food for competition at county fairs. In addition, I have worked in a few different restaurants myself, so, given my and my family's background, I am relatively familiar with the agriculture field and the food service profession in general.

I also have past experience creating a "documentary series" as an assignment for the Organizational Behavior and Change course for the Educational Doctorate taught by Dr. Robert Gliner at San José State University in Fall 2020. That documentary project was a four-part series entitled "Conversations About Race" that premiered on YouTube in November 2020 and was shown to students and staff in the school district where I work. I have also created a few film projects with high school students and staff in past years with the support of a local public cable TV station, KCAT. However, until this doctoral research project, I had not previously created a documentary film with the complexity of scope or the range and depth of technical skills that this research study required.

Summary

A main purpose of this exploratory study was to use documentary filmmaking as a process for investigating the identified problem areas of 1) many students experiencing adverse health conditions due to poor nutrition and 2) schools not centering healthy food and nutrition as a primary focus of their educational practices and services. Another related purpose was to spotlight current successes taking place with regard to nutrition-related education and school nutrition services to be able to signal a direction for school systems across the country to head toward in order to improve. This research study focused on identifying and describing actual experiences with regard to providing high-quality nutrition services in schools and educating students about the importance of sustainable food systems

through hands-on garden learning. The study, using a documentary film format, elicited authentic voices of students, educators, food service personnel, and community partners in order to tell a story in hopes of inspiring positive changes in schools.

Conducting this qualitative, exploratory study by interviewing staff and students directly involved with the education and service delivery processes at a few different schools, and examining examples of practices in real time, helped to reveal more precisely some of the most significant complexities and challenges involved with implementing school nutrition programs and allowed me to highlight some useful strategies being utilized in school programs for student benefit. The nature of this exploratory, qualitative study yielding the creation of a documentary film allowed me to be able to communicate some critical aspects of educational practice that impact students' learning, health, and well-being, including the identification of challenges as well as successful educational and service program elements. Findings, as presented in the documentary film and described in the subsequent chapters, serve to inform an audience about recommendations for nutrition-related education and food service practices that have potential to be implemented in schools across the U.S.

Chapter 4: Findings

The documentary film created for this study, *Food for Thought: Promoting Better Nutrition in Schools* (accessible on YouTube), reveals key themes that emerged from the interviews and observations conducted during the research process.

Belief in Promoting Good Nutrition and Environmental Sustainability in Schools

Educators, administrators, students, cafeteria staff, school partners, and parents interviewed for this study described the importance of prioritizing good nutritional health and environmental sustainability in schools, both in the learning that takes place and through nutrition services provided at school. High school students who were interviewed were actively engaged in learning about and advocating for environmental sustainability and positive health practices in their courses or extracurricular involvements (i.e., through volunteerism, environmental club leadership, experiential learning in classes, and science research activities). They spoke about the importance of prioritizing health and good nutrition in schools and also in having schools address environmentally related problems that are caused by larger societal forces in order to have a positive impact on human well-being. Science teachers who were interviewed discussed the importance of fostering an understanding of the connection between what students are learning at school to what is going on in the real world. One AP Environmental Science teacher spoke about how students need to see that their learning is reflected in the world around them; otherwise, learning about sustainability then just becomes “an answer on a test,” and nothing more. One student emphasized how health is an equity issue, so addressing issues such as food insecurity and promoting healthy diets is something that needs to be studied across different disciplines.

Students, teachers, and administrators all spoke of the value in starting to teach children at young ages about environmental sustainability with respect to nutrition so that young people learn a deeper sense of their role in the world as it relates to health and how we grow and prepare the food we eat, and that we all need to invest in the effort to care for the environment as the planet provides the necessary resources for human welfare. The garden teacher at Cambria Grammar School provided a lesson to young students about the value of growing and eating food in accordance with the seasons. The Agroecology teacher at Los Gatos High School talked about the importance of educating about healthy agricultural ecosystem functions such as teaching about soil nutrients and texture, and the biodiversity of vegetables and fruits.

Challenges in Promoting Good Nutrition and Environmental Sustainability in Schools

Individuals who were interviewed acknowledged specific impediments getting in the way of promoting good nutrition and sustainable food systems in schools. Two administrators explained how the Universal Meals policy is a move in the right direction but acknowledged that it is still hard work yet also necessary to ensure access for all students to healthy meals in schools on a consistent basis. One administrator described how procuring locally sourced produce is desirable but not necessarily easy or cost-effective to do. Comments were also made in interviews that the low governmental reimbursement rate for school meals makes it difficult to be able to prepare and produce on a consistent basis high-quality, cooked-from-scratch meals with fresh, locally-sourced produce, especially since fresh, locally-sourced produce tends, on average, to be more expensive than mass-produced, pre-packaged, highly processed, or frozen ingredients.

The cafeteria menu planner and chef consultant who were hired by Los Gatos High School to support the transformation of the district's school food services program stated that the bureaucratic paperwork for the National School Lunch Program is rather extensive in forcing schools to itemize and document each ingredient in each recipe as part of the required reporting process and that any new recipes being considered need to be adapted to fit the constraints of the federal guidelines, which sometimes force schools to use certain ingredients that might not always be the healthiest for students (e.g., such as the mandate to provide meat and dairy at every meal and the fact that "grains" used in school meals often consist of processed, bleached flour).

A number of individuals interviewed commented on waste, especially plastic waste that is often created in the food production process (especially if not using whole, raw, unprocessed ingredients) and how, even with efforts to reduce plastic waste in schools and progress being made in the Los Gatos High School program, it was evident in filming how it is practically impossible to eliminate all plastics, given the fact that packaging, utensils, and serving containers often are at least partially made of plastic. While Los Gatos High School had visibly progressed to using more paper or aluminum containers to serve meals over the past year, and the superintendent, principal, food services manager, and a student had acknowledged the improvements the cafeteria had made in reducing plastic packaging, nonetheless some plastic usage was still visibly apparent. For instance, several school meals were filmed being served in aluminum tins with plastic covers.

Universal Meals Policy Increases Student Participation

Administrators, teachers, cafeteria staff, and students indicated that participation in the school food service program at Los Gatos High School increased immediately due to the improved choices (i.e., the food was more appetizing and tasted better) and because of the improved nutritional quality of the food. Then after the California Universal Meals policy went into effect in August 2022, even more students participated in the school meal program because the meals became free for all. This change in policy was also noted as removing stigma associated in the past with students needing to apply and qualify for free meals. More students have shown up for free breakfast before school and for free lunch than in previous years. This rise in demand for free school meals was noted to have forced schools to scale up production rapidly in order to be able to meet the increased demand.

Related to the cafeterias at Los Gatos High School and Cambria Grammar School experiencing an increase in the number of students receiving breakfast and lunch at school since the adoption of the Universal Meals policy, both schools have also experienced more students partaking of meals in their school cafeteria spaces. The LGHS principal commented on how the new program created a culture shift whereby more students not only showed up to receive meals, but also sat to eat in the cafeteria which had seating available for them; then students in turn followed up with putting waste in its proper place after meals were consumed. Students at Cambria Grammar School and Los Gatos High School were documented as having positive social interactions with other students while sharing meals, for instance, while sitting at tables in the cafeteria spaces the schools offered.

It is not surprising that the length of the meal lines at Los Gatos High School increased substantially after the Universal Meals policy went into effect. In fact, an additional line into the cafeteria building from another entrance had to be created in order to capacitate the marked increase in the demand for school meals in the 2022-23 school year. (Last year there were only two lines, but this year there are now three lines, and those lines are documented in the film.) Students were observed socializing in all lines, and some of that socializing was captured in film footage collected for this project. Also, the rate that students moved through the lines at LGHS sped up progressively over the course of the school year, due to the cafeteria staff quickly ramping up to be able to produce more easy-to-pick-up meals and reducing the number of choices (significantly reducing competitive items), and also due to school administrators and campus supervisors monitoring and organizing the line systems. One student commented that she noticed how the lines moved faster than they used to.

Challenges with Scalability

With the increase in demand of school meals, due to their becoming free of charge this school year, cafeteria operations at the observed schools have faced challenges to meet that increased demand. Innovations and adaptations with regard to cafeteria operations have had to occur virtually on the fly. For instance, Los Gatos High School reduced the types of items being offered at each mealtime, and the kitchen staff produced more of each of the items that they decided to produce. In other words, quantity of choices was reduced, but the quantity of each item that was produced increased. The menu items at LGHS are currently determined based largely on student preferences, as noted in the film, by the cafeteria menu planner (e.g., film footage shows breakfast bowls with eggs and potatoes, avocado toast, rice and bean

burritos, spaghetti and meatballs, homemade pizza, ramen dishes with fresh vegetables, salads, fresh fruit, etc.).

The administrator at Cambria Grammar School expressed positive regard for the Universal Meals policy and how more students come to the cafeteria to eat meals, but she pointed out that the increase in student demand has posed financial challenges due to limited reimbursement rates coming back to the school from the government. Also, at Los Gatos High School, since the increase in demand was dramatically higher than the previous year, a number of cafeteria staff have had to come to work starting earlier in the morning in order to prepare enough meals for students each day. Due to the need to increase worker hours, the school district as a result has had to pay more for the extra labor costs. This increase in costs is mediated by the increase in reimbursement amounts coming back to the school, as noted by the chef consultant. But as administrators pointed out, managing these costs while still trying to produce healthy meals that are appealing to students is challenging.

Operating School Cafeterias Like Family Restaurants that Care

The food services manager for the Los Gatos-Saratoga Union High School District explained how the food services program improved dramatically after the district hired a chef consultant to work with the staff. The chef consultant who was critical in leading the transformation of the food service program comes from a family restaurant background and spoke about how his role involves running a school kitchen like that of a restaurant—and how doing so involves training staff to acquire restaurant-related skills, which elevates their own sense of efficacy. As part of the process of transforming the operation to becoming a cook-from-scratch kitchen, the chef trained cafeteria workers how to prepare healthy recipes from

scratch using fresh ingredients. In turn, the staff have learned from him a variety of restaurant-related culinary and food service skills that enable them to prepare and serve each day large numbers of healthy meals that students find appetizing, thus incentivizing students to come back again and again for meals.

The cafeteria menu planner who was interviewed at Los Gatos High School also works for the same restaurant business as the chef consultant and has expertise in documenting recipes for school meals to meet federal school meal regulations under the National School Lunch Program and School Breakfast Program. Her comments revealed how she believes that cafeteria workers are a great resource for ideas about creating menu items since they interact closely with the students and can notice their preferences and dislikes. Cafeteria staff, as observed in the filmmaking process, see students on a daily basis and get to know the students they serve and their likes and dislikes, and in turn, the students get to know the staff. This ongoing interaction was noted as helping to create an environment in which reciprocity of respect and consideration for each other is demonstrated. Students who were interviewed expressed gratitude for the cafeteria workers who prepare food they enjoy eating, and the workers in turn expressed how they like learning new skills, cooking for the students, and seeing that students and staff are happy with the quality of meals produced.

Active vs. Passive Learning

This study revealed that there are substantial benefits to providing education about environmentally-sustainable agriculture that is active, hands-on, and extends beyond the classroom walls, to connect students with nature so that they become directly involved with growing and cultivating different varieties of plants using healthy soil—and so that they try

different healthy vegetables that they may not have ever tried before. Students, teachers, and administrators who were interviewed all extolled the critical importance of learning experientially about sustainable food systems. For instance, students and teachers mentioned how they learned to appreciate how hard it is to grow food by actually cultivating and growing fruits and vegetables from seeds. Students also expressed the value of learning where healthy food comes from and how important healthy, organic foods are to nutritional health. The Agroecology teacher talked about how most people do not know that there are hundreds of varieties of vegetables and fruits. He stated that students in his Agroecology class spend time learning about different kinds of seeds, and they grow different varieties of vegetables and fruits that have more flavor than what you would ordinarily buy in a typical supermarket, which tends to sell just a few varieties that are bred for volume using pesticides and herbicides. Students, educators, administrators, and school partners such as the garden educator at Cambria Grammar School discussed the value of students starting to learn at young ages about where our food comes from and how growing food is connected to the process of preparing and distributing food to all of us who eat the food.

Students at Cambria Grammar School have opportunities to receive fresh, locally grown produce for free in after-school farmers' markets that are coordinated by the school in partnership with the SLO Food Bank. The school seizes this special active learning opportunity provided through the partnership to incorporate teaching about the cost of healthy food and a participatory process to "purchase" such produce. Students are given pretend money that they use judiciously toward "purchasing" produce items that they personally select with their parents next to them. Experiential lessons about sustainable

agriculture at Cambria Grammar School also involve students learning together with their parents from volunteers from the SLO Food Bank about the different types of produce grown locally. The SLO Food Bank gives students and families recipes to take home that incorporate the produce that they select. The garden educator from One Cool Earth also provides cooking lessons to students and parents after school, so that there is shared action learning about healthy meal preparation using locally sourced produce. Recipes that the garden educator teaches reflect different local cultures and locally grown food (e.g., Asian cucumber salad, guacamole, tacos). Parents and students cook together while the garden educator interacts and dialogues with them about the different locally grown food and cooking practices and recipes used within family households and their traditions.

Belief in Interconnectedness

Teachers, administrators, and school partners all provided remarks related to the interconnectedness of humans to each other and to the planet. The theme of interconnectedness emerged in many comments from the subjects interviewed for this film: (1) from administrators about how the Universal Meals policy was a step in the right direction because it takes into account feeding all students and reducing any stigma associated with participating in school meal programs; (2) from administrators about the hard work required by staff in the cafeteria to produce healthy food for all students; (3) from administrators mentioning how more students eat together in the cafeteria and how they appreciate the space and in turn take care of it; (4) from students offering remarks that showed appreciation of cafeteria workers and how they like the food that they prepare; (5) from a visiting parent who wanted to learn from a successful school food service program so

she could bring back ideas to her school district so that children, including those living in poverty, could benefit, (6) from students discussing how they are learning from their experiences of working collaboratively in the garden about appreciating where their food comes from and how growing and eating organic food helps nourish their bodies; (7) from teachers involved with teaching students how to grow food for a community-based agriculture program and the positive gains made from that collaborative endeavor; (8) from teachers appreciative of the positive changes provided by the cafeteria staff and the positive impacts those changes make in students' lives; (9) from food service program influencers (e.g., the cafeteria manager, chef, and menu planner) who value the training provided to cafeteria workers so that they can gain new skills and create new recipes that are healthy and that students enjoy; (10) from cafeteria workers appreciating that they are learning new techniques and making students and staff (and even their own families) happy by cooking food that is fresh and from scratch; and also (11) from students, teachers, and administrators explaining how we need to take care of the natural environment we share since our earth is what provides us with the food we eat, water we drink, and all the resources needed to nourish us as human beings.

The Value of School-Community Partnerships

There were several indications in the process of conducting the research for this study of the value of schools forming supportive, non-exploitative partnerships in order to reach the goals of providing fresh, nutritious food to students and promoting sustainable agriculture in the learning taking place. Los Gatos High School's partnership with restaurant professionals (e.g., from Country House Kitchen Company) illustrate how partnerships with smaller,

independent restaurant entities (as opposed to large food corporations or chains that perpetuate the production and sale of unhealthy, processed foods) can augment the number of innovative ideas about healthy food service coming into a school, in terms of the teaching, training, and services provided to both staff and students in order to promote good nutrition more substantively.

At Lowell High School, the community-based agriculture program that involves a partnership between the school and the local community allows students to actively participate in growing and raising food in the school garden that then is sold back to members of the community. Students gain first-hand experience of the efforts required to grow food in sustainable ways, and they engage in this process with local community members who, according to one of the teachers, appreciate being able to purchase healthy food raised by students.

Cambria Grammar School partners with two nonprofit agencies, One Cool Earth (a nonprofit devoted to uniting communities and schools in order to create school garden programs that promote environmental sustainability) and the SLO Food Bank, which is a nonprofit organization that works with a network of community partners to alleviate hunger in San Luis Obispo County. As stated, both of these organizations were documented as engaging directly at the school site in teaching students and families about sustainable agriculture and empowering students and families to make healthy choices through education about nutritious food options. The SLO Food Bank helps support families tangibly by allowing them to take home locally grown produce that students pick out themselves at the school.

Implications and Recommendations

Implications of the recurring themes that were identified through the process of creating the documentary film will be discussed and analyzed further in the next chapter.

Recommendations for practical strategies for schools and future research will also be provided.

Chapter 5: Implications of Findings and Recommendations

The purpose of this exploratory documentary study was to investigate school food service programs' ability to provide quality nutritious meals to students on a consistent basis as well as to explore types of education that can positively impact students' awareness of ecologically sustainable food systems so that students cultivate healthy nutritional habits. Specific challenges as well as successes experienced by different stakeholders were of particular interest to document.

As the primary investigator for this study, I sought to use the documentary filmmaking process as a means of collecting narrative data to help identify and raise awareness about critical social justice issues and to inform viewers about changes that need to take place (Friend & Caruthers, 2016; Gubrium & Harper, 2013). A total of 43 individuals were interviewed for this study (25 students, two parents, six teachers, three administrators, four cafeteria personnel, and three school partners including a garden educator, chef consultant, and cafeteria menu planner). District and school administrators, teachers, students, cafeteria staff, a chef consultant, and cafeteria menu planner were interviewed to obtain their perspectives on the feasibility of providing healthy, fresh food to all students on a consistent basis through school nutrition programs. Educators, administrators, students, and a garden educator were also interviewed regarding types of education that promote environmental sustainability and that help students acquire a deeper understanding of healthy food systems in order to enhance students' ecological consciousness and nutritional habits starting at a young age with implications for lasting into adulthood. Their comments underscored a need to start teaching about environmental sustainability when students are young. As asserted by

Birch et al., (2007), healthy eating patterns for students should be taught and reinforced in family, school, and community environments starting in early childhood all the way through adolescence.

The research for this study started in Spring 2022, prior to the school year that the California Universal Meals policy went into effect, and continued throughout the first half of the next school year when it went into effect, through February 2023. This study also began during the school year that students and staff returned to in-person school, after over a year of remote learning due to the COVID-19 pandemic. Given that the pandemic exacerbated food insecurity, and harms to human health and well-being also increased during the time of the pandemic (Silva, 2020), it was more than appropriate to conduct exploratory qualitative research in the form of a documentary film to investigate how schools might prioritize providing good nutrition in their food service programming and in garden learning about sustainable food systems. With the serious health and environmental issues currently faced by our society and the world, it made sense to investigate schools' ability to positively impact students' nutritional health and well-being through environmental education and nutrition services provided in schools, since these critical components in schools have the potential to affect students' behavior, habits, and health for the long-term. In other words, the context of the time period in which we are living arguably necessitates placing students' nutritional health as a very high priority in schools, especially due to the increase in food insecurity and the increase in health harms being disproportionately experienced by students who are socioeconomically disadvantaged and may have less access to healthy food (Silva, 2020).

Research questions that guided this study were as follows:

Question 1 (the overarching research question): What are impactful ways to address significant health problems facing a large number of children and adolescents through nutrition programs and related education in TK-12 public schools?

Question 2: Which practices and procedures are currently being implemented in successful school food service programs to positively impact students' health and well-being?

Question 3: Which courses of study and/or instructional units are currently being taught in schools and how, so that they positively impact students' understanding of sustainable agriculture and nutrition and so that they influence the development of healthy habits?

As stated, documentary filmmaking was the method chosen to conduct exploratory, descriptive, qualitative research for this study. There are several reasons why this approach was appropriate for this study in order to spotlight positive practices as well as challenges happening in schools related to providing good nutrition and meaningful education about nutrition. This type of research method is considered a legitimate and worthy approach to data gathering and sense making (Fitzgerald and Lowe, 2022). Documentary research can bring to the forefront critical issues of social justice in education and can inform viewers about changes that need to occur (Friend & Caruthers, 2016; Gubrium & Harper, 2013). The documentary research method allows the researcher to share stories from schools “that illuminate diverse perspectives of voice, which can be used to transform school communities” (Friend & Caruthers, 2016, p. 33). Documentary filmmaking is also considered “an extension of the well-established research paradigm of ethnography” and

“allows for the capture, documentation and preservation of data that more thoroughly maintains authenticity” (Fitzgerald and Lowe, 2020, p. 2). This research method allows for contributions from stakeholders directly experiencing the subject matter at hand to construct knowledge. Furthermore, the documentary research process involves gathering and interpreting information-rich, descriptive data from the perspective of critical stakeholders in the educational system, such as educators, educational leaders, and students (Fitzgerald and Lowe, 2020). In sum, the documentary film method serves as a form of authentic qualitative research that has the potential to be shared with a wide audience to inspire social change (Friend and Militello, 2015; Friend and Caruthers, 2016).

Implications for Practice: An Ecological Systems Perspective

The findings of this study, which come from a sampling of stakeholders in three public schools in California, indicate that school institutional practices as they relate to providing high-quality nutrition services and nutrition-related education are complex. As mentioned in Chapter 2, Ecological Systems Theory involves interdependent and multilevel systems that are directly and indirectly connected (Bronfenbrenner, 1979; J. W. Neal & Z. P. Neal, 2013). J. W. Neal and Z. P. Neal (2013) pointed out that there are complex, overlapping interrelationships among systems (i.e., microsystems, mesosystems, exosystems, macrosystems) that impact human beings in institutions such as schools. Food service programming in California schools could be argued to be in a stage of transformational development, with a recent policy enactment (California Universal Meals) being a significant lever that is invoking ecological systems change from the macrosystem level, since all schools in the state are now responsible for providing free meals to all students who request

them. This policy also poses some challenges that inadvertently impede improvements happening at the school level (the microsystem level), with regard to providing healthy food to all students on a consistent basis. Some of the challenges are financial (e.g., cost of ingredients, cost to pay staff); some relate to the feasibility and logistics of procuring healthy, fresh ingredients; some relate to the increased burdens placed on staff to accomplish the work needed to prepare healthy meals; and some relate to the additional staff, training, and support that might be needed to respond to the increased student demand that the change in policy incurred. Additionally, this study revealed that interaction between entities within the mesosystem level, such as the formation of non-exploitative and supportive school-community partnerships, may play a significantly influential role regarding the successful integration of environmentally sustainable models of experiential education and nutrition service programming in schools.

The research that was conducted for this study helped to reveal common themes that illuminate some of the positive changes occurring in sample schools as well as challenges schools face with regard to school nutrition programming and educating about sustainable food systems. These findings were discussed in the previous chapter and will also be reviewed in the following analytical summary of the investigation results, which is related to the research questions. In addition, at the end of this chapter, recommendations about optimal practices and future research, as well as final conclusions, will be imparted.

Summary and Implications of Research Findings

Thematic findings of this study are presented in the previous chapter and within the documentary film entitled, *Food for Thought: Promoting Better Nutrition in Schools*. In this

section, a summary containing implications of findings related to each research question will be shared, based on narratives from the 43 interviews that were conducted.

Research Question 1: What are impactful ways to address significant health problems facing a large number of children and adolescents through nutrition programs and related education in TK-12 public schools?

Perceptions of the Role of Schools to Address Significant Health Problems Faced by Youth

Students who were interviewed for this study strongly indicated that schools should be addressing nutritional harms caused by the industrial food complex through school food service implementation as well as through teaching about environmental nutrition through hands-on garden learning and experiential science courses in areas such as agroecology and environmental science that teach students about sustainable agriculture. Students who were interviewed and commented on the food service program strongly emphasized how school meals should be healthy. One student who engaged in scientific research as one of her school activities pointed out the inequity that schools need to address based on societal injustices people experience regarding access to healthy foods, stating that “it’s really important for people to be able to have access [at school] to those types of foods [healthy foods] where maybe they won’t have access to that at home.” Additionally, a parent noted that we need to help our kids understand why wholesome food is critical to their well-being, now and in the future. Another student who was engaged in environmental advocacy at school noticed the improvements in the quality of healthy food recently being provided by his school cafeteria: “I love that we’ve really taken initiative and...paid attention to the nutrition of the kids because that’s a very important part of their development, as teenagers and young adults and

...fueling your body is very important.” Another student who volunteered in the school cafeteria stated, “School is one of the primary influencers in a student’s childhood. ...We should not be putting those items [mass-produced unhealthy foods] in our bodies...part of the solution is starting with schools.” Additionally, an AP Environmental Science teacher stated, “My biggest point in thinking about food and sustainability in schools is...we got to walk the walk, we got to do what we say is important.” To sum up a main point of what interviewees, such as those aforementioned, said: practices in schools should reflect what we ought to be teaching students about regarding the importance of healthy sustainable food systems and promoting greater environmental consciousness. There was a consensus by those interviewed that schools are indeed a locus for addressing health harms faced by students and that addressing these harms can be accomplished through both the services provided (e.g., in the school cafeteria) as well as the education provided (e.g., in hands-on garden learning that teaches students about sustainable agriculture).

Since many students rely on food service that is provided at school for at least a portion, if not a majority, of their daily nutrients, this study supported the notion that it is important that schools prioritize providing healthy food to students in order to address the inequities in access to nutritious food that lead to significant health and developmental inequities (Colombo et al., 2020; Crawford et al., 2011; Weaver-Hightower, 2011). This stance was articulated in the literature review provided in Chapter 2; this same perspective was likewise demonstrated through the collection of interviews of different school stakeholders conducted for this study that were featured in the film.

Research Question 2: Which practices and procedures are currently being implemented in successful school food service programs to positively impact students' health and well-being?

The Importance of Training Staff to Provide Healthy Meals Using Fresh Ingredients

The documentary findings reveal the strong importance of training cafeteria staff with the types of skills and procedures needed to be followed in order to provide healthy, cooked-from-scratch meals using fresh, locally sourced ingredients to students on a daily basis. The principal of Los Gatos High School mentioned how the school has implemented a “nutritional program that is healthy, fresh, using properly sourced ingredients, using fresh ingredients.” The food services manager beamed about the chef consultant who recently brought in the practice of scratch-cooking to produce healthy meals, whereas previously the school served unhealthy meals that often utilized processed foods, even when the school district had hired a large food services company for a period of time to manage the production of school food. The chef consultant who is currently advising the transformation in that school’s food service implementation practices brought in a family-style restaurant model of organization and training; he said he trains staff to learn “skills more akin to a restaurant than a cafeteria operation.” The chef also discussed how he is training staff to rewrite recipes so that they are “not relying on processed foods.” His background as a chef and restaurateur has been instrumental in helping to catalyze and drive positive changes taking place in school food service programming.

Additionally, the cafeteria menu planner who was hired by the district said she relies upon kitchen staff as “the best sort of resource for menu planning” because cafeteria workers

interact “face to face with the kids” and “know what the kids like best.” The implication based on narrative comments recorded from the interviews for this study is that cafeteria staff benefit significantly by being trained by culinary and restaurant professionals, and thus with training they become more skillful and better poised to pivot to adapt to the rising demand created by the Universal Meals policy and to be able to create meals using healthier recipes on a consistent basis for students. Cafeteria staff who were trained by the chef consultant help to create menu items for the school that are based on what students like and then work with the menu planner to adapt recipes so that they are not only made from scratch but so that they are also made using fresh ingredients.

Research Question 3: Which courses of study and/or instructional units are currently being taught in schools and how, so that they positively impact students’ understanding of sustainable agriculture and nutrition and so that they influence the development of healthy habits?

Action Learning in School Gardens about Environmental Nutrition Makes a Difference

All three schools that were part of this research study have successful school garden programs that make a positive difference in educating students about the value of sustainable agriculture and in engendering an appreciation of the experience of growing and eating healthy food. Both Lowell High School and Los Gatos High School have strong AP Environmental Science programs, taught by two teachers at each site. In these classes students learn about concepts related to healthy, sustainable food systems. At Lowell High School, students work in the school garden one day per week. One of the two APES teachers

at Lowell, Kathy Melvin, stated how every two to three weeks they harvest food they have raised and grown. Melvin stated,

Part of what's happening is we're sorting and packaging the harvest, and we actually sell it back up to the school. This means that the school community is somewhat aware that we're here. It also means the students start to get an understanding of how hard it is to raise food. ...I think especially city students might not know how much space or how much effort it takes to feed people. We just, we sit down we pay a price at a restaurant but we don't think about that part.

A similar perspective was also reflected by a Los Gatos High School student who commented while working in the garden that the class has taught her how to appreciate where food actually comes from and that she has taken this awareness home with her and is more mindful now not to waste food.

As mentioned previously, Los Gatos High School has had an Agroecology program since the 1920s (Ness, 2022). In its current iteration, an Agroecology teacher teaches three sections of this class, which involves students working in the garden for half of the time during each day, to complement the in-class learning of concepts. The Agroecology teacher discussed the importance of getting students to eat healthy food through “garden enhanced nutrition education, which is all about the idea that if students grow it, they will eat it.” A student in the class described what she learned:

We learn about a plant's life cycle, how to harvest plants, how to weed, the difference between growing food and eating it organically from your own garden versus in the store or on the market. We learn about nutrients and bacteria and how it affects a plant's life cycle and how growing food can positively impact our environment and our bodies.

The principal of Cambria Grammar School said that if schools can “infuse environmental education in an effective way, you can actually tackle a lot of the pieces of the requirements of standards, while at the same time teaching kids about our world, teaching them about

society, the impacts of society, teaching kids the role or the people's role in our world.” The garden educator that the school hired to help provide garden lessons to students stated, “Especially where we stand the climate, with food insecurity all over the place, it’s important to provide [students] with the lessons of taking care of themselves and the earth.” Thus, several individuals interviewed mentioned the importance of active, hands-on, participatory learning in school gardens in order to infuse deeper learning about sustainable agriculture and growing and eating healthy food. This kind of active learning appears to more profoundly impact students’ consciousness in lasting ways about the value of growing and eating healthy, organic foods that more adequately nourish one’s body than processed foods that are produced and marketed through the massive food industrial complex that is pushed upon us as consumers through advertising, major grocery stores, and fast food chains.

Recommendations

Recommendations for Perspectives to Adopt

Using an Ecocritical Approach to Form Partnerships with Community Experts. As stated, Ecological Systems Theory emphasizes the importance of interdependent and multilevel systems on human development (Bronfenbrenner, 1979; J. W. Neal & Z. P. Neal, 2013). In addition, Lupinacci (2017) stated that “an ecocritical framework focuses on the ways in which meaning can be constructed in a manner that is supportive of the health and well-being of the entire community” (p. 21). Schools are just one part of a multiplicity of different complex and interdependent systems that impact student development, health, and well-being. With both Ecological Systems Theory and an ecocritical framework in mind, schools ideally should be engaging in mutually beneficial relationships with other entities,

such as outside-of-school entities or other microsystems that have a shared mission (e.g., to promote environmental sustainability and student health and well-being) and are non-exploitative. In other words, this study suggests that potential influencers for promoting significant, positive, enduring ecological practices that support students' health and well-being can be identified at the mesosystem level. Through forming purpose-driven, mutually supportive, uplifting partnerships with outside organizations and experts in the areas of healthy cooking and sustainable agriculture, schools are better poised to achieve educational and service goals they are striving for—namely, to achieve the overall objective of promoting greater nutritional health and well-being for all students.

More concretely, this exploratory, descriptive research study revealed that partnering with outside experts and key stakeholders in the school community, such as local farmers, farmers' markets, food banks, community gardens, garden educators, environmental organizations, chefs, and independent restaurants, can be possible means by which to infuse school systems with new ideas and build mutually beneficial relationships in order to promote greater nutritional health and well-being for students. These types of supportive, interactive, non-exploitative relationships can lead to positive changes in schools in order to help improve the quality of healthy meals provided to all students as well the education of all students to incorporate active learning about sustainable food systems starting at young ages. This research study spotlights how forming supportive, non-exploitative, environmentally-conscious, purposeful partnerships that recognize and honor their mutuality, interconnectedness, and interdependence can help schools drive lasting changes in order to positively impact the nutritional health and well-being of all students and leave a lasting

impact on students' learning about the importance of sustainable food systems to promote greater nutritional health.

Supportive Partnerships Help to Catalyze Change in Systems Resistant to Change.

As identified in this study, systemic challenges currently faced by school districts trying to implement the Universal Meals program include increased labor burdens and costs and the increased costs and logistical challenges related to procuring healthy, ideally locally-sourced produce in order to meet the increased demand for meals and provide healthy food to all students on a daily basis at school. Other challenges relate to institutional resistance to exploring new ways of cooking and preparing healthy meals from scratch in order to meet the overall objective of improving students' health and well-being. This exploratory documentary research study reveals that a school system's propensity to incorporate new ideas and practices that are beneficial to students' health and growing environmental consciousness can be largely influenced by supportive, non-exploitative partnerships that schools may make with outside professionals, nonprofits, and other schools that have expertise in areas of providing healthy food service and promoting sustainable agriculture. It is the opinion of the researcher that until the different, interacting levels of stakeholders within school districts understand, mutually embrace, and proactively seek new ideas and positive partnerships to enhance current practices, a more deliberate, coherent, holistic, and successful approach to promoting sustainable food systems within the school setting cannot successfully occur, or at least not with the same degree of expediency or efficacy.

Lupinacci (2017), who defends the importance of embracing ecocritical pedagogy in education, argued that "cultural constructions can be interrupted and shifted when we learn to

think differently about our relationships to each other and to the natural world” (p. 21). We need to confront the health injustices that millions of children and adolescents in this country face due to the harm caused by poor nutrition. We need to confront the health injustices young people face by working creatively, humanely, and in partnership with experts in specific areas that schools need to focus on more deliberately (e.g., organizations and individuals with expertise in sustainable agriculture, nutritional health, scratch cooking, preparing “climate-friendly” plant-based meals, etc.) to be able to make the systemic changes needed in order to instill lasting, positive impact with regard to students’ nutritional health and well-being.

Pushing Against Bureaucratic Rigidity Toward an Openness to New Ideas.

Arguably, school systems inherently have a tendency toward institutional inertia that prevents them from being nimble so that they can readily pivot and adopt new ideas. School systems function in many ways to preserve the status quo in terms of daily operations and services provided to students; essential structures are in place for a purpose, such as attendance procedures, the daily bell schedule, courses of study needed to graduate, and school food service operations. To initiate changes in standard school practices is not easy and often is met, at least initially, with resistance. Sasson et al. (2022) conducted research related to the negative effect of change resistance in schools and found that “during a change process, schools are more characterized by increased social conflict and the challenge of micro-political forces” (p. 11). Perhaps because of the bureaucratic layers that exist within school systems and because of a primary focus of schools being to educate students in accordance with standard school curriculum, schools (and those who work in schools) would

naturally seem to struggle with achieving a goal of promoting greater student health and well-being since that objective might be considered an ancillary, not a primary, function of schools—and schools are already overwhelmed with responsibilities. However, an imperative, given what was documented in this research study, is that schools should definitely prioritize student health and well-being through improved school food service practices and experiential education related to nutrition and promoting sustainable food systems, so that students have the opportunity to be exposed to critical environmental and nutritional concepts and develop healthy nutritional habits that are long-lasting.

While most if not all people would agree that it is important to value the health and well-being of children and support this value in schools, schools in recent years have increasingly been inundated with additional responsibilities that go beyond the primary purpose of teaching students in the classroom, such as having to pivot to remote learning and implement different health protocols due to the COVID-19 pandemic. These changes in school practice occurred out of necessity due to the pandemic and because of resultant mandates that came from public health authorities. Currently, a need for some changes in school food service programming has been triggered by the enactment of the Universal Meals policy in California. While schools have had to make adjustments in order to respond to increased student demand for free school meals, completely revamping a food service program so that it prepares nutritious meals made with fresh, locally sourced, healthy, whole, raw ingredients on a consistent basis is a much bigger challenge altogether. One aspect regarding the propensity for schools to incorporate new ideas and approaches into practice that this study revealed is that structures within school systems do not by themselves create open avenues

for a natural infusion of outside, innovative ideas in order to catalyze transformational change, particularly in the direction of environmental sustainability and in taking greater collective responsibility for promoting student health and well-being in educational programs and services. This study suggests that school systems often struggle with adopting new practices and transforming educational and service models unless they are forced to or unless several individuals within the systems embody a shared mindset, see the need, and are compelled to do something (and literally take action) to address that need. Change ultimately requires individuals to step out of their comfort zone and explore new ideas and is “an ongoing process rather than a specific event” (Sasson et al., 2022, p. 2).

Leveraging Change and Applying Newfound Knowledge to Other Schools. As shown in the documentary film that was created for this study, specific, positive, impactful changes in three schools happened as a result of educational leaders and educators (1) taking the initiative to substantially improve food service programming, (2) proactively forming mutually beneficial, interactive, and supportive partnerships, and (3) connecting student learning about the environment more directly to the real-world in active ways so that they gain a deeper ecological awareness. The findings of this study suggest that other schools may be able to implement changes that mirror the ones that are featured in the film. Since the California Universal Meals policy went into effect in August 2022, and now that all students in California may receive school meals free of charge, a priority has now come to greater light for schools to ensure that the meals provided to all students are nutritious. Optimal school food service programs are ones that would focus on preparing nutritious meals that use fresh and locally sourced ingredients, not heavily processed or pre-packaged food. This

aim can arguably be achieved, as this study suggests, through school stakeholders adopting an ecocritical approach and through the collective will on behalf of several layers within a school system, including district leadership, site leaders, and food service directors, to pursue opportunities within their budgets to procure fresh, healthy ingredients and provide cafeteria staff with the training and support they need to be able to produce high-quality, nutritious meals on a consistent basis for students. Opportunities can start with learning from schools that have launched change processes to address health harms that youth face due to the industrial food system that surrounds them—and then borrowing from or mirroring beneficial practices that can be successfully cross-applied to other school settings.

The California Universal Meals program entails that all meals can be reimbursed by the government following federal rates. Some of this revenue can be used to offset increased costs, but as pointed out in the film, the reimbursement rate is usually not enough to cover the entire increase in costs, especially if the objective is to prepare healthy, delicious, nutritious meals on a consistent basis. Therefore, changes need to be advocated for and made to the federal reimbursement rates (i.e., the rates need to increase per meal) for school breakfasts and lunches in order to support this important goal of serving fresh, healthy food to students on a regular basis. There also needs to be a rethinking about budget allocation and budget priorities by school districts that include training and/or the hiring of food service professionals such as a chef to support cafeteria staff in this evolutionary learning process and to support a rethinking of the food procurement practices within school districts so that the goal of providing healthy, fresh, locally-sourced food in schools becomes a reality.

Improved student health and well-being can also be better supported through schools committing to providing hands-on education about sustainable food systems starting in the younger grades. The marked increase in detrimental environmental impacts caused by climate change across the globe has heightened attention to the need to prevent or ameliorate these kinds of impacts. Education in schools, in addition to the services schools provide, must concentrate on promoting environmental sustainability and sustainable food systems in order to secure a healthy future for all of us living on the planet.

As stated in Chapter 2, research conducted for this dissertation revealed that a massively high number of children and adolescents in this nation suffer from limited access to healthy food (Hall, 2013; Poppendieck, 2010; Silva, 2020; Yousefian et al., 2011). In turn, millions of children suffer from malnutrition (Fryar et al., 2021; Hales et al., 2017; Holden, 2007; Nollen et al., 2007; Ogden et al., 2014; Rodrigues-Salinas et al., 2007). Other research indicated that malnutrition can incur adverse health impacts such as Type 2 diabetes which can be long-term and can result in a diminished quality of life (Fryar et al., 2021; Hales et al., 2017; Nollen et al., 2007; Ogden et al., 2014; Poppendieck, 2010). It thus is imperative to try to reverse this horrific, cause-and-effect trend, as the future health and well-being of our nation's youth depend upon it. This research study demonstrates that certain types of education, such as experiential garden learning starting in the younger grades and courses in upper grades such as Agroecology and Environmental Science, can be avenues to heighten and strengthen nutritional and ecological awareness, integrate active learning into practice, and inform nutritional habits in order to combat and hopefully reverse this negative domino effect.

To offer additional context, in 2011 the Swedish national curriculum changed to incorporate Education for Sustainable Development (ESD) across all grades, in response to declining PISA (Programme for International Student Assessment) results in science, and research related to this curricular change indicated that “pupils’ active participation is critical for ESD teaching” (Sund, 2022, p. 26). In addition, Bosevska and Kriewaldt (2020) conducted a study of a school community in Melbourne, Australia that fosters sustainable education using a whole-school approach. They advocated that, beyond incorporating environmentally sustainable concepts into the curriculum, teaching for a sustainable future demands a revision of education using ecology as a fundamental organizing metaphor (Bosevska and Kriewaldt, 2020). They argued that “education for a sustainable future can be an integral part of a whole-school approach that is embedded in curriculum design and whole-school reform to become a school’s way of being and becoming” (Bosevska & Kriewaldt, 2020, p. 71).

Thus, and as stated, some of the examples provided in the documentary film created for this study reveal that (1) conducting hands-on learning about sustainable agriculture with students in outdoor gardens that are housed on school campuses and (2) connecting students and staff to outside organizations, other schools, and nonprofit groups that promote sustainable agriculture (e.g., food banks, garden education organizations, and community-based agriculture programs) can help to embed in students’ consciousness an ecological systems orientation. Active, experiential learning about sustainable agriculture, if it starts in the younger grades and continues throughout secondary school, has the potential to promote and instill an awareness about food systems and healthy nutrition that can last for life.

Recommendations for Improved Practice

- It is not debatable that all schools should implement high-quality, nutritionally responsible food service programs for students. All school districts should have their food service program administrators and managers evaluate the best sources available for fresh, healthy ingredients in order to ensure that meals provided to students are consistently nutritious. Procuring locally-grown, fresh vegetables and fruits, whole grains, and organic ingredients to be used in the preparation of meals served to students in schools is strongly preferred over purchasing mass-produced, processed, or pre-packaged food (which tends to be much less healthy, containing excess sugar, saturated fat, and/or sodium) (Nestle, 2013; Poppendieck, 2010; Waters, 2022). If federal reimbursement rates could be increased to support the increased costs that schools need to bear to be able to procure fresh, locally sourced produce as a main component of school meals, this would be an optimal, desirable change in order to support better nutritional health outcomes for students across the country. We should advocate and lobby for this kind of positive change.
- Although the USDA’s recommended food guidelines are strongly influenced by the food industry and include a large fraction of meat and dairy (Nestle, 2013), research sheds light on the positive potential for including a greater proportion of “climate-friendly,” plant-based foods (e.g., fresh fruits and vegetables) in school meals (Colombo et al., 2020, p. 11; Hall, 2013, p. 660; Mortazavi, 2011).
- All schools would benefit from providing food service personnel routinely with relevant menu- and food service environment training and connecting them with

professional food service organizations so that they develop new skills and can make ongoing improvements in nutritional options for students (Gabrielyan et al., 2017).

- School partnerships with local agricultural and environmental education organizations, other schools that have transitioned to a cook-from-scratch school food service model, as well as smaller-scale restaurateurs and chefs have significant potential to help drive positive change in the quality of food service and types of education about sustainable food systems provided to students in order to promote good nutritional health, as this study has revealed.
- It would be wise for schools to eliminate the option of competitive foods, especially those options that are less healthy (e.g., those that are processed and contain more sugar, sodium, and/or saturated fat). It is important to ensure that all foods offered to students are nutritious, and schools should commit to offering only nutrient-dense à la carte options if they continue to offer competitive foods alongside free meals available to students. Regarding selling competitive foods in schools, Taber et al. (2012) argued that “to improve students' overall nutrient intake, policy makers may need to promote more stringent competitive food regulations that are consistent with the Dietary Guidelines for Americans and do not merely ban junk food” (p. 456). The Executive Summary of the 2020-2025 Dietary Guidelines for Americans “presents overall guidance on choosing nutrient-dense foods and beverages in place of less healthy choices and also discusses special nutrition considerations for individuals at each life stage” (U.S. Department of Agriculture, 2020, p. 4). This federal document underscores the importance of schools providing nutrient-dense food options for

students in place of less healthy ones. Districts that ultimately decide to allow the sale of competitive foods in their schools should strictly adhere to providing nutritious offerings rather than unhealthy ones.

- If cafeteria spaces, for instance, are prioritized with regard to being welcoming and hospitable to everyone, i.e., have an aesthetically pleasing design and ambiance, have seating that facilitates positive social interaction, and if cultures of traditionally marginalized students are made central in the space (e.g., because of staff who share their culture and/or because of culturally relevant and appealing menu offerings and/or because of music being played or languages being spoken in the space that reflect a variety of culture groups, etc.), more students potentially will be inclined to inhabit those spaces and thereby can potentially experience enhanced social-emotional well-being, in addition to improved nutritional health. As stated by Kieling et al. (2011) in their global report analyzing gaps in intervention and implementation strategies for child and adolescent mental health: “Recognition that mental and physical health are indivisible is crucial—infectious diseases [and] malnutrition...have an effect on a child’s mental health” (p. 1520). The intervention studies that Kieling et al. (2011) reviewed support the argument that educational entities, not just the health sector, play an important role in supporting child and adolescent mental health. Promoting enhanced social-emotional well-being in schools through the thoughtful, inclusive design and healthy arrangement and aesthetic of cafeteria spaces arguably has potential to positively affect students’ overall health since students may participate and socialize in these spaces frequently.

- While the schools investigated for this research study have implemented garden education programs, and many elementary schools across the country have implemented school kitchen and garden programs, such as those promoted by the Edible Schoolyard Project, there is more room to expand upon experiential garden teaching and learning occurring in schools across the country so that all students can benefit from hands-on, nutrition-related education that incorporates teaching about sustainable food systems starting in the younger grades (Drimmer, 2018). Schools that do not have garden education programs should seek to implement them, regardless of school location. The topic of food systems and the cultivation and provision of healthy food can be incorporated into many parts of school curricula and can and should become a central theme in social studies, language arts, and/or science classes.

Recommendations for Future Research

- There is a need to conduct systematic research about the impact of the Universal Meals Program on schools across the state of California (and other states that implement this type of policy) and to study further implications of the policy as well as stakeholders' responses to offering free meals and the nutritional quality of meals provided to students on a daily basis.
- This research study explored nutritional services and related education in three different California public schools: one urban, one suburban, and one rural school. However, additional research should be conducted about overcoming systemic

- challenges to offering healthier food choices across a wide range of urban and rural schools, including those which are socioeconomically and culturally diverse.
- There is a need to conduct research about longer-term impacts of school kitchen and garden learning programs, building upon the research conducted for this documentary study as well as other existing research, such as the research study conducted in selected schools in New Orleans by Knapp et al. (2019). While the data for this study and that obtained by Knapp et al. (2019) were anecdotal in nature and based on narrative commentary by a select number of school stakeholders, it nonetheless is important research to build upon since providing healthy food in schools as well as conducting active learning, regarding growing, preparing, and consuming healthy food, appears to provide tangible benefits for all students, including those who may be marginalized in their communities. There are implications for affecting children's behavior and health positively for the long-term through improved school food service practices and the quality of environmental education about sustainable food systems provided in schools.
 - There is also a need to expand upon ecological systems research as it pertains to schools, such as exploring how schools go about reducing waste in cafeteria operations and how they might actively seek to promote environmental sustainability and reduce the carbon footprint. There are additional layers and microsystems within schools, beyond cafeteria services, that have a bearing on environmental impacts—impacts such as water use, energy use, waste generation and disposal, and more. A whole-school approach using ecology as a guiding metaphor, such as that advocated

by Bosevska and Kriewaldt (2020) in Australia, should be explored and studied further in U.S. schools.

- Outside of the social relationship research provided by Zisman and Wilson in the 1990s and more recent research conducted in New Zealand about inclusionary, participative meal practices in schools (Neely et al., 2014), there is a dearth of specific research regarding the means by which a school cafeteria program could help to create a more inclusive social culture for all student groups. It would be important to examine in future research studies how a cafeteria environment might be able to encourage a healthy climate that fosters a greater sense of well-being for students—with regard to spatial organization, seating, cultural representation in staffing, healthy menu offerings that reflect a diversity of ethnic cuisines, and more.

Conclusion

Regarding school food service implementation under the California Universal Meals policy, this exploratory documentary study has illuminated that the fiscal and logistical challenges involved with transforming and scaling up a school food service program to be able to provide fresh, nutritious, wholesome food to all students on a consistent basis are not easily surmountable, but positive systemic changes are certainly possible and can happen incrementally especially with a shared mindset by school stakeholders and with appropriate supports put in place and levers being pushed. This study has implicated that through an ecocritical mindset, strategic staffing, support and training for cafeteria staff, strategic non-exploitative partnerships, intentional procurement of healthy ingredients, and effective meal

planning, school districts can begin to overcome challenges and transform their food service programs into ones that more consistently optimize the nutritional health of all students.

In addition, if a school district has leadership that prioritizes funding within its budget specifically toward the improvement of school food service practices and partners with outside entities with expertise that helps them move in this important direction of promoting greater nutritional health for all students, they have a better chance of launching transformational changes in the school and in students' lives that potentially are sustainable and lasting. Chef consultants, restaurateurs, and experienced menu planners are possible resources to partner with in order to train and support personnel so that staff can adopt new ideas and skills that lead to positive changes in practice; with this kind of professional support, healthy changes in school food service practices have a greater chance of coming to fruition and enduring. From the perspective of this researcher, the degree of openness and commitment from educational leaders within a school district is critical to being able to form supportive, non-exploitative, beneficent, interactive partnerships with entities that have specific expertise in order to be able to collaborate and implement new ideas that promote more tangible, lasting, positive nutritional health impacts for students in schools. Valuing cafeteria workers as critical providers of students' nutrition, school systems should invest in their ongoing professional development so that they can be sure to provide healthy, cook-from-scratch meals to students on a consistent basis.

Students' health and well-being are not just impacted through school nutrition programs, but they also are impacted by the quality of the environmental and nutrition-related education they receive in schools. Education about sustainable agriculture in the form of hands-on,

active learning in garden settings that starts when students are young has the potential to positively affect students' consciousness about the importance of having healthy nutritional habits and the need to support healthy, sustainable food systems for the long-term. We must be committed to educating students starting at a young age for an ecologically-sustainable future in order to promote the health and well-being of all, versus giving up and capitulating to predatory forces behind the industrial, fast food complex that is entrenched in our society, resulting in rampant malnutrition and related adverse health conditions currently experienced by millions of students in this country.

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Appendix A

Recruitment Flyer

REQUEST FOR PARTICIPATION IN A RESEARCH STUDY

TITLE OF STUDY

Edible Learning: Designing Effective Nutrition Education and Services in K-12 Schools

NAME OF RESEARCHER

Kristina Grasty, Doctoral Student in Educational Leadership at San Jose State University

NAME OF FACULTY SUPERVISOR

Dr. Robert Gliner, Professor Emeritus of Sociology and Interdisciplinary Social Science at SJSU

PURPOSE OF STUDY

Would you like to participate in a study investigating educational practices that promote good nutrition? This research study will involve the creation of a documentary film that examines how experiential, nutrition-related programs impact students' learning and well-being. This study will also investigate practices happening in school cafeterias that impact students' health and well-being. This research is part of a dissertation to be submitted by the researcher to SJSU for the completion of a doctoral program.

Students, staff, and parents are sought for participation in this study. If you decide to participate, you will be filmed at your school site. Also, you may be invited to be interviewed, which would involve asking a few questions related to school experiences that would be recorded on video.

PROCEDURES

This research will involve being filmed during the school day or after school at your school site. If you consent to participate, footage of you may be incorporated into a documentary film.

If you are invited to participate in a short interview, and you consent to being interviewed, the interview would be filmed. You would be asked to talk about one or more of the following questions:

1. What are students learning (through this program or class)?
2. How does learning this way (or this information) help students?
3. What are some of the best practices occurring in the school cafeteria? Please describe.

You would answer these questions during regularly scheduled school hours or after school.

The recording session for the interview should take approximately 10 minutes.

Participation in this study is voluntary.

POTENTIAL RISKS

If you choose to participate, your image and/or selected portions of your interview may be included in the film. No student's name will be included in the film. An adult's name will only be included in the film if the adult gives permission. Staff and students can choose not to participate in study without consequence to their professional or academic standing.

POTENTIAL BENEFITS

You may benefit from being part of the study by learning more about how nutrition-related education and services impact students' learning and health. Your participation may also benefit other schools as the intention is to share this film with other practitioners and school

leaders who have interest in promoting environmental sustainability and healthy nutrition for students.

INCENTIVES FOR PARTICIPATION

There will be no financial compensation for participating in this study.

CONFIDENTIALITY

The results of this study will be published in the form of a written dissertation and a documentary film. Your image may appear in the film. No student's name will be included in the written dissertation or the film. An adult's name would only be included if you give permission. To ensure the privacy of the recordings, the researcher will store video footage on a password protected computer/hard drive that only the researcher or supervising professor have access to.

WHOM TO CONTACT IF YOU HAVE QUESTIONS

If you have questions at any time during the study, please contact Kristi Grasty at

kristi.grasty@sjsu.edu or Dr. Robert Gliner, Professor Emeritus, Sociology and

Interdisciplinary Social Sciences at San Jose State University: robert.gliner@sjsu.edu.

Complaints about the research may be presented to Dr. Bradley Porfilio, Director of the

Ed.D. Leadership Program at San Jose State University: bradley.porfilio@sjsu.edu.

For questions about participants' rights, please contact Dr. Richard MocarSKI, Associate Vice

President for Research, San Jose State University, at 408-924-2479 or irb@sjsu.edu.

Appendix B

Consent Form – Adult/Staff

REQUEST FOR YOUR PARTICIPATION IN RESEARCH

TITLE OF THE STUDY

Edible Learning: Designing Effective Nutrition Education and Services in K-12 Schools

NAME OF THE RESEARCHER

Kristina Grasty, Doctoral Student in Educational Leadership at San Jose State University

NAME OF FACULTY SUPERVISOR

Dr. Robert Gliner, Professor Emeritus of Sociology and Interdisciplinary Social Science at SJSU

THE PURPOSE OF THIS STUDY

You are being asked to participate in a study investigating educational practices that promote good nutrition. This study will involve the creation of a documentary film that examines how experiential, nutrition-related programs might impact students' learning and well-being. This study will also investigate practices happening in school cafeterias that impact students' health and well-being. This research is part of a dissertation to be submitted by the researcher to SJSU for the completion of a doctoral program.

If you decide to participate in the study, you will be filmed at the school where you work.

Also, you may be invited to be interviewed, which would involve asking a few questions related to experiences at the school that would be recorded on video.

PROCEDURES

You will participate in your daily work with the addition of consenting to being filmed during some of the school day while you work. If you consent to participate, footage of you in class or in the cafeteria or from an interview may be incorporated into the film.

If you are invited to participate in a short interview, and you consent to being interviewed, the interview would be filmed. You would be asked to talk about one or more of the following questions:

1. What are students learning (through this program or class)?
2. How does learning this way (or this information) help students?
3. What are some of the best practices occurring in the school cafeteria? Please describe.

You would answer these questions during regularly scheduled work hours or after school.

The recording session for the interview should take approximately 10 minutes.

If you decide not to participate in this study, you will not be filmed, nor be interviewed. If you do not sign this consent form and do not grant consent, you will not be filmed, nor located in the line of sight of the filming.

POTENTIAL RISKS

There are no direct risks anticipated. If you have any discomfort with being filmed and/or you do not wish to be filmed, your decision not to participate will be fully honored, and you will not be filmed. You may opt out without any consequence to your professional standing.

If you choose to participate, your image and/or selected portions of your interview may be included in the film. Your name will only be included in the film if you give permission. The researcher will ask you if you wish to have your name included in the film and will note that.

You may refuse to participate in the entire study or any portion of the study without any

negative effect on your relations with the school or San Jose State University. You may decide to stop at any time.

POTENTIAL BENEFITS

You may benefit from being part of the study by learning more about how your work impacts students and their health. Your participation may benefit other schools as the intention is to share this film with other practitioners and school leaders who have interest in promoting environmental sustainability and healthy nutrition for students.

INCENTIVES FOR PARTICIPATION

There will be no financial compensation for participating in this study.

CONFIDENTIALITY

The results of this study will be published in the form of a written dissertation and a documentary film. Your image may appear in the film, and your name would only be included if you give permission. To ensure the privacy of the recordings, the researcher will store video footage on a password protected computer/hard drive that only the researcher or supervising professor have access to.

WHOM TO CONTACT IF YOU HAVE QUESTIONS

If you have questions at any time during the study, please contact Kristi Grasty at

kristi.grasty@sjsu.edu or Dr. Robert Gliner, Professor Emeritus, Sociology and

Interdisciplinary Social Sciences at San Jose State University: robert.gliner@sjsu.edu.

Complaints about the research may be presented to Dr. Bradley Porfilio, Director of the

Ed.D. Leadership Program at San Jose State University: bradley.porfilio@sjsu.edu.

For questions about participants' rights, please contact Dr. Richard MocarSKI, Associate Vice President for Research, San Jose State University, at 408-924-2479 or irb@sjsu.edu.

INFORMATION ABOUT PARTICIPANTS' RIGHTS

No service of any kind to which you are entitled will be lost or at risk if you decide not to participate in this study. Participation is voluntary. You may refuse to participate in an interview and/or the filming at any time. You have the right not to answer any questions you do not wish to answer. If you decide to participate in the study, you are free to quit at any time without any negative effect on your relations with the school or San Jose State University.

SIGNATURE

A signature indicates that you voluntarily agree to participate in the study and that you have read the information in this document about the study. Please make a copy of this page for your records.

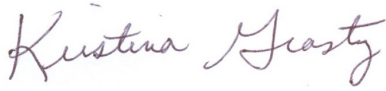
Participant Name (printed)

Participant Signature

Date

RESEARCHERS' STATEMENT

We certify that the participant has been given adequate time to learn about the study and ask questions. It is our opinion that the participant understands the purpose, risks, benefits, and procedures of the research and has voluntarily agreed to participate.



5/19/22

Kristina Grasty, Doctoral Student

Robert Gliner, Ph.D., Faculty Supervisor Date

Appendix C

Consent Form - Student

REQUEST FOR YOUR PARTICIPATION IN RESEARCH

TITLE OF THE STUDY

Edible Learning: Designing Effective Nutrition Education and Services in K-12 Schools

NAME OF THE RESEARCHER

Kristina Grasty, Doctoral Student in Educational Leadership at San Jose State University

NAME OF FACULTY SUPERVISOR

Dr. Robert Gliner, Professor Emeritus of Sociology and Interdisciplinary Social Science at SJSU

THE PURPOSE OF THIS STUDY

You are being asked to participate in a study investigating educational practices that promote good nutrition. This study will involve the creation of a documentary film that examines how experiential, hands-on, nutrition-related programs might impact students' learning and well-being. This study will also investigate practices happening in school cafeterias that impact students' health and well-being. This research is part of a dissertation to be submitted by the researcher to SJSU for the completion of a doctoral program.

If you decide to participate in the study, you will be filmed at school, in your class or on campus. Also, you may be invited to be interviewed, which would involve asking a few questions about your learning experiences that would be recorded on video.

WHAT STUDENTS WILL BE ASKED TO DO

You will participate in your class as you normally would but with the addition of consenting to being filmed during some of the class activities. Filming would take place during two class periods between now and the end of the semester. If you consent to participate, footage of your participation in the class or from an interview may be incorporated into the film.

If you are invited to participate in a short interview, and you consent to being interviewed, the interview would be filmed. You would be asked to talk about one or more of the following questions:

1. What are you learning (through this program or class)?
2. How does learning this way (or this information) help you?
3. What are your thoughts about your school cafeteria? (Or what do you like about your school cafeteria?) Please describe.

You would answer these questions during regularly scheduled class time or after class. The recording session for the interview should take approximately 5-10 minutes.

If you decide not to participate in this study, you will not be filmed during class, nor be interviewed. Students who have not turned in this signed consent form and a parent permission form will be identified by the researcher and teacher prior to filming and you will not be located in the line of sight of the filming.

POTENTIAL RISKS

There are no direct risks anticipated. If you have any discomfort with being filmed and/or you do not wish to be filmed, your decision not to participate will be fully honored, and you will not be filmed. You may opt out without any consequence to your academic standing. If

you choose to participate, your image and/or selected portions of your interview may be included in the film. Your full name will not be included in the film.

POTENTIAL BENEFITS

You may benefit from being part of the study by learning more about how your learning impacts you and your health. Your participation may benefit students and staff in other schools as the intention is to share this film with other educators and school leaders who have interest in promoting environmental sustainability and healthy nutrition for students.

INCENTIVES FOR PARTICIPATION

There will be no financial compensation for participating in this study.

CONFIDENTIALITY

The results of this study will be published in the form of a written dissertation and a documentary film. While your image may appear in the film, no information that could identify you by name will be included. To ensure the privacy of the recordings, the researcher will store video footage on a password protected computer/hard drive that only the researcher or supervising professor have access to.

WHOM TO CONTACT IF YOU HAVE QUESTIONS

If you have questions at any time during the study, please contact Kristi Grasty at

kristi.grasty@sjsu.edu or Dr. Robert Gliner, Professor Emeritus, Sociology and

Interdisciplinary Social Sciences at San Jose State University: robert.gliner@sjsu.edu.

Complaints about the research may be presented to Dr. Bradley Porfilio, Director of the

Ed.D. Leadership Program at San Jose State University: bradley.porfilio@sjsu.edu.

For questions about participants' rights, please contact Dr. Richard MocarSKI, Associate Vice President for Research, San Jose State University, at 408-924-2479 or irb@sjsu.edu.

INFORMATION ABOUT STUDENT RIGHTS

No service of any kind to which students are entitled will be lost or at risk if you decide not to participate in this study. Participation is voluntary. You may refuse to participate in an interview and/or the filming of the teaching and learning. You have the right not to answer any questions you do not wish to answer. If you decide to participate in the study, you are free to quit at any time without any negative effect on your relations with San Jose State University or LGHS.

SIGNATURE

A signature indicates that you voluntarily agree to participate in the study and that you have read the information in this document about the study. Please make a copy of this page for your records.

Student Name (printed)

Student Signature

Date

RESEARCHERS' STATEMENT

We certify that the student has been given adequate time to learn about the study and ask questions. It is our opinion that the participant understands the purpose, risks, benefits, and procedures of the research and has voluntarily agreed to participate.

  5/19/22

Kristina Grasty, Doctoral Student Robert Gliner, Ph.D., Faculty Supervisor Date

Appendix D

Permission Form – Parent

REQUEST FOR YOUR CHILD’S PARTICIPATION IN RESEARCH

TITLE OF THE STUDY

Edible Learning: Designing Effective Nutrition Education and Services in K-12 Schools

NAME OF THE RESEARCHER

Kristina Grasty, Doctoral Student in Educational Leadership at San Jose State University

NAME OF FACULTY SUPERVISOR

Dr. Robert Gliner, Professor Emeritus of Sociology and Interdisciplinary Social Science at SJSU

THE PURPOSE OF THIS STUDY

Your child is being asked to participate in a study investigating educational practices that promote good nutrition. This study will involve the creation of a documentary film that examines how experiential, nutrition-related programs might impact students’ learning and well-being. This study will also investigate practices happening in school cafeterias that impact students’ health and well-being. This research is part of a dissertation to be submitted by the researcher to SJSU for the completion of a doctoral program.

If you grant permission for your child to participate in the study and your child also consents, your child will be filmed at school, in class or on campus. Also, your child may be invited to be interviewed, which would involve asking a few questions about learning experiences that would be recorded on video.

WHAT STUDENTS WILL BE ASKED TO DO

Your child will participate in class with the addition of consenting to being filmed during some of the class activities. Filming would take place during two class periods between now and the end of the semester. If you give permission and your child consents to participate, footage of your child's participation in the class or in an interview may be incorporated into the film.

If you give permission for your child to participate in a short interview and your child is asked to be interviewed and consents to being interviewed, the interview would be filmed.

Your child would be asked to talk about one or more of the following questions:

1. What are you learning (through this program or class)?
2. How does learning this way (or this information) help you?
3. What are your thoughts about your school cafeteria? (Or what do you like about your school cafeteria?) Please describe.

Your child would answer these questions during regularly scheduled class time or after class.

The recording session for the interview should take approximately 5-10 minutes.

If you do not wish for your child to participate in this study and your child decides not to participate in this study, your child will not be filmed during class, nor be interviewed.

Students who have not turned in this signed permission form or a consent form will be identified by the researcher and teacher and will not be located in the line of sight of the filming.

POTENTIAL RISKS

There is no direct risk anticipated. If your child has any discomfort with being filmed or does not wish to be filmed, or you do not give permission for your child to be filmed, this decision

not to participate will be fully honored. If you give permission and your child wishes to participate, your child's image and/or selected portions of an interview with your child may be included in the film. Your child's full name will not be included in the film.

POTENTIAL BENEFITS

Your child may benefit from being part of the study by learning more about how this kind of learning impacts students and their health. Your child's participation may also benefit students and staff in other schools as the intention is to share this film with other educators and school leaders who have interest in promoting environmental sustainability and healthy nutrition for students.

INCENTIVES FOR PARTICIPATION

There will be no financial compensation for participating in this study.

CONFIDENTIALITY

The results of this study will be published in the form of a written dissertation and a documentary film. While your child's image may appear in the film, no information that could identify your child by full name will be included. To ensure the privacy of the recordings, the researcher will store video footage on a password protected computer/hard drive that only the researcher or supervising professor have access to.

WHOM TO CONTACT IF YOU HAVE QUESTIONS

If you have questions at any time during the study, please contact Kristi Grasty at kristi.grasty@sjsu.edu or Dr. Robert Gliner, Professor Emeritus, Sociology and Interdisciplinary Social Sciences at San Jose State University: robert.gliner@sjsu.edu.

Complaints about the research may be presented to Dr. Bradley Porfilio, Director of the Ed.D. Leadership Program at San Jose State University: bradley.porfilio@sjsu.edu.

For questions about participants' rights, please contact Dr. Richard MocarSKI, Associate Vice President for Research, San Jose State University, at 408-924-2479 or irb@sjsu.edu.

INFORMATION ABOUT STUDENT RIGHTS

No service of any kind to which students are entitled will be lost or at risk if you decide not to give permission for your child to participate in this study. Participation is voluntary. Your child may refuse to participate in an interview and/or the filming of the teaching and learning. Your child has the right not to answer any questions at any time. If your child decides to participate in the study, your child is free to quit at any time without any negative effect on your relations with San Jose State University or LGHS.

SIGNATURE

A signature indicates that you give permission for your child to participate in the study and that you have read the information in this document about the study. A second copy of this form, signed and dated by the researcher, is attached for your records.

Parent Name (printed)

Parent Signature

Date

RESEARCHERS' STATEMENT

We certify that the student's parent/guardian has been given adequate time to learn about the study and ask questions. It is our opinion that the parent(s)/guardian(s) understand their child's rights and the purpose, risks, benefits, and procedures of the research and has voluntarily agreed to allow their child to participate. We have also explained the study to the student and have received assent from the student.

  5/19/22

Kristina Grasty, Doctoral Student Robert Gliner, Ph.D., Faculty Supervisor Date

**SAN JOSE STATE UNIVERSITY
HUMAN SUBJECTS INSTITUTIONAL REVIEW BOARD**

IRB Notice of Approval

Date of Approval: 5/27/2022

Study Title: Edible Learning: Designing Effective Nutrition Education and Services in K-12 Schools

Principal Investigator (PI): Dr. Robert Gliner

Other SJSU Team Members:

SJSU Student(s): Kristina Grasty

Funding Source: None

IRB Protocol Tracking Number: 22089

Type of Review:

- Exempt Registration: Category of approval §46.104(d)(1)
- Expedited Review: Category of approval §46.110(a)(7)
- Full Review
- Modifications:
- Continuing Review

Special Conditions :

- Waiver of signed consent approved
- Waiver of some or all elements of informed consent approved
- Risk determination for device:
- Other: Review [SJSU's RSCA's Adapt Plan](#) page for info and requirements for conducting in-person research during the current phase of the COVID-19 pandemic. During phase 4 (current phase), submission of a RSCA project plan is not required. However, some record-keeping obligations may apply. The RSCA Adapt Plan page should also be consulted if we revert back to a phase that restricts in-person research.

Continuing Review:

Is not required. Principal Investigator must file a [status report](#) with the IRB one year from the approval date on this notice to communicate whether the research activity is ongoing. Failure to file a status report will result in closure of the protocol and destruction of the protocol file after three years.

Is required. An annual [continuing review renewal application](#) must be submitted to IRB one year from the approval date on this notice. No human subjects research can occur after this date without continuing review and approval.

IRB Contact Information:

Alena Filip
Human Protections Analyst
Office of Research
Alena.Filip@sjsu.edu
408-924-2479

IRB document submission address: irb@sjsu.edu

IRB Chair:

Dr. Priya Raman
Department of Communication Studies

Institutional Official:

Dr. Richard Mocarski
Associate Vice President for Research

Primary Investigator Responsibilities:

- Any significant changes to the research must be submitted for review and approval prior to the implementation of the changes. The modification request form is posted on our [website](#).
- Reports of unanticipated problems, injuries, or adverse events involving risks to participants must be submitted to the IRB within seven calendar days of the primary investigator's knowledge of the event. The incident report form is posted on our [website](#).
- If the continuing review section of this notice indicates that continuing review is required, a request for continuing review must be submitted prior to the date the provided.
- Comply with an SJSU IRB or Institutional Official (IO) decision to suspend or withdraw approval for the study

Approval Limitations:

- Although your study has been approved by the IRB, both the IRB and the Institutional Official (IO) for SJSU has the right to audit any approved study and withdraw approval.
- This approval is no longer valid once the SJSU PI is no longer affiliated with SJSU, unless the study is re-assigned to an SJSU-affiliated PI via a modification request.
- SJSU investigators may list external personnel in their applications. However, the SJSU IRB does not assume responsibility for the compliance of external personnel. Instead external personnel should contact their IRB, either to coordinate a reliance agreement with the SJSU IRB as the IRB of record or to have their IRB conduct a separate review for their activities. External personnel who do not have the support of an external IRB and have not established a contract with SJSU should not receive access to individually identifying information about subjects. SJSU investigators are encouraged to be judicious about who they add as part of the study personnel, as responsibility for compliance rests with the SJSU PI in the event that external personnel do not have the support of an outside IRB.