

University of New England  
**DUNE: DigitalUNE**

---

All Theses And Dissertations

Theses and Dissertations

---

4-2020

## The Value Of Food: A Small Rural School Cafeteria Budget Case Study

Rosie Rochelle Slentz

Follow this and additional works at: <https://dune.une.edu/theses>



Part of the [Educational Leadership Commons](#), [Education Economics Commons](#), [Elementary and Middle and Secondary Education Administration Commons](#), and the [Elementary Education Commons](#)

© 2020 Rosie Rochelle Slentz

---

THE VALUE OF FOOD: A SMALL RURAL SCHOOL  
CAFETERIA BUDGET CASE STUDY

by

Rosie Rochelle Slentz

BA (University of California, Irvine) 1993

MA (Humboldt State University) 2016

A DISSERTATION

Presented to the Affiliated Faculty of

The College of Graduate and Professional Studies at the University of New England

Submitted in Partial Fulfillment of Requirements

For the degree of Doctor of Education

Portland & Biddeford, Maine

April, 2020

Copyright by  
Rosie Rochelle Slentz  
2020

THE VALUE OF FOOD: A SMALL RURAL SCHOOL  
CAFETERIA BUDGET CASE STUDY

**ABSTRACT**

This mixed-methods case study was used to examine a small school district in a rural setting that operates a child nutrition program without encroaching on the general fund, while still serving organic, made-from-scratch meals. Current research confirms that school districts are challenged to balance the requirements of the National School Lunch Program while maintaining quality. School lunch programs, particularly small rural ones, are operating at a deficit. This researcher addressed an important gap by providing a comprehensive account of a fiscally sound cafeteria budget in a rural area for a small school, serving 150 lunches per day. In this study, the researcher examined the characteristics that support a financially viable lunch program in a small rural school district. The primary research question for this study asked, “How can small, rural schools operate a nutrition program that is financially self-sustaining?” The supporting research questions were used to explore what factors or practices the nutrition director, administrator, and business manager of a small, rural school nutrition program perceived positively contribute to or impede the operation of a self-funding nutrition program. There were three participants in this single-site, case study: a district administrator, nutrition director, and business manager. In addition, data was collected from a survey, interviews, observation, and the following artifacts: wellness policy, lunch menus, production records, and the cafeteria budget. The data collected affirmed that the primary drivers of the success of this

program are commitment to quality food, dedicated staff, a conscientious attitude towards waste and spending, and a well-designed and equipped onsite kitchen. The most prominent challenges to this self-sustaining program include lack of time, few vendors who deliver the desired ingredients, and difficulty finding and retaining qualified staff. Small, rural, lunch programs will have the best chance at success if they support dedicated staff, invest in an on-site kitchen, procure quality ingredients, prepare meals from scratch, and provide students with hands-on learning about the food system. Further research should include multicase studies of small rural cafeteria programs to identify benchmarks of operating expenses. These studies should include sites with viable budgets and sites that encroach on the general fund.

*Keywords:* rural schools, small schools, school food, cafeteria budget, National School Lunch Program, NSLP

University of New England

Doctor of Education  
Educational Leadership

This dissertation was presented  
by

Rosie Rochelle Slentz

It was presented on  
March 9, 2020  
and approved by:

Heather Wilmot, Ed.D, Lead Advisor  
University of New England

Darren Akerman, Ed.D, Secondary Advisor  
University of New England

Christine Frazier, Ed.D, Affiliate Committee Member  
University of the Pacific

## DEDICATION

For my son, who already knows that each hard thing we succeed at builds our capacity for the next one. I hope always to be a model of growth and learning in your eyes.

## ACKNOWLEDGEMENTS

To my husband: Thank you for the space to go after my dreams and for giving me the eye when my web searches strayed from Google Scholar to Ebay.

To my mom: Thank you for always making me feel loved, special, and capable.

To my advisory committee: I am grateful for Dr. Christine Frazier's company on this dissertation journey. Dr. Darren Akerman has helped me to articulate and support the passion that I have for systems thinking. Dr. Heather Wilmot has provided me unwavering and exacting support at just the right times to propel this study to completion. Thank you for keeping me motivated and productive.

To the research participants: You are doing the work and modeling the innovations that I hope this study can inspire for others. Your daily impact is what matters. You are the heroes.



## TABLE OF CONTENTS

CHAPTER 1 INTRODUCTION.....	1
Statement of the Problem .....	4
Purpose of the Study .....	5
Research Questions .....	6
Conceptual Framework .....	7
Stages of the Food System .....	8
Production stage.....	8
Process stage .....	8
Distribution stage .....	9
Consumption stage.....	9
Assumptions and Limitations.....	10
Significance of the Study .....	11
Background .....	11
Definition of Key Terms .....	15
Conclusion.....	19
CHAPTER 2 LITERATURE REVIEW.....	20
History of National School Lunch Program.....	21
Current Policy .....	24
Funding and Reimbursement.....	27
Challenges for Small, Rural Schools.....	29

Procurement .....	30
Expense .....	31
Geography Capacity Constraints.....	34
Facilities .....	34
Staffing.....	34
Scale .....	35
Potentially Effective Practices.....	36
Food Education .....	36
Media.....	36
Curricula.....	37
Modeling .....	40
Food Appeal.....	40
Taste and Presentation.....	40
A-la-Carte Foods.....	42
Values.....	43
Conceptual Framework .....	44
Summary of Literature Review .....	47
CHAPTER 3 METHODOLOGY .....	49
Rationale for Mixed-Methods Research Design .....	49
Rationale for Single-Case-Study Methodology .....	49
Research Setting.....	50
Participants .....	51
Data .....	52

Overview of Research Design.....	54
Literature Review.....	54
Institutional Review Board .....	55
Data Collection.....	55
Phase 1: Survey.....	56
Phase 2: Artifact collection and analysis .....	56
Phase 3: Direct observation .....	57
Phase 4: Individual interviews .....	58
Data Analysis and Synthesis .....	60
Data Storage.....	62
Participant Rights.....	62
Limitations of the Study.....	63
Chapter Summary.....	64
CHAPTER 4 RESULTS.....	65
Research Questions Investigated.....	65
Data Collection Processes .....	67
Recruitment.....	67
Consent.....	68
Data Collection.....	68
Description of Participants .....	69
Analysis Method and Presentation of Results.....	70
Presentation of Survey Results.....	71
Presentation of Survey Results by Section.....	72

Survey Section 1 .....	72
Survey Section 2 .....	72
Survey Section 3 .....	74
Survey Section 4 .....	76
Survey Section 5 .....	77
Survey Section 7 .....	80
Presentation of Survey Results by Theme .....	81
Support of program .....	81
Challenges to program .....	81
Presentation of Individual Interview Results .....	81
Presentation of Interview Results by Question Group .....	83
Demographics, Interview Questions 1-2.....	83
Meal schedule, Interview Question 3.....	84
Cafeteria environment, Interview Question 4.....	84
Staffing, Interview Questions 5, 10, and 11.....	87
Kitchen workspace and equipment, Interview Question 6 .....	89
Menu and recipe development, Interview Questions 7-8 .....	90
Procurement, Interview Question 9 .....	91
Training, Interview Question 12 .....	93
Family food values, Interview Question 13 .....	94
Input and feedback, Interview Question 14 .....	95
Supporting initiatives and education, Interview Questions 15-16 .....	96
Unique, Interview Question 17 .....	98

Point of pride, Interview Question 18.....	98
Challenges, Interview Question 19.....	99
Financial success, Interview Question 20.....	100
Overcoming challenges, Interview Question 21.....	101
Potential changes for success, Interview Questions 22-23.....	103
Advice, Interview Question 24.....	104
Presentation of Individual Interview Results by Theme.....	104
Support of the program.....	104
Responsiveness.....	104
Procurement.....	106
Facilities.....	106
Education.....	107
Quality.....	107
Challenges to the program.....	108
Rural setting.....	108
Staffing.....	108
Time.....	109
Presentation of Artifacts.....	109
Presentation of Artifact Results by Individual Document.....	110
Wellness policy.....	110
Physical activity.....	110
School-based learning experiences.....	111
Professional development.....	111

Waste reduction .....	111
Nutrition Services Annual Report.....	111
Wellness Committee .....	112
Menus.....	113
Production records .....	114
CNIPS Monthly Summaries .....	116
Cafeteria budget.....	118
Presentation of Artifact Results by Theme .....	122
Support of program .....	122
Challenges to program .....	123
Presentation of Observation Results .....	123
Environment.....	123
Physical space .....	123
Atmosphere .....	125
Activity.....	126
Breakfast and lunch prep 8:10 am–10:14 am. ....	126
Breakfast service 10:15 am–10:50 am.....	130
Lunch prep 10:51 am–12:04 pm .....	132
Primary lunch service 12:05 pm–12:30 pm.....	133
Upper grade lunch service 12:50 pm–1:12 pm .....	134
Post lunch service 1:13 pm–1:30 pm .....	135
Presentation of Observation Results by Theme .....	135
Support of the program .....	135

Challenges to the program .....	136
Summary of Findings .....	137
CHAPTER 5 CONCLUSION .....	138
Interpretation of Findings.....	139
Supporting Research Question 1 .....	139
Supporting Research Question 2 .....	142
Unique Challenges to Research Site .....	146
Overarching Research Question.....	147
Implications .....	151
Recommendations for Action.....	152
Support passionate staff .....	152
Invest in the kitchen facility.....	152
Procure quality ingredients .....	152
Provide scratch-cooked meals.....	152
Provide opportunities for hands-on learning about food systems.....	153
Recommendations for Further Study .....	153
Limitations .....	154
Conclusion.....	155
REFERENCES .....	159
APPENDIX A: INVITATION TO PARTICIPATE .....	176
APPENDIX B: INTERVIEW PROTOCOL .....	177
APPENDIX C: EMAIL REQUESTING 2018-2019 DOCUMENTS.....	178
APPENDIX D: SURVEY QUESTIONS .....	179

APPENDIX E: CONSENT FOR PARTICIPATION IN RESEARCH .....184

APPENDIX F: INTERVIEW QUESTIONS..... 188

APPENDIX G: EMAIL REQUESTING MEMBER-CHECK ..... 191

DUNE: DIGITALUNE CONTRIBUTOR AGREEMENT ..... 192



## LIST OF TABLES

Table 1. Snapshot of California SY 2010-2011 School Lunch Programs.....	13
Table 2. Research Site Ending Balance for Cafeteria Fund SY 2012-2018.....	14
Table 3. Research Questions and Data Sources .....	66
Table 4. Participant Answers for Survey Questions 4-8 .....	73
Table 5. Participant Answers for Survey Questions 9-10 .....	74
Table 6. Participant Answers for Survey Questions 11-12 .....	76
Table 7. Participant Answers for Survey Questions 13-14 .....	77
Table 8. Participant Answers for Survey Questions 15-21 .....	79
Table 9. Length and Word Count of Individual Interviews .....	82
Table 10. CNIPS SY 2018-2019 Lunch and Breakfast Counts.....	117
Table 11. Average Revenue per Meal .....	122

## LIST OF FIGURES

Figure 1. Percentages of food and labor expenses for the SY 2014-2015.....	31
Figure 2. Percentages of food and labor costs for the research site SY 2014-2015. ....	32
Figure 3. USDA meal reimbursement sources for the SY 2014-2015 .....	33
Figure 4. Ratio of SY 2014-2015 revenue sources for research site. ....	33
Figure 5. Proportions of lunch and breakfast reimbursements.....	118
Figure 6. SY 2018-2019 budget summary. ....	119
Figure 7. SY 2018-2019 cafeteria spending. ....	120
Figure 8. SY 2018-2019 cafeteria category spending. ....	120
Figure 9. SY 2018-2019 cafeteria revenue sources and amounts.....	121
Figure 10. Research site carry-over balance.....	145
Figure 11. SY1024-2015 meal reimbursement sources. ....	149

## CHAPTER 1

### INTRODUCTION

In the past 30 years, the prevalence of childhood obesity has more than doubled among children of Ages 2-5, has tripled among youth of Ages 6-11, and has more than tripled among adolescents of Ages 12-19 (Bitman, Pollan, Salvador, & Schutter, 2015; National Institute of Health, n.d., para 2;). Seventeen percent of American children are obese (Ogden, Carroll, Kit, & Flegal, 2014). In San Francisco, the rate is 33% (Bramwell, 2018, p. 1). The overabundance of cheap calories available to and consumed by Americans is increasing the rate of obesity. Even when cafeteria managers adhere to appropriate portions, the poor nutritional quality of the food results in a population at risk for a range of health problems (Lang & Heasman, 2015; Pollan, 2009; World Health Organization, 2009). Two of the major health effects of obesity include heart disease and diabetes. Aside from the effects on quality of life and mortality, obesity and its related maladies have economic consequences. These health conditions could cost San Francisco's health system as much as \$28 million a year (Bramwell, 2018, p. 1).

Food is also at the root of other problems. Agriculture plays a role in the health of the climate. Consider that a majority of the Nation's water consumption goes towards farming (U.S. Department of Agriculture [USDA], Economic Research Service, 2008). The fertilizers that help food grow bigger and faster have found their way into the groundwater and are leaching out to the sea. These nitrogen and oxygen molecules feed massive blooms of algae, which then deplete the oxygen needed by other sea life (Diaz & Rosenberg, 2008). Dead zones in the sea and monocrops that compromise bee health are just a couple examples of how food production can affect the environment (Bennett, Bending, Chandler, Hilton, & Mills, 2012; Ratnieks & Carreck, 2010).

Public health, economy, ecology, and politics are all influenced by food systems (Bitman et al., 2015). A food system is the path food takes from *field to fork*. In general, this system includes agricultural production, processing and distribution, retail and consumption, and waste and recycling. The food we choose to eat has consequences on public health and the environment. This has not passed unnoticed. In response to rising rates of obesity and climate change, growing social consideration has led to a food movement that weaves together numerous threads of concern, as listed by Pollan (2010):

School lunch reform; the campaign for animal rights and welfare; the campaign against genetically modified crops; the rise of organic and locally produced food; efforts to combat obesity and type 2 diabetes; “food sovereignty” (the principle that nations should be allowed to decide their agricultural policies rather than submit to free trade regimes); farm bill reform; food safety regulation; farmland preservation; student organizing around food issues on campus; efforts to promote urban agriculture and ensure that communities have access to healthy food; initiatives to create gardens and cooking classes in schools; farm worker rights; nutrition labeling; feedlot pollution; and the various efforts to regulate food ingredients and marketing, especially to kids. (para. 10)

School lunch reform takes a place at the table in the current food movement, and rightly so. It has been reported that 30.4 million children are served school lunch in the United States each school day. That is a tremendous amount of food. The annual expense of these lunches amounts to 13.6 billion dollars (USDA, Economic Research Service, 2018b). On the surface, school lunch is not a major player in government; yet, the topic is far-reaching and applicable to everyone, even those without children. The school food system is well positioned to affect the state of the environment, the economy, and national healthcare expenses. This is a systemic

issue. What schools serve children to eat has many implications. Consumption of healthy school meals has been associated with school success in terms of behavior and academics (Belot, Belot, & James, 2011). School lunch also influences children's and parents' perceptions of what is healthy, as well as their actual health (California Center for Rural Policy, 2015, p. 88; U.S. House of Representatives, Committee on Agriculture, 1946; Rauzon, Wang, Studer, & Crawford, 2010). Furthermore, the farming, processing, and distribution practices of those 30.4 million school lunches served each day affect the environment and economy (Bennett et al., 2012; Diaz & Rosenberg, 2008; Gore, 2006; Lappé, 2011; Morgan & Sonnino, 2013; Pollan, 2009; Ratnieks & Carreck, 2010).

Much of the Nation's school food system is defined by the Richard B. Russell National School Lunch Act of 1946 (National School Lunch Act, 1946). This is the legislation responsible for the creation of the National School Lunch Program (NSLP; 2015) by which eligible students are served free or reduced-price meals. Any student of a participating school can purchase a meal at full price if students do not qualify for free or reduced rates. Federal funding (and a small amount of state funding) provides reimbursements to schools for the number of qualifying meals served. To be reimbursed, the foods must meet the nutrition standards set forth by the USDA (2012). Additional assistance to schools comes in the form of free commodity foods to be used in the preparation of these meals (Gunderson, 2014).

Almost a third of American schools are designated rural (National Center for Education Statistics, n.d). This rural designation has many implications. The U.S. Department of Education (USDOE; 2018) pointed out,

While rural LEAs [local education agencies] face many of the same obstacles confronting urban districts (such as high rates of childhood poverty, difficulty recruiting and retaining

effective teachers and administrators, and limited access to quality health care), these challenges frequently can be exacerbated by the remoteness and small size of rural districts. (p. 7)

The physical isolation of these schools creates a two-fold problem. Rural districts have more needs, and it is more difficult to provide support (Hoffman, Srinivasan, Levin, & Scarmo, 2018). In terms of school food programs, school leaders have fewer opportunities to share practices and to send cafeteria staff to trainings (Cornish, Askelson, & Golembiewski, 2015; Hoffman et al., 2018). Moreover, the limited number of students defies the scalability that larger districts depend on to generate funds (Ollinger & Guthrie, 2015). The rural geography also affects food procurement, processing, and storage (Gunderson, 2014; Hoffman et al., 2018).

### **Statement of the Problem**

The USDA (as cited in Ralston & Newman, 2015) recognized that districts are challenged to balance the requirements of the NSLP while maintaining quality. Ralston and Newman (2015) stated, “School foodservice programs face ongoing tradeoffs between meal cost, student participation, and nutrition quality” (p. 5). School lunch programs, particularly small rural ones, are losing money from decreasing participation (Ralston & Newman, 2015, p. 5).

Although there has been an abundance of public outcry for improved school lunches, and although the government department responsible for administering the program has acknowledged that schools are struggling to balance the requirements, change has been slow. Despite literature that highlights innovative approaches (Dunn, 2018; Just, Wansink, and Hanks, 2014; Løes & Nölting, 2009; Morgan & Sonnino, 2013; Poppendieck, 2010) and tips from the USDA, Food and Nutrition Service (2012) for NSLP implementation, there remains to be seen a

comprehensive account of what works for the unique combination of small schools in rural settings.

Changing school food has been a topic of interest for years (Bitman et al., 2015; Briggs 2005; Rauzon et al., 2010); however, the current state of lunch programs, specifically in small rural schools, remains to be documented. The challenges and best practices that have been published might not represent a comprehensive narrative because these accounts do not specifically address schools that are both small (fewer than 250 average daily attendance [ADA]) and in a rural setting. After conducting a comprehensive review and synthesis of the available literature, the researcher has been unable to find a documented account of lunch program characteristics of small rural schools that have cafeteria budgets running in the black. It is possible that there are additional challenges, unique to this context that have not been discussed. Perhaps celebrated programs like the Edible Schoolyard are not feasible for these sites. Given the range of settings and characteristics of rural schools, it is also likely that there are more innovative practices, waiting to be shared.

### **Purpose of the Study**

The literature has not provided a roadmap that provides inspiration and direction in how to create and sustain a quality food program for small rural schools that does not require support from the district's general fund. The first step is to collect data to understand what is happening; to paint a picture of a small, rural, lunch program. The purpose of this study is to examine the characteristics that support a financially viable lunch program in a small rural school district. In this single-case study, the researcher recorded and examined how the participating site operates in terms of spending, staffing, food procurement, nutrition education, and stakeholder input. Through the analysis of data, the researcher examined how elements of the food system

influence each other, resulting in the special recipe that makes the program fiscally viable. The best practices, combined with the identification of potential roadblocks, might help to inform other small districts in a rural context. With financial solvency, comes the freedom to explore program improvements that are better for student health and the environment.

### **Research Questions**

This study is focused on examining practices within a school lunch program that serves approximately 200 students and is located in a rural area of northern California. Specifically, the researcher collected data to highlight systems that result in a self-sustaining cafeteria budget and nutrition program. The participants contributed their insights into some of the challenges of operating a school lunch program in a small, rural setting. The following research questions guided this study:

- Overarching Research Question: How can small, rural schools operate a nutrition program that is financially self-sustaining?
- Supporting Research Question 1: What factors or practices do administrators, business managers, and nutrition directors of small, rural school nutrition programs perceive could positively contribute to the operation of a self-funding nutrition program?
- Supporting Research Question 2: What factors or practices do administrators, business managers, and nutrition directors of small, rural nutrition programs perceive could impede the operation of a self-funding nutrition program?

Using a food systems approach (FSA), the answers to these questions provided insight into not only what is being done, but also uncovered what impedes or propels best practices in the operation of a small, rural, school lunch program. When analyzing the data, a systems



thinking lens was used to focus on the relationships within the school lunch system and how these connections affect implementation.

### **Conceptual Framework**

A combination of quantitative and qualitative variables were analyzed to capture the relationships of multiple components of an education organization's lunch program. All of these components are part of a system. The food system is the path that food takes from *field to fork*, and includes agricultural production, processing and distribution, retail and consumption, and waste and recycling. It is through this lens, that the researcher will analyze the data.

Systems theory binds it all together, reflecting on the interconnectedness of everything. Steward's (1955) concept of cultural ecology rooted in the train of thought behind systems theory, which is applied to many disciplines. Each piece, each variable, influences the entire system, and no single component is independent. Farming practices influence nutrition, taste, price, and availability of food. Policy influences farming practices. Values influence lunch sales. Geographical setting influences food prices, availability, food culture, scale of the food program, and staff employment. This research was conducted with attention to the elements and relationships within a school lunch food system and to interactions with and impact on other connected systems. According to Meadows (2008),

A system is not just any old collection of things. A system is an interconnected set of elements that is coherently organized in a way that achieves something. If you look at that definition closely for a minute, you can see that a system must consist of three kinds of things: *elements*, *interconnections*, and a *function* or *purpose* . . . . Elements do not have to be physical things. Intangibles are also elements of a system: In a university,

school pride and academic prowess are two intangibles that can be very important elements of the system. (p. 10)

More specifically, a FSA is a conceptual framework that examines feedback loops that occur throughout production, process, distribution, and consumption of food (van Berkum, Dengerink, & Ruben, 2018). Nonlinear processes (e.g., the trade-offs between policy objectives) are also highlighted through this lens. A feedback loop is a system of information exchange or messaging which allows one to examine how a process or action has been affected by a change in activity (Capra, 1997). An element of a system can be influenced indirectly by the changes it has induced (Svenfelt, Milestad, & Jansson, 2005). Examples of the feedback loops within the School Lunch Program are discussed in the following paragraphs.

### **Stages of the Food System**

**Production stage.** *Production* is the stage of the food system where food is grown or raised. It includes the agricultural process. Is the farm that of a conventional farmer who uses chemical pesticides? Is the farm a monocrop field on which the farmer grows only grows wheat? Is the farm that of a small-scale farmer who uses interns and oxen to grow a variety of organic produce combined with raising livestock? This part of the system is defined by the methods of farming, the land itself, the varieties of seeds or animals, and even the people involved in growing or raising the food. This stage of the food system is affected by agricultural policies, including subsidies of commodity foods (Gibson & Dempsey, 2015).

**Process stage.** The *process* stage of the food system is where the product is taken from its original state and transformed for consumption. For an apple, this could include how it is harvested and cleaned. Some apples will be cut and packed in plastic or become canned

applesauce. Others might remain whole, but receive product look up (PLU) code stickers, identifying variety and origin, after which they are boxed with layers of packing material.

**Distribution stage.** *Distribution* includes the methods of getting the food product off the farm or processing plant to the consumers. This method varies, depending on the type of food, the location, and the final processed form of the food. Ice cream requires refrigerated trucks and bananas are flown or are transported on a ship. This stage in the food system is also affected by trade policies and road systems. A semi-tractor-trailer truck would have difficulty making a food delivery to a rural school accessed via a one-way gravel road.

**Consumption stage.** The *consumption* of food is perhaps the most familiar part of the food system. People eat food in many different contexts, and this stage includes not only the presentation and ingesting, but also the preparation and presentation. The school cafeteria environment allows for variation in how food is prepared, presented, plated, and served. Each of these variables might influence the School Lunch Program.

There are two types of feedback loops. “Negative loops counterbalance change and have a stabilizing effect, such as the regulation of our body temperature, while positive feedback reinforces change and amplifies rather than reverses change” (Svenfelt et al., 2005, para 2). For example, if a produce vendor decides to change the minimum order requirement, the shift might open up the possibility of new clients with smaller orders. The impact of more small orders could affect the distribution process. The company might need to hire more staff to process multiple orders or there might be a more indirect impact. An example from the school lunch world involves a vendor that sold organic goods. The school could not meet the minimum order requirement, but partnered with a local café to share an order. The school and café began partnering on other orders with other vendors after that, including orders from local farmers. This

resulted in smaller orders for fresh produce from the original organic vendor. In this situation, the feedback loop was loose in the sense that it was difficult for the vendor to get this information. The vendor would not have known that the large order being placed was really a combined order for a school and the café across the street. The delivery driver might have known, but that information was not likely to get back to the distribution office, so the vendor was operating with missing information about the impact of processes and policies.

Moreover, systems thinking considers the past, present, and future of connected, yet seemingly unrelated elements (Gilbert, Schindel, & Robert, 2018). Geographic scale, for instance, has been identified as one of the challenges facing rural schools. This holistic approach might illuminate how learning organizations have identified and addressed the root of the problem when faced with NSLP challenges. Some organizations have created generative learning cultures by thinking in terms of integrated systems to create innovative solutions, instead of adapting to a problem (Senge, 2006a, p. 768).

### **Assumptions and Limitations**

During the fall of 2019, the researcher investigated a school food program within a Kindergarten-Grade 8 (K-8) school district of rural northern California using mixed methods to assess program practices and district financial records. Classification of rural status is based on the USDOE's locale codes. The research site district has a ADA of 205 students. Data collection was limited by the perceptions of personnel who chose to voluntarily participate in the study, the observed actions and settings at the site, and by the nature of supporting documents that the researcher gained access to. Sustained implementation and change management of perceived successful strategies will be another phase of research, not included in this study. It is assumed by the researcher that interview participants answered questions openly and honestly. Limitations

to consider are that the findings of this single-site case study will be biased towards the perceptions of the district administrator, the business manager, and the nutrition director. The perceptions of students, teachers, or parents, are not included in this research and the sample size of three participants at a single site is too small to result in generalizable findings.

### **Significance of the Study**

When an adult shudders at the thought of consuming the food on a cafeteria tray, something is very wrong, and the problem needs to be addressed. Aside from taste, the far-reaching impact of school food has been articulated (Weaver-Hightower, 2011), and so, one struggles to understand what hinders cafeterias from serving better food. Small school administrators are working with limited funds and resources (Ralston & Newman, 2015, p. 5). Districts are unlikely to attempt to change a school lunch program if administrators believe it will cost more money (D. Boyd, C. Cox, S. Lovett, B. Sigler, & J. Sutter, personal communications, May 15, 2018). Therefore, the altruistic motives of better food must be accompanied with a demonstrated increase in revenues. If district leaders can be convinced of the potential and shown the way, districts might be more likely to attempt to improve the school food system. This study is significant because it has the potential (a) to identify best practices and challenges to rural programs, (b) to fill the gap in the literature about how small rural programs can improve food quality and be financially viable, and (c) to inform district leaders of economically sound practices that could be implemented.

### **Background**

The study site shares many of the characteristics of most NSLPs across the country because the federal government mandates the requirements. In addition to specific funding, procurement, service, and nutritional requirements, federally funded school lunch programs are

shaped by a district wellness policy. The Wellness Policy is a document that has been required since 2016 for school districts that participate in the NSLP or School Breakfast Program (California Department of Education, 2019). This document, which a committee of stakeholders must develop and assess every 3 years, guides a school district's efforts to create and maintain a school environment that promotes students' health, well-being, and ability to learn (USDA, 2019). The California Department of Education (2019) stated that the document must include the following features:

- Measurable goals for nutrition promotion and education, physical activity, and other school-based activities that promote student wellness,
- Nutrition guidelines for all foods and beverages sold or made available on school campus during the school day,
- Policies for food and beverage marketing,
- Requirements that stakeholders be provided opportunities to participate in the development, implementation, and periodic review and update of the wellness policy,
- A plan for measuring effectiveness that is measured triennially and made available to the public,
- Annual notification informing and updating the public (parents, students, and others in the community) about the content and implementation of the LSWP, and
- Designation of one or more LEA officials or school officials by position or title, to ensure that each school complies with the LSWP. (para 3)

The design of this policy dictates many facets of a school lunch program and accounts for variability across districts. The Wellness Policy for the research site district is examined in Chapter 4.

To put the study site in context, its SY 2010-2011 characteristics have been combined in Table 1 with the data from a 2014 report titled, *Serving Healthy School Meals in California* (Larsen et al., 2014).

Table 1

*Snapshot of California SY 2010-2011 School Lunch Programs*

School district characteristics	North	Central	South	California	Study site
Student enrollment	936	1,980	7,729	1,875	185
Number of schools in district (median per SFA)	3	4	9	5	1
Urban/suburban schools in district	45%	32%	81%	51%	0%
Rural schools in district	52%	68%	19%	48%	100%
Students approved for free or reduced-price lunch (mean per SFA)	52%	65%	57%	59%	65%

*Note.* SFA = school food authority.

Clearly, the study site has the smallest population of students and its only school is located in a rural area. The 2010-2011 free lunch rate for the study site is 65%, which is equal to the Central California rate for that year.

Fox and Gearan (2019) reported that for the average SFA in school year (SY) 2014–2015, total revenues covered only 97% of total reported costs. Since redesigning its nutrition program, the study site school has found that its cafeteria budget has sustained itself without encroaching on the general fund. This is evidenced through the public budget records for the sample SYs 2012-2018 summarized in Table 2.

Table 2

*Research Site Ending Balance for Cafeteria Fund SY 2012-2018*

	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Expenses	\$93,589	\$92,313	\$92,922	\$111,597	\$108,214	\$107,416
Revenue	\$90,591	\$91,053	\$115,385	\$103,320	\$106,361	\$117,271
Difference	(\$2,998)	(\$1,260)	\$22,463	(\$8,276)	(\$1,853)	\$9,885
Carry over	\$16,662	\$13,664	\$12,404	\$34,867	\$26,591	\$24,738

According to the USDA Rule for the National School Lunch Program in the Child Nutrition Programs of its Food and Nutrition Service at Title 7 of the *Code of Federal Regulations*, Sections 210.2 Definitions, 210.14(b) Resource Management, and 210.19(a)(1) Additional Responsibilities (2016), districts are not allowed to maintain more than 3 months of operating expenses in reserves. The pattern of the carry-over budget reflects the district's efforts to comply with this rule by spending down the reserves to keep them within the allowable range. For this reason, individual year expense and revenue records might appear to show deficit spending; however, it is important to note that this does not cause the cafeteria budget to encroach on the general fund. The reserves, or carry-over budget, covers the "over spending."

The School Nutrition Association (SNA; 2019) identified meal equivalents (MEQs) as one of the key performance indicators for measures of performance in a school meal program. A breakfast counts as .67 of a MEQ and a lunch is one MEQ (Lott, Richardson, & Rushing, 2018). An MEQ, divided by planned productive labor hours, amounts to the meals per labor hour (MPLH). SNA recommends an MPLH of 11 for high productivity in a "conventional" meal program.



### Definition of Key Terms

A number of terms have been used to discuss school food programs and food systems. These key terms are defined in this section to provide the reader with a beneficial understanding of the terms as they relate to the context of this study.

**Agriculture.** A key piece of the food system, agriculture is the practice of growing crops and raising livestock.

**Agroecology.** The Merriam-Webster (n.d.) defined agroecology as “An ecological approach to agriculture that views agricultural areas as ecosystems and is concerned with the ecological impact of agricultural practices.”

**A-la-carte foods.** These are also known as *competitive foods*. They are items sold in vending machines or in the lunch line that are not part of the reimbursable NSLP meals (Nestle, 2013).

**Average daily attendance.** The ADA represents the total number of days of student attendance divided by the total number of days in the regular school year. The state uses a school district’s ADA to determine its funding” (Edsource, n.d., para. 1).

**Average daily participation.** The average number of student reimbursable meals served in a school nutrition program on a daily basis is the ADP (Lott et al., 2018).

**Business manager.** The person in this role serves as the chief financial officer of the district under the direction of the administrator. The business manager is responsible for the district’s business and financial functions, food service, transportation and purchasing programs, and assists with personnel functions.

**California School Dashboard.** Designed in 2017, the dashboard is a Web site for parents and educators through which the state reports how districts, schools (including

alternative schools serving high-risk students), and student groups are performing across state and local measures in areas such as academics, English Learner progress, chronic absenteeism, graduation rate, suspension rate, and college and career readiness.

**Commodity foods.** These foods are surplus domestic agricultural products (e.g., fruits and vegetables, meats, cheese, dry and canned beans, fruit juices, vegetable shortening and oils, peanut products, rice, cheese, pasta products, flour, and other grain products (USDA, 2015).

**Competitive foods.** These foods (also known as *a-la-carte foods*). are sold in vending machines or in the lunch line and are not part of the reimbursable NSLP meals (Nestle, 2013). Both terms are used interchangeably in this study.

**Consumption of food.** This act is a stage in the food system that reflects availability, demand, and use of food. Consumption of food is related to the information used to determine food choices (USDA, Economic Research Service, 2019).

**Distribution.** This process is a stage in the food system where products (both raw and processed) are transported to a processing plant, a grocery store, a school, or a restaurant.

**Farm Bill.** This piece of federal legislation is “an omnibus, multi-year law (renewed every five years) that governs . . . farm commodity price and income supports, agricultural conservation, farm credit, trade, research, rural development, bioenergy, foreign food aid, and domestic nutrition assistance” (Johnson & Monk, 2018).

**Food systems approach.** An FSA is an approach to research and policy aimed at sustainable solutions for the sufficient supply of healthy food. The FSA is used to examine the relationships between different parts of the food system and the outcomes of activities within the system in socioeconomic and environmental/climate terms (van Berkum et al., 2018).

**General fund.** This is the chief operating fund of the school district. It is used to account for all financial resources of the school district except for those required to be accounted for in another fund. A district might have only one general fund.

**Goods.** This term includes merchandise or possessions.

**Local education agency.** An LEA is equivalent to a school district and is used interchangeably in this study.

**LEA locale codes.** These codes reflect location relative to populous areas that provide *high order* goods and services (e.g., advanced medical procedures, stores selling major household appliances, regional airport hubs, or professional sports franchises). More remote areas have less access to *low order* goods and services (e.g., grocery stores, gas stations, and basic health-care services; (USDA, Economic Research Service, 2018a, para. 2). In this study, the researcher examined a district classified as Code 42: Rural, Distant, meaning that this U.S. Census Bureau-defined rural territory is more than 5 miles but less than or equal to 25 miles from an urbanized area, as well as rural territory that is more than 2.5 miles but less than or equal to 10 miles from an urban cluster (USDA, Economic Research Service, 2018a).

**Process.** This is the operation of changing food to alter or preserve it. For example, one can process a fresh apple and turn it into canned applesauce.

**Production.** Similar to processing food, production makes food ready to be marketed.

**Public school.** This term refers to a school supported by public funds.

**Meal equivalent (MEQ).** MEQs are the conversion of different meal services (i.e., breakfast, supper, and snacks) and nonprogram food sales to one federally reimbursable student lunch. A breakfast counts as .67 of a MEQ and a lunch is 1 MEQ (Lott et al., 2018).

**Meals per labor hour.** The most common measure of productivity in school nutrition, calculated by dividing the number of MEQs produced and served in a day by the number of paid labor hours, which provides the MPLH (Lott et al.2018).

**Monocrop.** This cultivated crop is not rotate with other crops in a given area or field. This type of agriculture is practiced in the farming of commodity foods such as wheat, corn, and soy.

**National School Lunch Program.** The NSLP is a federally assisted meal program operating in public and nonprofit private schools and residential child care institutions in the United States (USDA, Food and Nutrition Service, National School Lunch Program, 2018).

**Nutrition director.** The person in this role is responsible for all aspects of foodservice in the district, administering the school meal program in accordance to local, state, and federal policies. The director reports to the superintendent. At a small site, such as the study site, the nutrition director plans the menus, orders the food, and cooks the food (SNA, 2019).

**Quality food program.** This program supports sustainable agroecology and operates with minimal food waste.

**Rural school districts.** This term refers to districts located in territory characterized by some combination of low population size and high geographic remoteness. Rural areas experience degrees of remoteness that affect access to different types of goods and services (USDA, Economic Research Service, 2018a, para. 2).

**Scratch cooking.** Meals made from fresh ingredients instead of processed foods (Larsen et al., 2014) .

**Small school.** This is a school with no more than 250 ADA.

**Superintendent-principal.** Many small, single school districts have only one administrator who serves the role of both superintendent and principal. In this study, the researcher uses the term superintendent/principal and administrator interchangeably.

### **Conclusion**

Clearly, schools are in a powerful position to implement change that can have positive effects on public health, the economy, the environment, and student learning by means of improving the food served in the cafeteria. A practical solution to better school lunches in small rural schools builds off experience, highlights the effective practices of other programs, and considers the implications of the food system within the district and at large. To achieve the buy-in and attention of school leaders, the proposed methods need to provide proven and economical strategies that comply with the mandates of NSLP. This researcher's aim was to discover what characteristics support a financially viable lunch program that would serve good food and to learn what hinders the implementation of recognized best practices.

The remainder of this study is organized as follows: Chapter 2 presents a review of the literature examining NSLP policy, known challenges that schools face in implementing the NSLP, and examples of different approaches to mitigate those difficulties. Chapter 3 delineates the research design and methodology of this study. Chapter 4 describes the data collection process and contains an analysis of the data and discussion of the findings. The summary and conclusions are written in Chapter 5, and are followed by the references and appendices.

## CHAPTER 2

### LITERATURE REVIEW

In Chapter 2, the researcher provides context and a framework for this study to examine a sample of four, small, rural districts with profitable child nutrition programs to identify the characteristics and patterns that might lead to success. In this chapter, the researcher provides a review of relevant research, while synthesizing and discussing the common themes that illuminate a path for selection and implementation of strategies that will decrease expenses and increase revenue.

The literature reviewed provides the reader with the origin and current policy of the NSLP. The researcher reviewed examples of and recommendations for school food programs, exhibiting different incarnations and variables of a school food program that might influence success. These topics are captured and organized by the following themes: (a) history, (b) current policy, (c) funding and reimbursement, (d) challenges for rural school food programs, and (e) effective practices. Reflecting the expanse of food systems, the literature reviewed represents perspectives from public health, education, agriculture, and the government. This holistic survey of school food programming was necessary to understanding and evaluating potential improvements or recommendations.

The process for conducting this rapid structured literature review (RSLR) was influenced by Amitage and Keeble-Allen (2008) who identified three stages of an RSLR. Stage 1 is conceptualization in which the writer identifies and justifies the topic and begins to create a conceptual map of the topic area at this point. Stage 2 addresses the operational aspects of the review. Writers refer to a conceptual map to define the scope and range of the review. Stage 3

involves structuring and reporting. One must decide on the approach for the review and record the findings from the literature through tables, thematic relationships, and grounded analysis.

An iterative concept map was used to identify numerous search terms for this literature review. Using Google Scholar and the electronic databases available through the digital libraries of University of New England and Humboldt State University, the following terms in various combinations were used: NSLP, school food programs, cafeteria, rural, innovations, finance, budget, procurement, policy, farm-to-school, reimbursement, free and reduced-price lunch rate. The reference sections of articles were also perused to find associated literature, a practice known as snowballing (Greenhalgh & Peacock, 2005). During the review, the researcher recorded notes in a matrix system to organize emerging themes.

### **History of National School Lunch Program**

School lunch programs have existed in this country in one form or another since the 1890s with influence from European soup kitchens and support by philanthropic organizations, school-oriented associations, school district boards, and individuals (Gunderson, 2014). With the poverty of the 1930s, states began to make appropriations to provide funding for school lunch programs. By 1932, it was evident that the states needed federal support for the increasing need and associated expense of providing student meals. Assistance to pay for kitchen labor came from the Reconstruction Finance Corporation, Civil Works Administration, the Federal Emergency Relief Administration, and the Works Progress Administration (Geist Rutledge, 2015; Ralston, Newman, Clauson, Guthrie, & Buzby, 2008). Congress sought to address the growing need for school meals and the surplus of agricultural crops caused by the Depression in 1935; therefore, it established the commodities distribution that still operates today, providing surplus agricultural products to the needy and to schools. This move solved two problems at

once: (a) providing a use for the crops that would not sell and that saturated the public market and (b) alleviating the hunger of school children (Ralston et al., 2008).

During World War II these resources diminished, and Congress once again acted, passing the National School Lunch Act (1946) that provided equal funding to states to support the lunches they provided, including funds for equipment (Gunderson, 2014). Restrictions were tied to these dollars, mandating the types of meals that would be reimbursed using tested nutritional research. The need for healthy soldiers provided a national security frame for school lunch policy (Geist Rutledge, 2015). According to the U.S. House of Representatives, Committee on Agriculture (1946),

It is hereby declared to be the policy of Congress, as a measure of national security, to safeguard the health and well-being of the Nation's children and to encourage the domestic consumption of nutritious agricultural commodities and other food, by assisting the States, through grants-in aid and other means, in providing an adequate supply of food and other facilities for the establishment, maintenance, operation, and expansion of nonprofit school lunch programs. (p. 230)

The legislation was amended in 1952 and 1962, expanding the purchase of commodities for the poorer states that needed additional assistance in procuring food and changing the funding formula to match participation rates in the lunch programs, thus more equitably distributing the funds.

Congress passed the Child Nutrition Act of 1966 to expand and promote the health and well-being of students and to encourage the consumption of domestic foods. The Special Milk Program of 1954, which provided milk to childcare centers and other child programs that did not participate in NSLP, was embedded into this Act. Thus, Congress decided that it would be wise



to centralize and standardize administration of the School Lunch Program; therefore, funds which had been controlled by federal agencies (e.g., the Department of Health, Education and Welfare, the Office of Economic Opportunity, and the Bureau of Indian Affairs) would now be governed by the singular USDA (Gunderson, 2014).

Amidst national reports of widespread malnutrition, Congress enacted the Free and Reduced-Price Lunch (FRPL) Program in 1970 (Gunderson, 2014). During this next decade, President Nixon directed Agriculture Secretary Earl Butz to devise a policy that would support farmers in creating higher yields of a small handful of commodity crops (corn, wheat, and soybean). This was an effort to make food more affordable in the wake of rising food costs for Americans. An increase in production was made possible because of the inexpensive fossil fuels used for chemical fertilizers, which had become a cornerstone of industrial agriculture farming practices (Pollan, 2010). This is a key juncture in the story of the NSLP. The booming popularity and success of chemical fertilizers resulted in a massive excess of commodity food that held minimal nutritional value. At the same time, food science was introducing new ways to alter and process foods, which added to the market of fast food and junk food (Pollan, 2010).

President Reagan reduced federal funding for and regulation of lunch programs in the 1980s which resulted in more local control and questionable means of cost-saving. Schools were serving smaller portions to save money and to combat the rising obesity rates and counting ketchup as a vegetable. The Healthy, Hunger-Free Kids Act of 2010 was an effort to mitigate these lower standards and reauthorized the NSLP, but it has met opposition because some people claim that the schoolchildren are not actually consuming the mandated healthier food (Kogan, 2019). Therefore, the School Milk Nutrition Act of 2015-2016 (H.R. 2407) was proposed to

ensure increased consumption of milk by schoolchildren. Part of that Act is a pilot program to research strategies that will best promote this goal.

### **Current Policy**

Policy does more than guide a school lunch program. Policy mandates how it must comply and influences all components of the food system. The policies that gave rise to the current NSLP were framed around poverty, welfare, agriculture, national security, and health (Geist Rutledge, 2015). However, with so many competing interests, the motives behind current policy become muddled. Gibson and Dempsey (2015) claimed that implementation of the NSLP often pits economic interests against nutritional concerns, explaining how purchasing decisions are tied to federal agricultural subsidies and surpluses. At times, regulations governing the National School Lunch Act's (1946) NSLP seem to butt up against common sense because of the competing agendas within the USDA. The irrationality was exemplified by Shute (2011) who reported on National Public Radio the plight of an Oregon senator lobbying to get local Oregon Comice pears added to the USDA buying guide for school lunches. Without this change, fresh Comice pears (the type sold by gourmet fruit basket purveyors Harry and David) would not be permitted as part of reimbursable school lunches unless they were commercially canned in sucrose syrup, in which case, no specific varieties are listed. USDA policy has a very direct influence on what our children eat (Nestle, 2013). Children and parents might take it for granted that the food served at school is healthy simply because it complies with the USDA guidelines. However, as Bitman et al. (2015) and Nestle and Wilson (2012) pointed out, politics and economics have influenced the industrial food systems that supply our school food programs. The same argument applies to the design of the USDA *My Plate* (Harvard School of Public Health, n.d., para, 2), which diagrams the recommended food for a healthy diet.

Current national food policies (specifically the National School Lunch Act [1946] that defines the NSLP, alongside The Healthy, Hunger-Free Kids Act [2010] and the School Milk Nutrition Act [2015]) are steered primarily by economics rather than sustainability and health, and the research to support these policies is often funded by the very groups that stand to profit from them (Bitman et al., 2015). Unfortunately, the USDA is tasked with governing two causes that are currently at odds with each other; agribusiness and nutrition. This creates a conflict of interest that many researchers have discussed (Bitman et al., 2015; Levine, 2018).

Current agricultural policy supports large-scale monocultures (Dayen, 2014). Organic farmers, who are not part of the agribusiness model and who reject synthetic fertilizers, must pay to certify products. No government subsidies support this type of sustainable agriculture. Salatin (2007, 2011), a farmer advocate, described how USDA policy influences food production and the environment accordingly. Regulations and paperwork create a daunting set of hurdles for the nonindustrial farmer rather than supporting sustainable practices (Salatin, 2007, 2011).

In line with past policy, the USDA provided subsidies to farmers during the Great Depression to boost temporarily income in a market where consumers had no money to buy the crops at a profitable price (Ruis, 2017). Farmers were paid to decrease production by letting land lie fallow until the glut in the market subsided (Saloutos, 1974). At the same time, the government purchased surplus became the commodities that could help feed the undernourished schoolchildren. When the National School Lunch Bill was passed in 1946, this convenient relationship continued, as it does today, even though the state of agriculture and public health has changed (Bitman et al., 2015 Nestle, 2013). Government subsidies support commodity crops. Massive industrial farms efficiently produce a surplus of cheap calories, but at a cost to the health of the Nation and the environment (National Institute of Health, n.d., para. 2). The

overabundance of calories available to and consumed by Americans is increasing the rate of obesity (Nestle, 2013). Seventeen percent of American children are obese (Ogden et al., 2014). Even when schools adhere to appropriate portions, the poor nutritional quality of the food results in a population at risk for a range of health problems (Lang & Heasman, 2015; Nestle, 2013; Pollan, 2009; World Health Organization, 2009). Today, the Nation faces problems with obesity and Type 2 diabetes rather than malnutrition; nevertheless, the policies that school districts must conform to as they run food programs do not reflect this shift and are not conducive to mitigating these issues (Bitman et al., 2015; Ralston & Newman, 2015).

Meeting the new standards of the Healthy, Hunger-Free Kids Act (2010) has made it difficult to maintain student participation (especially for full-price meals) in school lunch programs in smaller, more rural districts (Ralston & Newman, 2015). In the face of this new policy, foodservice personnel must consider maximizing the use of available foods from the USDA, using standardized recipes, buying foods in season, focusing on lower cost foods, tightening procurement practices, serving appropriate portions, and sharing cost-saving strategies (USDA, Food and Nutrition Service, 2012). Food cost is rising, and it is difficult to encourage student participation in the program (Ralston et al., 2008). School administrators must balance the tradeoffs between nutrition, cafeteria costs, and participation rates in school lunch programs. This is the “trilemma” of school food service (Ralston et al., 2008).

In the SY 2009-2010, about 63% of public school students participated in the NSLP on any given day with participation rates varying across schools (Fox & Condon 2012). This student participation rate means that cafeterias are serving more than 7 billion student meals in the United States each year as part of the NSLP (Poppendieck, 2010). Funding (which is authorized by the Farm Bill) provides reimbursements to schools for the number of qualifying meals they

serve. Each year, reimbursement rates are updated according to the national average Consumer Price Index for all Urban Consumers for Food Away From Home. For districts to be reimbursed, the foods must meet the nutrition standards set forth by the USDA, Food and Nutrition Service (2012). Additional assistance to schools comes in the form of USDA foods, formally known as *commodities* to be used in the preparation of these meals (Gunderson, 2014). Districts receive credit for every reimbursable meal they served in the previous year. LEAs can use these credits to obtain USDA foods. Schools are not required to use these foods, but many do because it provides a significant cost savings (Demas, Kindermann, & Pimentel, 2010).

### **Funding and Reimbursement**

The current reimbursement rate for schools with 60% or more of students who qualify for free and reduced-price lunch is \$3.40 per lunch (USDA, Food and Nutrition Service, 2017). Districts can earn \$0.06 more for meals that meet the additional and more stringent nutritional standards of the Healthy, Hunger-Free Kids Act (2010). SFAs at the district or school levels charge students the full price of a meal if they do not qualify for a free or reduced rate. Each district has the authority to set their full-price rate. Average price for paid lunch in 2016-2017 was \$2.48 (School Nutrition Association, 2020). To qualify for free lunches (and breakfasts if they are served by the district) a family income may not exceed 130% (or 180% for reduced price) of the annual Federal poverty guideline (USDA, 2018b). For example, a family of four earning \$45,510 would qualify for reduced-price meals. School districts are required to “directly certify” children in Supplemental Nutrition Assistance Program (SNAP) participant households for free school meals through data matching of SNAP records with school enrollment lists, and have the option of directly certifying children in Temporary Assistance for Needy Families and the Food Distribution Program on Indian Reservations households (Food Research & Action

Center, 2015, p. 4). Districts may also send home forms to be returned to school which parents fill out and sign, stating annual income. Some high poverty districts are using a new system for processing eligibility called the Community Eligibility Provision (CEP), which allows them to serve meals free to all enrolled students, increasing access to food programs to students who might not have turned in the necessary paperwork to qualify for free or reduced-price meals (USDA, 2015). The district is then reimbursed a set rate according to the percentage of students who qualified through other programs (e.g., SNAP and Temporary Assistance for Needy Families). To participate in CEP, districts, or LEAs must have identified at least 40% of enrolled students as eligible for free lunch through direct certification with these other state programs (USDA, 2014).

An additional form of revenue for school food programs is the sale of food items that do not meet the nutritional guidelines to qualify as part of a reimbursable meal. These are often called *competitive* or *a-la-carte* foods (e.g., pizza, soda, or chips; U.S. Government Accountability Office, 2005). The Child Nutrition and WIC Reauthorization Act of 2004 required that schools create wellness policies that would outline the nutrition guidelines for all foods provided at school, whether they were brought to class for a birthday celebration, were part of the reimbursable lunch, or were offered in a vending machine. The USDA, the U.S. Department of Health and Human Services, and the USDOE (2005) reported that, as sales of competitive foods increase, reimbursable meal sales decrease. This comes as no surprise considering the choice between purchasing an order of a-la-carte nachos with lessened nutritional requirements or the reimbursable whole wheat burrito with brown rice. In the same study, the USDA, the U.S. Department of Health and Human Services, and the USDOE shared a Texas survey that reported an income of almost \$60 million from the sale of competitive foods

throughout the state's districts. This is a source of income that has a potentially large impact on cafeteria budgets.

This is a simplified explanation of how schools figure cafeteria budgets. Navigating strategically these numbers and regulations, while recording and filing endless compliance forms, requires a thorough understanding of the system (Fitch & Santo, 2016; Hoffman et al., 2018; Ralston et al., 2008).

Districts regularly encroach on the general fund to cover the expenses of the cafeteria (E. Derdin-Little & L. Prescott, personal communications, May 11, 2018). Fortunately, Ollinger and Guthrie (2015), Poppendieck (2010), and Tonti (2017) suggested that many alternatives and strategies exist to decrease costs and increase revenue. The challenge is to decipher the feasibility for one's own district context and budget. Before embarking on a mission to improve the finances, it is imperative to understand them. One must ask whether nutrition directors and school administrators are capable of making informed decisions about innovative strategies given the complexity of a school food program budget and the many variables that affect its success (Roza & Swartz, 2007).

### **Challenges for Small, Rural Schools**

In an examination of articles, books, and reports, authors such as Ken (2014), Morgan and Sonnino (2013), Ollinger, Ralston, and Guthrie, (2011), Poppendieck, (2010), and Tonti (2017) pointed to some themes regarding challenges for rural schools. In many cases the schools discussed were also small; however, the definition of small varies and often includes schools with up to 3,500 students, whereas this researcher's study is concerned with schools with fewer than 250 students. Among the noted challenges that school lunch programs face are procurement,

expense, geography, and capacity constraints (Feenstra et al., 2017; Ken, 2014; Morgan & Sonnino, 2013; Ollinger et al., 2011; Poppendieck, 2010; Tonti, 2017).

### **Procurement**

Further compounding the challenges of feeding students are the policies and logistics surrounding the procurement of food. Aside from the nutrition requirements, a district must also navigate the process of buying food. Districts making large purchases must put out requests for bids, and then evaluate who has the best deal (Fitch & Santo, 2016). If cafeterias are considering local foods, then school districts must apply the *geographical preference* points before they make that evaluation. This system allots points that, in effect, lower the bid for local products (Fitch & Santo, 2016).

It is heartening to see the introduction of the geographical preference component of school food procurement; however, it is complicated, and schools and farmers need support to navigate the process (Feenstra et al., 2017; Ken, 2014; Poppendieck, 2010; Tonti, 2017). Issues that are difficult for food service staff include (a) drafting bidding language to give preference to regional produce, (b) increased labor costs related to sourcing and cooking produce provided directly from a farm, (c) delivery logistics, and (d) pricing (Morgan & Sonnino, 2013). For growers, difficulties include being able to provide consistent volumes over time, lack of long-term contracts, food safety, and good agricultural practices certification requirements (Feenstra et al., 2017; Fitch & Santo, 2016).

Tonti (2017) highlighted the need for more school flexibility in and localized control over accessing fresh, healthy school meal ingredients. Given the freedom, school food service has the potential to advance a sustainable development agenda at global, national, and local levels (Morgan & Sonnino, 2013).



## Expense

Differences in school meal costs exist across locations, regions, and levels of urbanicity (Ollinger et al., 2011). Ollinger et al. (2011) examined disparities in food costs between different geographical locations, using a nationally representative sample. The data showed that costs per meal were higher in rural and suburban areas. Wage and benefit rates, food expenditures per meal, and SFA characteristics (e.g., the mix of breakfasts and lunches served) each contributed to the differences in foodservice costs per meal across locations. The expenses for lunch and breakfast were similar, with the exception that a higher percentage was spent on labor and a slighter lower amount was spent on food for lunch compared to breakfast (see Figure 1).

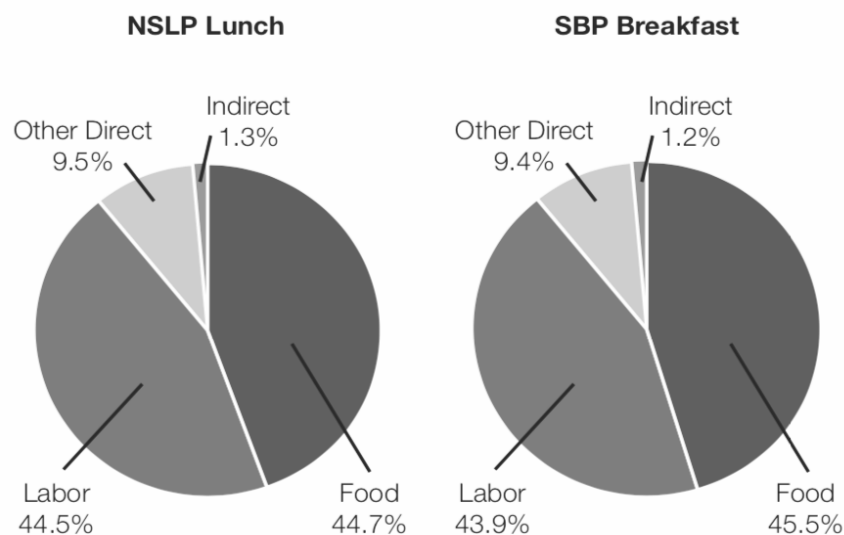


Figure 1. Percentages of food and labor expenses for the SY 2014-2015.

In a school nutrition and meal cost study, Fox and Gearan (2019) found that mean reported costs per NSLP lunch were not significantly higher in schools that prepared more-nutritious meals. Fox and Gearan noted that, given the substantial number of meals served, a few cents could have a significant effect on a school budget (Ollinger et al., 2011). A 2019 meal cost

study, Fox and Gearan (2019) reported the average SFA spending distributions for SY 2014-2015 (p. 39; see Figure 2).

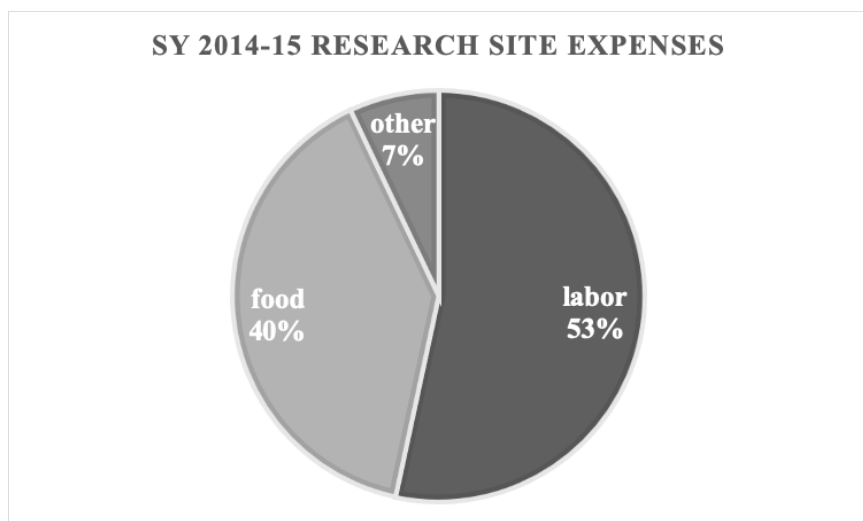
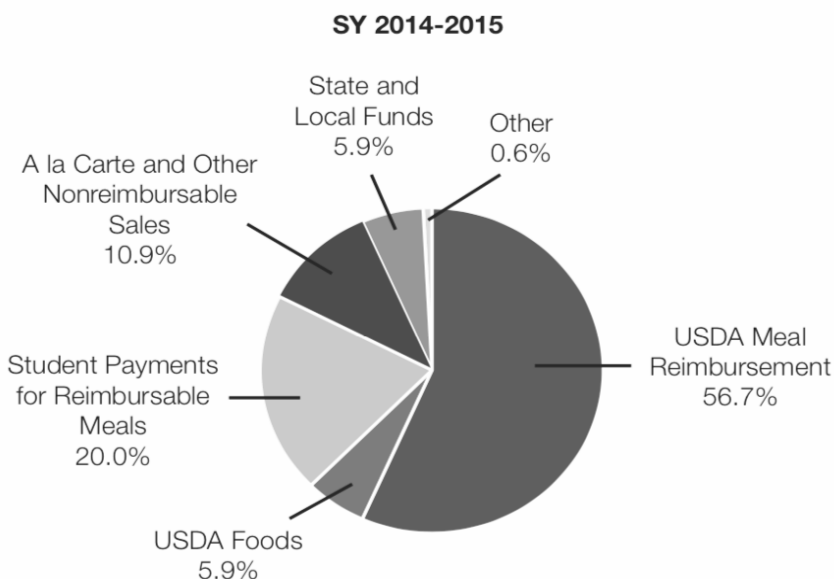


Figure 2. Percentages of food and labor costs for the research site SY 2014-2015.

The “other” category in Figure 3 includes materials and supplies, food supplies, equipment, repairs, laundry, contracted services, and employee mileage. The percentage spent on labor is a notable 10% higher than the average SFA portrayed in Fox and Gearan’s (2019) study. Fox and Gearan (2019) also documented the meal reimbursement source ratios for the average SFA, as seen in Figure 3. The percentages of food and labor costs from the same year for this study’s research site were not available for lunch and breakfast separately; however, the combined expenses for both meals are shown below in Figure 3. Figure 3 also shows that the majority of reimbursements to the average SFA came from USDA federal meal reimbursement.

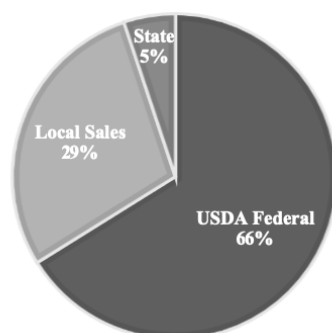


*Figure 3.* USDA meal reimbursement sources for the SY 2014-2015. From School nutrition and meal cost study summary of findings, by M. Fox, and E. Gearan, 2019, Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service, Office of Policy Support, p. 39. Retrieved from <https://www.mathematica.org>

The ratio of income sources from the same year for this study's research site is shown in Figure

4.

#### RESEARCH SITE RATIO OF REVENUE SOURCES



*Figure 4.* Ratio of SY 2014-2015 revenue sources for research site.

The majority of revenue for the research site SY 2014-2015 came from federal reimbursements. Local sales represent revenue received directly from meal sales for students or adults. The majority of the local sales income is from full-priced meals and a smaller portion is from the reduced-price sales.

## **Geography Capacity Constraints**

Rural districts face high transportation costs, limited vendor availability, and poor Internet connections (Hoffman et al., 2018). These are factors that impact the implementation of NSLP. Remote foodservice workers also lack access to training and peer support, which are important for successful school meal programs (Cornish et al., 2015; Hoffman et al., 2018). Roads and infrastructure design create additional challenges for small rural schools. The California Center for Rural Policy (2015) reported that many rural food deliveries are hindered by impassable roads and parking lots that cannot accommodate delivery trucks. Limitations because of facility constraints, quality and availability of staffing, and the lack of scaling opportunities are presented in the Facilities section.

## **Facilities**

Rural schools are often smaller and lack the space or equipment for meal preparation and storage. This affects the capacity to provide meals (Gunderson, 2014). Equipment (e.g., freezers and even storage space) are necessary to accommodate large deliveries of food. Commodities are delivered a few times a year and arrive en masse, stacked on pallets. Larger districts in urban areas often use external processing facilities that can store and deliver goods as needed. This is not an option in rural areas. For a site already challenged with adequate staffing, a dishwasher is a critical piece of equipment.

## **Staffing**

Labor and the division of responsibilities is an issue for small rural schools (Copeland, 2013; Forner, 2016; Yettik, Baker, Wickersham, & Hupfeld, 2014). First, hiring and retaining qualified staff is a challenge (USDOE, 2018, p. 8). Second, the existing staff is often burdened with many roles or limited hours that make it difficult to be trained for all job demands.

Administrators at small rural school often hold many responsibilities, including superintendent-principal, part-time teacher, bus driver, and secretary (Copeland, 2013). Given the specialized knowledge required in the kitchen, it is difficult for the administrator to fill in if needed. The cook is a particularly important role. Cafeteria workers are among the lower paid classified staff on campus and often lack training or higher education (Weaver-Hightower, 2011, p. 16). Even for a school site with a dedicated nutrition director, the knowledge required to comply with procurement and daily production paperwork is overwhelming (Fitch & Santo, 2016; Hoffman et al., 2018; Ralston et al., 2008).

### **Scale**

Related to capacity is the issue of scale. The number of meals a district serves affects the profit margin. This means that a smaller student population makes reaping the benefits of larger scale programs more difficult. The number of participating students, the capacity of kitchen equipment and facility, purchasing power, and staffing needs are all considerations. A better understanding of the extent of cost variation across SFAs for each type of school meal might benefit policy and program officials because schools have the option of choosing to serve breakfasts or lunches or both (as well as supper), and costs might influence that decision (Ollinger & Guthrie, 2015). Ollinger and Guthrie used 2002-2003 data from the School Food Authority Characteristics Study to examine how the costs of school breakfasts and lunches are affected differently by economies of scale (the balance in the number of breakfasts and lunches served by a given SFA). Ollinger and Guthrie found that the average cost per breakfast for schools in 2002-2003 exceeded reimbursement rates. Per-meal breakfast costs declined by about 50% if the number of breakfasts served were equal to lunches (Ollinger & Guthrie, 2015).

## Potentially Effective Practices

Voices from policy critics, the field of agroecology, nutrition, and education have all weighed in to offer solutions to some of the challenges that schools faced in serving meals. Many of these ideas are considerations for all schools, regardless of size or location, while some are especially meaningful for the remote schools with fewer pupils. In the following section, the researcher explores the impact of food education and food appeal as potential avenues to support a successful lunch program.

### Food Education

One variable to consider in the success of a school food program is the education and messaging that students receive regarding the food they eat. This influences participation rates and opinion about what is served (Rauzon et al., 2010). Students are exposed to food education through media, curricula, and modeling.

### Media

Food is everywhere. Popular media is feeding us with images and footage of cooking as entertainment. Moreover, a wealth of advertising and literature prescribes what to eat (Swan & Flowers, 2015). The information fed to the public influences choices and formation of food values. Nestle (2013) reported that children influenced the sale of a significant portion of certain foods: 25% of the total amount of salty snacks, 30% of soft drinks, 40% of frozen pizza, 50% of cold cereals, and 60% of canned pasta (McNeal, 1999, as cited in Nestle, 2013, p. 178).

Advertising food products is big business, as children influence parent spending and purchase food with their own money (Nestle, 2013). In 1997, 12.7 billion dollars were spent on marketing directly to children and parents (Nestle, 2013, p. 179). Children of Ages 8-12 view an average of 21 food ads per day (Henry J. Kaiser Family Foundation, 2007). Future consumers are

developing perceptions of food from these ads, and it is the highly processed foods that merit the pervasive ad campaigns not local, whole foods. Children are being educated about food, but much of the information that they are exposed to is biased towards agribusiness rather than toward physical or environmental health (Nestle, 2013).

### **Curricula**

Packaged curricula are available about nutrition and fitness (e.g., USDA's *MyPlate* and Former First Lady Obama's "Let's Move.") Unfortunately, curricula like these, that are meant to inform students about health and wellness, have only addressed portions of the system in isolation (Briggs, 2005; Bitman et al. 2015). The California Center for Rural Policy (2015) stated that people need more opportunities to develop hands-on gardening skills, learn about nutrition, gain techniques for smart shopping on a budget, and experience the pleasures of cooking with fresh produce (p. 88). Dillon, Rickinson, Sanders, Teamey, and Benefield (2003) have reviewed a substantial body of research on youth attitudes towards food and farming, as well as on the impact of teaching strategies to inform the students. Dillon et al. encouraged future researchers to find strategies to reconnect consumers with what they eat and how it is produced. Dillon et al. concluded from their 2003 literature review that the public has a minimal understanding of agricultural production methods. However, Dillon et al. offered a few examples of teaching that could increase children's understanding of food production and how it gets to the plate. The ways in which these lessons were presented affected the outcomes. Farm visits (Weis, 1992), school gardening (Learning through Landscapes in London, 2003), and hands-on (Meunier, Talbert, & Latour, 2002), multisubject lessons (Morrison, 1996) had the most impact. Smeds (2017) revealed similar findings from Morrison (1996), Weis (1992), Learning through Landscapes in London (2003), and Meunier et al. (2002). Smeds (2017) focused the research on

the learning environment. Specifically, deductive education blends the content of traditionally separate courses and presents learning opportunities in authentic settings with hands-on experiences on a farm. Smeds (2017) wrote,

When pupils are taught about food in an inductive form of education, they learn in biology that cows produce milk, what cows eat and about calving. During another biology lesson, some months later, they might learn about biodiversity and at another about crop production. Next semester they might learn during a history lesson about agricultural history, culture and traditions. Some lesson in between, they might learn in chemistry about how milk is processed before it is sold in shops. In health sciences, some years later, they might learn about healthy eating and allergies and in mathematics about economics and how to be an entrepreneur. In the end, there will be splintered knowledge of various subjects during the pupil's educational journey. (p. 15)

Smeds (2017) discussed how the research with 161 fifth graders and sixth graders in Finland provided an opportunity to explore the impact of farm education in comparison to classroom education and a combination of the two. The farm lessons provided hands-on, personal experience with the route of milk from farm to table, and they were more successful in teaching children about food systems than disjointed lessons in the classroom (Smeds, 2017):

On a farm the pupil is able to study the phenomenon of milk as a part of its authentic environment. The pupil can study the cow, its life, what it eats, animal behaviour, animal husbandry, farm culture, farm economics, ecology, and how the milk is transported further for processing, all in its authentic environment. The pupil does not have to make an effort to understand what pieces of knowledge belong to the phenomenon, as they are experienced at the site and anchored to the mind through all senses. (p. 15)



In 1996, chef Alice Waters founded the Chez Panisse Foundation and later partnered with Berkeley Unified Schools and the Center for Ecoliteracy to create the Edible Schoolyard Project, also known as the School Lunch Initiative. This program incorporated many of the practices recommended above, providing educational opportunities for students in school gardens and classroom kitchens to connect them to food (Rauzon et al., 2010):

Nutrition education was offered via hands-on gardening and cooking experiences focused on helping children understand how food moves from the garden to the table, including discussions about the culture, politics, history, mythology, flavor, ecology and environmental impact of food choices. The curriculum put less emphasis on didactic topics such as nutrients in food, and more emphasis on growing foods and preparing meals from a variety of vegetables, fruits, beans and whole grains. (p. 6)

Contento (1981) supported the innovative approach that the Berkeley Unified Schools took, confirming that much of the existing curricula assumes that children have a much more sophisticated conceptualization of the eating process and the effects of food on health than they actually do. Contento conducted research with 34 children of Ages 5-11, seeking to clarify whether children comprehend what adults teach them about nutrition and whether they understand its effects. Contento aimed to discern why children eat what they do and to use this knowledge to design better curricula to educate youth in this realm. Contento recommended that nutrition education curricula avoid the focus on nutrients and classification of foods into dietary groups. Many children are not developmentally ready to understand concepts as abstract as nutrients. According to Contento, pupils might be better served with hands-on experiences from the real world. Contento also suggested that curriculum designers should ask the children what they like to eat and how they make choices. This constructivist approach leverages the idea that

children build their own understanding cognitively (Piaget, 1959) and socially (Vygotsky, 1978). Using lessons that incorporate the child's point of view will make them much more relevant and effective.

### **Modeling**

When the school menus are aligned with the curriculum message, the impact will be greater. "The educational features of a properly chosen diet served at school should not be underemphasized. Not only is the child taught what a good diet consists of, but his parents and family likewise are indirectly instructed" (U.S. House of Representatives, Committee on Agriculture, 1946). This report from more than 70 years ago stated that the school can influence both parents and children by serving good examples of a healthy meal. The education system of today is still in a prime position to affect the dietary habits of the Nation's youth and families (California Center for Rural Policy, 2015, p. 88; Rauzon et al., 2010). Despite stringent school nutritional guidelines, the rates of childhood obesity and diabetes are rising, and it is clear that parents and educators must find a way to affect dietary change (National Institute of Health, n.d., para. 2; Nestle, 2013; Bitman et al., 2015).

### **Food Appeal**

Do students and families even want to buy school lunch? The most obvious factor to consider when one tries to increase sales is whether the meals are appealing. This can be judged in terms of taste, presentation, cafeteria environment, price, and even values.

### **Taste and Presentation**

School food and lunch ladies have become the brunt of jokes in our culture (O'Hagan, 2010, para. 1). Menu items such as Frito pie and sloppy joes have undercut the reputation of

school lunch, and some are exploring innovative ways to shift the image and to make the food more appealing.

In an era in which celebrity chefs (e.g., Alice Waters, Jamie Oliver, and Dan Giusti) have been keen to improve school lunches (Dunn, 2018), a study by Just et al. (2014) examined the feasibility of introducing a main dish designed by a professional chef into the NSLP and of documenting the impact on child participation. A chef created a pizza was designed to meet both the cost and ingredient requirements of the NSLP. The dishes were also designed so that production costs would not increase. Researchers used meal production records, sales records, and tray waste records to collect data over a 4-week period, but it was only a single day that the students were offered a chef-created main dish. Although the high school students were more likely to select the chef's pizza, they did not necessarily eat it. Nevertheless, they were more likely to choose and consume vegetables as a side dish along with the chef pizza (16.5% more vegetable consumption). This pilot study demonstrated the plausibility of using chefs to boost participation in the School Lunch Program and potentially to increase nutrition among high school students through side selection. Just et al. (2014) noted that more research would be needed to determine the impact of more general dishes. Pizza is a dish that students usually choose anyway (Just et al., 2014). Another question is the feasibility of securing volunteer chefs.

Chef Dan Giusti has taken a different approach by offering consultation services to school districts through his company, Brigaide (Dunn, 2018). Brigaide brings in trained chefs to create recipes (and excitement), highlighting meals made from scratch with fresh ingredients. Critics point out that many cafeterias lack the equipment such as stovetops or industrial-sized mixers required for this type of made-from-scratch food service (Dunn, 2018). Although Connecticut's New London School District found grant funding to help pay for the necessary

kitchen improvements that provide space for preparation and cooking equipment, California's superintendent of public instruction, T. Thurmond (personal communication, April 2, 2019), noted that smaller districts often do not have the capacity or personnel to apply for grants.

Poppendieck (2010) had an idea similar to Giusti's approach, proposing that, rather than hiring minimally skilled (and paid) labor for school kitchens, a model incorporating culinary interns might be a solution. Districts could employ talented chefs, who would create appealing dishes, and the rest of the kitchen would be staffed by food service interns at a low rate who would be learning a trade while contributing to better school food. If the meals are a better quality, districts might sell more and increase revenue (Tonti, 2017).

### **A-la-Carte Foods**

One cannot deny the appeal of competitive foods in cafeterias. These foods are from corporations such as Pizza Hut (restaurant chain franchise), PepsiCo (Pepsi-Cola), and FritoLay, a subsidiary of PepsiCo (Doritos). These foods are sold in vending machines, at fundraisers, or in the lunch line, but they are not part of the reimbursable NSLP meals (Nestle, 2013). However, they do bring in much needed profit for schools (Nestle, 2013, chap. 9; Weaver-Hightower, 2011, p. 17). In the wake of more community action towards improved school food and the war on obesity, these major corporations have had to take action to secure a place in school cafeterias (Ken, 2014). Ken (2014) recounted Partnership for a Healthier America and the Alliance for a Healthier Generation, whom the author had worked with as a member of a local school wellness committee, were tightly connected with the corporations that the school committee was trying to keep out. Ken reported that these big businesses had made major efforts to improve public relations and to make products easy to order. One example was the Smart Snack Product Calculator that enabled school food personnel to type in a snack (fruits and vegetables do not

count because they are not products) and the calculator will tell them which products would be allowable in the NSLP program, and then it would offer a streamlined ordering process.

Infiltrations such as these corporations maintain a corporate presence in the school cafeterias. Food companies can influence a district (Nestle, 2013). This influence is important to note because contracts with competitive food corporations are often the route taken when a school needs to make more money from the food program (Ken, 2014).

### **Values**

Diet choices are often influenced by people's values. A hamburger will not be appealing to a vegetarian. An imported banana might not align with a locavore's ideals. Fitch and Santo (2016) stated, "Concerned about the environmental, health, animal welfare, and social justice implications of food choices, an increasing number of people want to eat in ways that not only satisfy taste buds but reflect personal values in these areas as well" (p. 1).

Students and parents bring their own value negotiations to the table, and this affects participation in a lunch program (Botkins, 2017; De Bourdeaudhuij & Van Oost, 1998). Botkins (2017) stated that students are concerned primarily with taste. De Bourdeaudhuij and Van Oost (1998) discussed how parents negotiate values when making choices about food. Parent considerations included price, convenience, taste, and nutrition (Botkins, 2017; De Bourdeaudhuij & Van Oost, 1998). The researchers then examined how these factors were prioritized in the process of food choice.

Concerns about the changing environment have been on the rise as evidence of global warming has made it clear that the current lifestyle is unsustainable (Carson 1962; Gore, 2006; Lappé, 2011; Lappé, 1971; Petřini, 2010). The ecological impacts of food choices can no longer be denied; farming practices affect our ecological systems (Morgan & Sonnino, 2013). In fact,

according to the USDA (2008), industrial farming accounts for 80% of our national water consumption (para. 1). The industrialization of the food system over the last 50 years has decreased biodiversity, increased erosion from soil runoff, depleted soil nutrients, and polluted the water and air (Ericksen et al., 2012). Fertilizer run-off is creating dead zones in the ocean (Diaz & Rosenberg, 2008). Industrial monocrops of corn and soybeans affect soil health and even the natural habitat and lifecycle of bees (Bennett et al., 2012; Ratnieks & Carreck, 2010). Unsustainable food systems are a double-edged concern. Woodward and Porter (2016) forecast the detrimental effects on food security if unmitigated climate change continues. The origin of food products is a consideration as well; the use of fossil fuels to transport foods across a continent contributes to global warming (Gore, 2006; Lappé, 2011; Pollan, 2009). Furthermore, the evolutionary effects of engineered plants and genetically altered animals remain to be seen (Ladics et al., 2015). Students and parents are more likely to support a food program that aligns with ideals of sustainability (Løes & Nölting, 2009; Morgan & Sonnino, 2013).

### **Conceptual Framework**

Working at a county office of education provides the researcher with local school district perspectives. Administrators are always looking for ways to reduce expenses from the general fund. These district leaders claim they are supplementing the food programs to keep them running and have no idea how to increase revenue. They find it difficult to believe that food quality and revenue could be increased at the same time (D. Boyd, C. Cox, S. Lovett, B. Sigler, & J. Sutter, personal communications, May 15, 2018).

Student diet has implications for student wellness and learning (Weaver-Hightower, 2011). School food has a tremendous impact on the Nation's health and environment, and it is also a driver of the development and cultivation of billions of dollars of food items (Fitch &

Santo, 2016). A program that is at the crux of so many issues should be well understood. In this study, the researcher examines how a meal program is implemented in a small rural school that manages to generate enough funds to sustain the program without encroaching on the general fund. These practices can be shared with other similar-sized, rural districts who wish to improve the financial viability of lunch programs.

Ralston and Newman (2015) demonstrated that rural, school lunch programs struggle with a lack of funding (p. 5), yet despite the challenges, some model programs are serving high quality meals (using local ingredients that are minimally processed). Researchers Tonti (2017) and Poppendieck (2010), Ollinger and Guthrie (2015), Just et al. (2014), and Morgan and Sonnino, (2013) provided examples of innovative school meal practices. The data collected from this researcher's study was used to examine a small, rural, lunch program that has implemented strategic practices to achieve financial viability of the cafeteria fund.

Gaps in the existing literature have guided this query to help address a concise need. The researcher has been unable to identify a comprehensive study that highlights the practices of small, rural, school lunch programs that make enough revenue to self-support. Another area of research that is lacking is the relationship of policy, geography, scale, and economics in the implementation of these school food programs (Fitch & Santo, 2016). In this study, the researcher has illuminated how these elements of the school food system influence each other and how these relationships manifest in the practical implementation of the NSLP in small rural schools.

The researcher has compiled a collection of best practices to share with small rural school administrators and food service personnel. The implementation of these practices would be another phase of research. The scope of work was also influenced by the fact that there are many

state and federal policies relating to school food programs. In lieu of any foreseeable changes to these policy trends, the researcher has focused on solutions within the current political context. For this reason, a significant portion of the literature review examines the history and current state of policy.

Theory serves as a lens, providing a focused vision and narrowed scope (Roberts, 2010). Consequently, theory can help guide the formulation of research questions (Creswell, 2015). A researcher's theoretical stance influence what he or she sees; therefore, the application of theory to research is often an iterative dance, back and forth, and it inherently dictates the methodology and analysis of a study (Patton, 2002). Theory affects almost every element of a study (Merriam, 1998). Without theory, one could not discern what one is looking at, what data to gather, or what questions to ask (Miles & Huberman, 1994).

The lens for this study is systems thinking. According to Capra (2009), this perspective reflects on the interconnectedness of everything:

Systems thinking implies a shift from quantity to quality. A pattern is not a list of numbers but a visual image. The study of relationships concerns not only the relationships among the system's components, but also those between the system as a whole and surrounding larger systems. Those relationships between the system and its environment are what we mean by context. (p. 246)

Consider this framework as a holistic perspective that emphasizes an understanding of the purpose of each element or event and its context (or the system's place within other systems). For example, this researcher has examined how the purposes of agriculture, policy, education, environment, and health relate to each other within the context of school food programs. Systems thinking provides a lens with which to see how these purposes might compete (Capra, 2009).



According to Capra and Luisi (2014), “The major problems of our time—energy, environment, climate change, poverty—cannot be understood in isolation. They are systemic problems, which means that they are all interconnected and interdependent, and require corresponding systemic solutions” (p. 57). Farming practices influence nutrition, taste, price, and availability of food. Policy influences farming practices. Values influence lunch sales. Geographical setting influences food prices, availability, food culture, scale of the food program, and staff employment.

Senge (2006b) posited, “Vision without systems thinking ends up painting lovely pictures of the future with no deep understanding of the forces that must be mastered to move from here to there” (p. 12). This lens brings into view the relationship and existing patterns within the interacting food system, economic system, political system, and education system. It also suggests an approach to change. Senge and Sterman (1992) suggested that management must have an understanding of the dynamic and often delayed or long-term feedback that must be considered in change implementation. This systems mind-set of management and, in the case of NSLP, the nutrition director might prove to be a critical factor in the financial success of the food program. The FSA is a conceptual framework by which feedback loops, that occur throughout production, process, distribution, and consumption of food, are examined (van Berkum et al., 2018).

### **Summary of Literature Review**

In this initial review of the associated literature, the researcher has reflected many different stakeholder points of view on the issue of school food programs. Many of the researchers cited in this study underscored the challenges to a small, rural, school lunch program: scale, staffing, and remoteness (Copeland, 2013; Fitch & Santo, 2016; Forner, 2016; Hoffman et

al., 2018; Yettik et al., 2014). USDA researchers too alluded to the challenges of running a successful program and pointed to potential areas of improvement (Ralston et al., 2008; USDOE, 2018, p. 8). Prior to 2010 the major theme in school food literature was nutrition. Since the implementation of the Healthy, Hunger-Free Kids Act (2010), the focus on policy constraints and school food reform has increased such that it is more systems-based and holistic, addressing more than just the percentage of whole wheat flour and serving size of vegetables. Some have indicated that small rural schools have higher expenses and less income in the cafeteria budgets so that they need support (Ollinger & Guthrie, 2015; Ollinger et al., 2011; Ralston et al., 2008). Factors include higher food prices, the challenges of procurement, and the disadvantage of smaller scale programs. Innovation and success exists; however. Tonti (2017) and Poppendieck (2010) promoted programs such as the Farm-to-School Network that foster collaboration and support between school districts and farmers. Ollinger and Guthrie (2015) said that the answer lies in numbers and scale. Serve more appealing food and you will sell more, increasing program participation (Just et al., 2014). Aligning food programs with values (e.g., sustainability via organic ingredients) is another approach to draw in more customers (Løes & Nölting, 2009; Morgan & Sonnino, 2013).

Ruis (2017) noted that the evolution of the NSLP provides an example of a paradigm of private groups trying a model, showing success, and then the public-school board or state choosing to adopt and take over. Ruis proposed that innovations in our current lunch system would mimic this model. Ruis suggested that we might see single districts making changes and, after many have proven success, it might be easier to influence policy change.

## CHAPTER 3

### METHODOLOGY

In this chapter, the researcher describes the mixed-methods research methodology and the rationale for the evidence-based research choices. The research setting and participants are described to help provide context for the reader. Following an overview of the research design, the types of data that were collected and the chronological processes for conducting this study make up the breadth of this chapter, which is concluded with a brief discussion of data storage, participant rights, and potential limitation of the study.

#### **Rationale for Mixed-Methods Research Design**

The primary research question for this study asked, “How can small, rural schools operate a nutrition program that is financially self-sustaining?” The supporting research questions were used to explore what factors or practices the nutrition director, administrator, and business manager of a small, rural, school nutrition program perceive positively contribute to or impede the operation of a self-funding nutrition program.

To address these questions, the researcher focused on a holistic description of the school lunch food system. Qualitative research allowed the researcher to examine intricate details of phenomena, including organizational processes (Roberts, 2010). Qualitative methods (e.g., interviews, field observations, and artifact analysis) provided a comprehensive view of the factors and practices that enable or impede the fiscally sound operations of the School Lunch Program at the study site (Roberts, 2010).

#### **Rationale for Single-Case-Study Methodology**

The case study method provided an intensive description and detailed analysis of a phenomenon, or system bounded by time or place (Bloomberg & Volpe, 2016, p. 170). The

overarching research question, “How can small, rural schools operate a nutrition program that is financially self-sustaining?” as well as the supporting questions that asked specifically what factors or practices contribute to or impede the operation of a self-funding nutrition program, demanded a level of detail and comprehension of the entire system and context that is well-suited to a case study. According to Merriam (1998),

A case study design is employed to gain an in depth understanding of the situation and meaning for those involved. The interest is in the process rather than outcomes, in context rather than a specific variable, in discovery rather than confirmation. Insights gleaned from case studies can directly influence policy, practice, and future research (p. 19).

By examining elements of the school lunch food system in a single-site case study, the researcher was able to consider how elements (e.g., freezer space, vendor options, staff hours, billing, and nutrition education) influence each other as feedback loops in a multipronged system. Moreover, a discussion of the characteristics that are unique to this setting are exactly what is missing from the existing literature. Generalized reports have failed to recognize the intimate details that make a small rural district lunch program succeed.

### **Research Setting**

Small, rural schools are challenged to run food programs that are self-sustaining. Without literature that offers solutions to the problems encountered with this combination of small scale and remote location, schools do not have a successful model to follow. The district in this study is a single school district, meaning that one administrator and many of the staff on campus are responsible for multiple roles (Copeland, 2013). The district employs 11 full-time teachers, two part-time enrichment teachers, and 23 part-time classified personnel serving 211 students from transitional Kindergarten up through Grade 8 with a socioeconomically disadvantaged rate of

59.7% (California School Dashboard, 2018). In this study, the researcher examined the School Lunch Program in this small public school situated in rural California that has managed to balance its cafeteria budget without encroaching on the general fund for the past 10 years. Classification of rural status is based on the locale code assigned by the USDOE. The code for the participating site is 42, which means that it is a U.S. Census Bureau-defined rural territory that is more than 5 miles, but less than or equal to 25 miles from an urbanized area, and it is also a rural territory that is more than 2.5 miles, but less than or equal to 10 miles from an urban cluster (Gerverdt, 2018, p. 6). As indicated in the literature review, schools located in these isolated regions have additional challenges that affect the characteristics of the School Lunch Program (Ollinger & Guthrie, 2015; Ollinger et al., 2011; Ralston et al., 2008). A mixed-methods study of this site illuminated how it has overcome these challenges.

Following IRB approval, the researcher emailed the prospective site administrator, business manager, and nutrition director an invitation to participate in the study (Appendix A, Invitation to Participate). The researcher is familiar with the staff and lunch program at the intended site, having worked there as a nutrition director and teacher in the past and through her current role at the County Office of Education. The researcher has a friendly rapport with the district employees which facilitated access to documents and permission to interview and observe. The researcher inquired about the district policies for sharing documents and designed the research in accordance with the required district protocols (Appendix B, Interview Protocol).

### **Participants**

The researcher collected data from the site administrator, the business manager, and the nutrition director. The site administrator, who operates as a superintendent-principal for this single school district, has been in the position for 1 year. The researcher is also an alumni and

parent of two students at the school. The administrator brought a fresh lens to the description of the School Lunch Program at this site and was able to provide insight into how the program relates to other initiatives at the school (e.g., the Local Control and Accountability Plan (LCAP), the Wellness Policy, and funding). The business manager has been in this role for more than 15 years and has been responsible for multiple aspects of the cafeteria program throughout its transition, from one that encroached on the general fund to its current state of self-sustaining income. The business manager's perspective on fiscal and clerical processes that affect the program addressed a key aspect of the food system. The nutrition director has been in the position for 5 years and is responsible for food procurement from vendors and for USDA commodities, menu planning, production records, management of kitchen staff, and cafeteria environment. As the primary decision maker for the School Lunch Program, the nutrition director provided insight on the day to day operations and reasoning behind the choices that are made.

### **Data**

The main research question asks, "How can small, rural schools operate a nutrition program that is financially self-sustaining?" An FSA, as described in the conceptual framework, requires the researcher to consider the myriad of elements that are part of the school lunch system. It was necessary to look at food costs, labor costs, staff experience, and food policies among the many factors that influence the success or failure of a lunch program. The researcher also required basic demographic information to define the context of the study. This information included the free and reduced-price rate for the school, the ADA of the students, the cafeteria expenditures and income, the amount of commodity foods received, the proportion of sales of additional food programs that operate on site (breakfast, snack, supper), and the price of meals

for varying eligibility. The researcher examined documents and artifacts (e.g., lunch menus, the district wellness policy, and the cafeteria budget) for the SY 2018-2019. Much of this information was available publicly. Any additional documents needed were requested from the district staff in person or via email.

The supporting research questions asked, “What factors or practices do the nutrition director, administrator, and business manager of a small, rural school nutrition program perceive would positively contribute to or impede the operation of a self-funding nutrition program?” This open-ended question was answered through individual, on site, semi structured qualitative interviews with each of the afore-mentioned staff members, each of whom offered a unique perspective that more fully addressed the different elements of the school lunch food system. Prior to interviews the researcher participated in direct observation in the cafeteria throughout the course of a full work-shift to gain a better understanding of the daily tasks and atmosphere in the cafeteria.

Following IRB approval, the invitation to participate was emailed and mailed, along with the consent form (Appendices A & B). Individuals who chose to participate emailed the signed consent form to the researcher. Upon receipt of the signed consent forms, the researcher emailed a copy of the signed consent form along with the survey and interview questions to each participant (Appendices C & E). The participants were instructed to email the researcher when the survey was ready to be retrieved. After collecting the surveys in person, the researcher reviewed the preferred interview schedule and confirmed a date and time with each of the participants. At this time, the cafeteria work-shift observation was also scheduled.

Once participation was confirmed and the surveys were completed, an examination of publicly available documents began. The researcher proceeded to request additional documents

as needed (Appendix C, Email Requesting 2018-2019 Documents). During the artifact analysis phase, direct observation in the cafeteria kitchen took place. This step facilitated a stronger rapport with the subjects in preparation for individual interviews, after which the participants had an opportunity to check the researcher's transcriptions to verify an accurate representation of the participant's perceptions. This step is referred to as member checking. The broad scope of data collected provided insight into how different elements of the food system affect each other. Reflection on these data through the lens of systems thinking and comparison to the literature review suggest a model program design for small rural schools.

### **Overview of Research Design**

Creswell (2015) described research as “a process of steps used to collect and analyze information to increase our understanding of a topic or issue” (p. 3). These steps include an initial question, collection of data, and the presentation of the sought-after answer (Creswell, 2015). This section provides an overview of the research process for this study with a discussion of each of the steps, including literature review, the process to receive Institutional Review Board (IRB) approval, data collection, and the planned data analysis and synthesis.

### **Literature Review**

The process for conducting the RSLR was influenced by the work of Amitage and Keeble-Allen (2008). An iterative concept map identified numerous search terms for the literature review. Using Google Scholar and the electronic databases available through the digital libraries of the University of New England and Humboldt State University, the following terms in various combinations were used: NSLP, school food programs, cafeteria, rural, innovations, finance, budget, procurement, policy, farm-to-school, reimbursement, free and reduced-price lunch rate. The reference sections of articles were also perused to find associated literature, a



practice known as snowballing (Greenhalgh & Peacock, 2005). During the review, the researcher recorded notes in a matrix system to organize emerging themes.

### **Institutional Review Board**

In January of 2019, the researcher completed the required Collaborative Institutional Training Initiative . Throughout the summer of 2019, the researcher developed a proposal that consisted of Chapters 1-3 and the accompanying appendix items. Following a successful presentation to the research committee members, the lead advisor directed the researcher to complete an IRB application. Upon receipt, the lead advisor submitted the application to the IRB on behalf of the researcher.

### **Data Collection**

The target population, or sampling frame as Creswell (2015, p. 141) called it, was selected because it is a school district that falls within the parameters of the study, and the researcher was able to access it easily. The parameters required that the district have an ADA of 250 or fewer students, be located in a rural area, and operate an NSLP with a cafeteria budget that did not encroach on the general fund. The three district individuals that participated in the study were selected because of their roles in the food program and the experiences and information they could share. All of them are within the age range of 18-65 years. Data collection began in October and concluded in December 2019. The four phases of data collection provided information from multiple sources. The researcher conducted paper surveys, artifact analysis, direct observation, and individual semistructured interviews. Throughout development of the survey and interview protocol, the researcher used a matrix to chart alignment between research questions, literature review themes, and conceptual framework with the questions posed on the two instruments. Since the researcher created the survey and interview protocol, both were

validated through field testing with a local, small school administrator and staff from the nutrition department of the county office of education, where the researcher works. Revisions were made according to the feedback provided.

**Phase 1: Survey.** Following IRB approval and consent to participate, all of the participants—the administrator, business manager, and nutrition director—were invited to take the same survey about the cafeteria budget, ADA, and the free and reduced-price lunch rate (Appendix D, Survey Questions). This survey was emailed, along with a copy of the signed consent form (Appendix E, Consent for Participation in Research) and a preview copy of the interview questions (Appendix F, Interview Questions). One of the survey questions asked the participants whether they were willing to participate in an individual interview. Those who were willing selected a preferred interview date. The participants had up to 2 weeks to complete the survey with a scheduled reminder via email 1 day prior to the deadline. The end of the survey instructed the participants to email the researcher the completed survey or to request that it be picked up. The data from the survey was transferred to Excel on the researcher's password-protected computer. The paper surveys were cross-shredded.

**Phase 2: Artifact collection and analysis.** Once the district was a confirmed participant, the researcher began the collection and review of relevant public documents, available from the district Web site. Records for the 2018-2019 cafeteria budget were requested from the administrator and business manager via email. Additional information (as needed) was requested via email. These documents included copies of lunch menus, sample production records, an annual CNIP report for 2018-2019, and a copy of the district wellness policy. During the document review process these items were recorded on a summary form. The document review

process provided contextual information and insight into the budget and food culture at the site (Bloomberg & Volpe, 2016).

**Phase 3: Direct observation.** The researcher was the sole person engaging in direct observation of the school cafeteria using instantaneous sampling, predetermining in advance, the particular times when observations will be made. The researcher observed protocols such as food delivery, food preparation, food service, kitchen clean-up, and daily paperwork and food ordering. Requested times were presented to the district administrator and nutrition director when the researcher made a site visit to collect surveys. The researcher then sent the district an email confirming the observation schedule. Schensul, Schensul and LeCompte (1999) recommended that the researcher keep a count of attendees while in the field, including (a) the demographics of age, gender, and race; (b) a physical map of the setting and description of the physical surroundings; (c) a portrayal of where participants are positioned over time; and (d) a description of the activities being observed, detailing activities of interest. These notes were sketched out on paper and focused on the cafeteria staff in the kitchen and during service. Children in the environment went through the service line and ate; however, the researcher did not engage or directly intervene with the children. Observations of the lunch waste disposal system took place after the students had left the cafeteria.

According to Schensul et al. (1999) quality markers of “good” field notes include the following elements and considerations: (a) use exact quotes when possible; (b) use pseudonyms to protect confidentiality; (c) describe activities in the order in which they occur; (d) provide descriptions without inferring meaning; (e) include relevant background information to situate the event; (f) separate one’s own thoughts and assumptions from what one actually observes; and (f) record the date, time, place, and name of researcher on each set of notes. Feelings, thoughts,

and suppositions were noted separately in a different notebook. According to Spradley (1979, as cited in Hammersley & Atkinson, 1989) the researcher focused attention on the following elements when observing:

1. Space: the physical place or places.
2. Actor: the people involved.
3. Activity: a set of related acts people do.
4. Object: the physical things which are present.
5. Act: single actions that people do.
6. Event: a set of related activities that people carry out.
7. Time: the sequencing that takes place over time.
8. Goal: the things people are trying to accomplish.
9. Feelings: the emotions felt and expressed.
10. Reflection: researcher response to any of the above.

**Phase 4: Individual interviews.** The interview method of semi structured, open-ended questions was used to elicit perceptions of the three district subjects regarding the School Lunch Program. The interview protocol reflected the recommendations of Creswell (2015), Patton (2015) and Spradley (1979). Creswell (2015) noted that it is important to consider issues from a range of perspectives; therefore, the researcher engaged the school administrator, the business manager, and the nutrition director in the interview process. Patton (2015) emphasized the importance of open-ended questions to minimize the imposition of predetermined answers. Spradley (1979) recommended that researchers nurture a rapport with subjects through strategically chosen questions that are easy to answer at the onset of the interview. The IRB has approved the study's interview protocol. The interview questions were incorporated into an

interview protocol for the interviewer's use. Interviews convened at a mutually convenient time at the study site in the participant's offices. The interview protocol consisted of 25 questions with two demographic questions (e.g., "What is your role at the district?"), and 23 questions that were open-ended and semistructured questions. The questions were from the research questions and conceptual framework designated for the study. The initial demographic questions (e.g., "How many school lunches do you serve on the average day?") were designed not only to provide relevant participant information, but also to elicit positive rapport and comfort with the interview session.

The interview questions were organized along different themes according to the research questions and conceptual framework of the study. Predetermined questions were generated about (a) demographic information, (b) the factors that support or impede a sustainable lunch program in a small, rural school, and (c) the school food system.

One-to-one, in-person interviews were recorded with the Voice Memos application on a password-protected iPhone with the knowledge of the participants. The participants' time in the interview averaged approximately 35 minutes each. To ensure anonymity, the participants were assigned an anonymous label of A, B, or C. Audio data will be retained on a password-protected computer for 12 months, at which time the files will be destroyed along with any remaining audio files that were produced from the interviews.

After the interviews, verbatim transcripts were created as typed, word-processed documents through a professional, third-party, transcription service called Rev.com. For the purpose of member-checking, the participants were each emailed through the researcher's University of New England email account an electronic version of the transcript marked

“confidential.” The researcher edited these transcripts for format and readability, and to compensate for faulty electronic transcription.

In an effort to maximize internal validity for the study, the participants were asked to verify them for accuracy and validity, a practice known as member checks (Bloomberg & Volpe, 2008). Merriam’s (1998) commentary on the nature of the participant data is illustrative: “What is being investigated are people’s construction of reality” (p. 225). Thus, given the subjective nature, member checks were a critical step in the data collection process. All of the participants had the opportunity to verify their receipt and approval of the printed transcript by responding to the email within 72 hours (Appendix G, Email Requesting Member-Check).

### **Data Analysis and Synthesis**

A single method might not adequately shed light on a phenomenon. Using multiple methods can help facilitate deeper understanding. Denzin (1978) and Patton (1999) identify four types of triangulation:

1. Methods triangulation: Checking out the consistency of findings generated by different data collection methods.
2. Triangulation of sources: Examining the consistency of different data sources from within the same method.
3. Analyst triangulation: Using multiple analysts to review findings or using multiple observers and analysts.
4. Theory and perspective triangulation: Using multiple theoretical perspectives to examine and interpret the data.

In the analysis of the data from this study, the researcher incorporated methods triangulation and a triangulation of sources. The survey data contributed to a comprehensive

description of the School Lunch Program characteristics. Lunch menus and the Wellness Policy were used to further the contextual description of the site and program. Finally, observation data was used to verify information gathered via surveys and interviews. This data triangulation furthered the understanding of food system relationships and how they affect the implementation and financial success of lunch programs in small, rural schools.

Data gathered via one-to-one qualitative, semi structured interviews was also subject to interpretive phenomenological analysis. This analysis is a method of interpreting people's personal experiences, taking into account that the retelling of a lived experience is an act of reconstruction and is inductive. With this approach, the researcher looks at the relationship between individual and social context, while analyzing the data systematically and reflexively (Griffin & May, 2012).

The process of coding observation notes was used to select and emphasize information that was important enough to record, and enabled the researcher to remove extraneous information and to focus observations on the type of information needed for the study (deMunck & Sobo, 1998). deMunck and Sobo (1998) further explained that coding are the

rules for organizing symbols into larger and more meaningful strings of symbols. It is important, no imperative, to construct a coding system not because the coding system represents the 'true' structure of the process you are studying, but because it offers a framework for organizing and thinking about the data. (p. 48)

The codes were developed through constant comparison to form a description or to identify themes in the data collected. The researcher revisited the data with what Rivas (2012) referred to as a zigzag approach and open coding so that different possible themes and categories

could be reconsidered throughout the process. The researcher drew concept maps to organize the themes and record the various codes.

Rivas (2012) warned that before implementing thematic coding a researcher must recognize that he or she has a personal sensitivity to concepts, meanings, and relationships. This is called theoretical sensitivity. The researcher does have experience as a nutrition director and, in light of this, the researcher strove to maintain a reflexive approach and to incorporate the practice of bracketing to mitigate potential biases. The inclusion of multiple sources of data sets also helped to reduce the impact of potential bias.

Next, the data was analyzed for themes or categories. As Walsh (2012) described, through systematic sifting and comparison, the mutual relationships and internal structure of the categories were revealed. From these observations the researcher made an interpretation about the meaning of the data.

### **Data Storage**

Data from surveys, interviews, and observation is stored on a password-protected computer. Physical notes from observation notebooks were scanned and stored on a password-protected computer, and then notebooks and other paper data were cross-shredded. After a period of 1 year the digital data will be deleted.

### **Participant Rights**

The researcher adhered to the IRB standards of human subjects outlined by the Human Research Protection Program at the University of New England, Portland, Maine. The participants who chose to take part in the study were asked to complete a consent form that was mailed and emailed. The participating district was assigned an alias, which was referenced throughout the study to maintain confidentiality. The participant's privacy, identity, and



confidentiality of responses were protected by assigning to them a code to use instead of a name. After reviewing the analysis of the data provided, the participants had the right to clarify and provide feedback on the researcher's interpretation. This member check helped to maintain the validity of the data (Bloomberg & Volpe, 2016). If at any time a participant did not feel comfortable or declined to answer or comment in the interview setting, the participant had the option to withdraw from the research or to request to answer questions in a different format. The participants could skip any question that they did not want to answer in the survey or in the individual interview.

### **Limitations of the Study**

The staff of the participating district is known to the researcher through previous and current job roles. The participation in the study was voluntary and without any financial benefit, and it has had no impact on the working relationship between district employees and the researcher, who is an administrator at the county's Office of Education.

The researcher has a background in school food service at the research site, having implemented the School Lunch Program 10 years ago. This experience brought the potential for a biased opinion that this model might be possible for other programs in a similar context; however, the researcher understood that each site has its own unique challenges and strengths. Some districts might not have access to self-motivated staff or the food culture of a community might not accept changes to an existing program. The study site has the fortunate ability to draw on parent volunteers, and the business manager is willing to revise procedures to accommodate innovative procurement methods. Not every site has this advantage.

The limitations of this study include the lack of generalization to other similarly situated districts, for the data collection is from a single institution, which might not adequately reflect

other populations. Moreover, the findings of this study are limited by the range of questions and what the participants share. It is assumed that they are being open and honest. However, valuable information might not have been included in this study because it fell outside the scope of the research question or the respondents might have forgotten or neglected to share the information.

### **Chapter Summary**

In conclusion, the researcher has attempted to carry out an in-depth analysis of the way this small, rural, school district operates an NSLP. This revelatory case has value, for the phenomenon of a small, rural, school lunch program that is fiscally sustainable has not previously been explored. To capture the context and influences that make up this unique case, the researcher has designed a qualitative study that captures data from multiple sources, including a survey, artifact analysis, direct observation, and individual, semistructured interviews. Findings from this research could potentially provide a model of the best practices for similarly situated, small schools that desire to decrease the cafeteria encumbrance on the general fund.

## CHAPTER 4

### RESULTS

In Chapter 4, the researcher reviews the specific research questions under investigation and the corresponding sources of data. This chapter begins with a description of how the data were collected and an overview of the participant demographics. A presentation of the data follows, which is divided into three sections for each type of data source. Each of these sections begins with a detailed account of how the data was analyzed, is followed by the presentation of the corresponding data, and concludes with a presentation of the data by theme. The chapter ends with a summary.

#### **Research Questions Investigated**

This study was driven by the overarching question, “How can small, rural schools operate a nutrition program that is financially self-sustaining?” The supporting questions probed into what could support a financially self-sustaining cafeteria budget and what might hinder such results. The data collected to inform these topics came from multiple sources. The district administrator, business manager, and nutrition director were each surveyed and interviewed individually. Additionally, the nutrition director was observed throughout a work shift in the cafeteria. Artifacts such as the cafeteria budget and lunch menus were collected to provide specific details about the program. Table 3 indicates the sections of each data source that informed the research questions.

Table 3

*Research Questions and Data Sources*

Research question	Survey items	Interview questions	Artifacts	Observations
How can small, rural schools operate a nutrition program that is financially self-sustaining?	Questions 3-21	Questions 2-24	Lunch menus Wellness policy CNIPS report Cafeteria budget Production record	Cafeteria
What factors or practices do administrators, business managers, and nutrition directors of small, rural school nutrition programs perceive positively contribute to the operation of a self-funding nutrition program?		Questions 2-18, 20, 22-24	Wellness policy	Cafeteria
What factors or practices do administrators, business managers, and nutrition directors of small, rural nutrition programs perceive impede the operation of a self-funding nutrition program?		Questions 2-14, 16, 19, 21, 23, 24	Wellness policy	Cafeteria

*Note.* CNIPS = California Nutrition Information and Payment System.

The survey was the initial instrument presented to the participants, and it was the factual data that helped to paint a picture of the food program. It was also an opportunity to triangulate

some of the data provided from other sources and to highlight information gaps that any of the participants might have. In the interviews, the researcher addressed the research questions on many levels, eliciting data about the character of the program and the opinions of the participants. Many artifacts were collected which informed the researcher about how this program operates a self-sustaining budget. The wellness policy, which was created and approved by the stakeholders (e.g., administrators, business managers, and nutrition directors), reflects some of their opinions. The cafeteria observation provided descriptive data about how the food program at this small, rural school operates. Throughout the observation, the nutrition director's comments were captured, and they portrayed what she perceived to be beneficial to the program and what was perceived to be challenging.

### **Data Collection Processes**

After receiving IRB approval on October 11, 2019, the researcher proceeded to begin the data collection process. The data collection process entailed recruiting participants, obtaining consent, and the actual data collection and preliminary analysis. A detailed discussion is outlined in the following sections.

#### **Recruitment**

Recruitment efforts for this study included both email and postal mail to ensure that the three prospective participants received an invitation. On October 11, 2019, the researcher sent an invitation to participate and the consent form attachment via email to the business manager, administrator and nutrition director of the anticipated research site (Appendices A & B). That same day a consent form was also sent through postal mail to each of the three prospective participants.

## **Consent**

Consent forms were obtained from all three participants. On October 14, 2019, the business manager emailed the signed consent form to the researcher. That same day the administrator sent an email to the researcher, stating that her signed consent form would be delivered via courier. It arrived October 15, 2019. The signed consent form for the nutrition director arrived via email on the same day. After receipt, each consent form was reviewed for completeness, and the researcher signed them. Copies of the completed and signed consent forms were sent via email to each participant along with the survey questions and preview copies of the interview protocol.

## **Data Collection**

Emails were sent to the business manager and administrator on October 15, 2019, requesting the summary of the 2018-2019 cafeteria budget, the district wellness policy, the 2018-2019 California Nutrition Information and Payment System (CNIPS) summary report, copies of lunch menus, and samples of production records for review. The researcher sent a separate email to the business manager with an attached copy of her signed consent form, survey questions, and a preview copy of the interview protocol on October 15, 2019. The following day the administrator and nutrition director were sent emails with signed consent forms, survey questions, and preview copies of the interview protocol.

The researcher visited the research site on November 4, 2019, and received the completed survey from the business manager and nutrition director. On that same day, the nutrition director invited the researcher to stay and observe in the cafeteria for the entirety of her work shift and then to conduct the one-on-one interview. At the end of the interview the nutrition director gave the researcher copies of lunch menus for previous months and production records from 2 days.

After returning home, the researcher submitted the digital recording of the interview to Rev.com. Later that evening, the transcript was complete and the researcher emailed it to the nutrition director for a member-check.

The next day, the researcher interviewed the business manager and began recoding the survey data. A Microsoft Excel spreadsheet was created for this purpose. The Excel spreadsheet has a column for question number, question text, administrator answer, business manager answer, and nutrition director answer (the codes in place of job roles were A, B, and C). The researcher recorded the business manager's survey responses that evening.

On November 6, 2019, the researcher collected the survey from administrator in person and also completed the administrator interview. Afterwards, the researcher submitted the recording for the business manager's and the administrator's interviews to Rev.com for transcription. The same day, the transcripts were completed and emailed to the administrator and business manager for member-checks. On November 8, 2019, the researcher transcribed the handwritten observation notes into a typed Microsoft Word document for ease of analysis.

### **Description of Participants**

In the following section, the researcher describes the participants and their roles within the context at the small school site included in this study. This information, along with personal details about their length of employment and their relationship to the school was provided to the researcher via interview responses. The three participants in this study are employees of the research site, which is a single school district in northern California.

The administrator has the role of superintendent-principal, which includes responsibilities ranging from instructional leadership to reporting to the board of trustees. This individual, who is in his or her second year of site administration, also addresses disciplinary issues, stakeholder

engagement, personnel, and facilities management. The superintendent-principal works closely with the business manager to ensure that the budget is designed to support district goals and is balanced. The administrator is an alumnus of the district and both of her children attend the school.

The business manager has been employed at this district for over 15 years. In this role, the business manager creates budget reports for the administrator and the board of trustees, processes all of the invoices, and ensures that credits and debits are attributed to the appropriate account strings. The business manager works closely with the nutrition director to arrange payment for cafeteria vendors. In many cases, the vendors invoice the district on a monthly basis, but some of the smaller vendors from local farms bill less frequently. Vendor accounts are also set up by the business manager. In addition, the business manager processes reimbursements when the nutrition director uses his or her own funds to make a cafeteria purchase (in the event there is no school account). The business manager's two children both graduated from this school.

The nutrition director at this small district has many professional responsibilities. This individual plans menus, selects or creates recipes, orders ingredients and supplies, picks up and unloads ingredients and supplies, prepares and serves food, cleans the kitchen, manages other kitchen staff, and fills out procurement forms and daily production records. The nutrition director has been at this district for 5 years and is experienced in the culinary field. Her two children attend the school.

### **Analysis Method and Presentation of Results**

This mixed-methods, single-site, case study included four different sources of data. These data sources included a survey, artifacts, individual interviews, and site observations. The



detailed explanation of how the qualitative and quantitative data were reviewed, organized, and analyzed is provided before the presentation of the respective results.

### **Presentation of Survey Results**

The data collection for the quantitative portion of this mixed-methods, research study was done by using a paper survey instrument. There were three participants: the district administrator, the business manager, and the nutrition director. The paper survey instructed the participants to skip any questions that they did not want to answer or for which they did not have answers. There were a total of 23 questions with multiple choice answers. The first three questions were used to collect demographic information about the participants. The statistical information that was sought through the first half of this survey was available to the researcher through other means. For example, Questions 4-8 related to the percentage of cafeteria budget funds spent on specific elements of the food program. This information was also available from the cafeteria budget document. Thus, the survey tool provided an opportunity to triangulate data and to identify strong points and gaps in knowledge among the participants. Questions 15-21 of the survey were focused on participant perception with answers framed within a Likert scale. The final two questions confirmed all three participants' willingness to be interviewed, and provided options for the participants to select a preferred interview date and time. Each survey item and the corresponding response of each participant present the data.

The analysis of the survey results was conducted by transferring the handwritten responses to an Excel spreadsheet. The researcher created a table with a column for each participant and a row for each question. The participant answers were recoded and entered into the corresponding cells.

## **Presentation of Survey Results by Section**

**Survey Section 1.** Survey Questions 1-3 were used to collect demographic information about the participants. Survey Question 1 asked the participants to indicate their role at the school. Survey Question 2 asked the participant's age, and Survey Question 3 prompted the participants to select all of the levels of education that they had experienced. The participant ages ranged from 18-65 years old. The level of education among the participants ranged from some college to specialized credentials and a master's degree.

The district superintendent-principal is within the age range of 18-45 years old and has specialized credentials, as well as a master's degree. The business manager is within the age range of 46-65 years old and has a 4-year bachelor's degree. The nutrition director is within the age range of 46-65 years old and has completed some college, as well as some specialized certification.

**Survey Section 2.** Survey Questions 4-8 were related to the percentage of cafeteria budget funds spent on specific elements of the food program. The actual percentages are examined in the discussion of the cafeteria budget in the artifact analysis section of this chapter. Table 4 shows the participants' responses to this section of the survey. The table includes the numbered survey questions in the first column. Survey Question 4 asked about the estimated percentage of the cafeteria budget spent on cafeteria personnel. Survey Question 5 requested the estimated percentage of cafeteria budget spent on supplies. Survey Question 6 referred to the estimated percentage of cafeteria budget spent on food. Survey Question 7 asked for the estimated percentage of cafeteria budget spent on professional development or training for cafeteria staff (including nutrition director). Survey Question 8 requested the estimated percentage of cafeteria budget spent on waste removal costs (e.g., lunch waste). The responses

from the administrator, business manager, and nutrition director are placed in corresponding Columns 2-4.

Table 4

*Participant Answers for Survey Questions 4-8*

Survey question	Administrator	Business manager	Nutrition director
4. Estimated percentage of cafeteria budget spent on cafeteria personnel	No response	51%-75%	No response
5. Estimated percent of cafeteria budget spent on supplies	No response	Less than 10%	No response
6. Estimated percent of cafeteria budget spent on food	No response	26%-50%	No response
7. Estimated percent of cafeteria budget spent on professional development or training for cafeteria staff (including nutrition director)	No response	No response	No response
8. Estimated percent of cafeteria budget spent on waste removal costs (e.g., lunch waste)	No response	Less than 10%	No response

There are inconsistencies in the survey data because of the lack of responses to some of the questions. The administrator did not have an answer for the budgetary Survey Questions 4-8. Yet, the business manager did provide responses for this section. For Survey Question 4, the business manager estimated that 51%-75% of the cafeteria budget was spent on personnel. With

respect to Survey Question 5, the business manager estimated that the nutrition budget allocated less than 10% for supplies. For Survey Question 6, the business manager estimated that 26%-50% of the budget was spent on food. The business manager did not provide an answer for Survey Question 7, regarding the amount spent on professional development, but did respond to Survey Question 8 that less than 10% of the cafeteria budget was spent on waste removal costs. Similar to the administrator participant, the nutrition director did not provide answers for Survey Questions 4-8, regarding the cafeteria budget.

**Survey Section 3.** Survey Questions 9-10 elicited responses about the student participation rate in different meal programs on campus and whether the district participates in the Community Eligibility Program. Table 5 shows Survey Questions 9-10 and the participant responses for this section. The table includes the numbered survey questions in the first column. Survey Question 9a asked about the estimated 2018-2019 average participation rate for the School Breakfast Program. Survey Question 9b asked about the estimated 2018-2019 average participation rate for the School Lunch Program. Survey Question 9c asks about the estimated 2018-2019 average participation rate for the After-School Snack Program. Survey Question 10 asks whether the district participates in the Community Eligibility Program. Responses from the administrator, business manager, and nutrition director are placed in corresponding Columns 2-4.

Table 5

*Participant Answers for Survey Questions 9-10*

Survey question	Administrator	Business manager	Nutrition director
9a. What was the estimated 2018-2019 average participation	76-100%	No response	No response

---

Survey question	Administrator	Business manager	Nutrition director
rate for the School Breakfast Program?			
9b. What was the estimated 2018-2019 average participation rate for the School Lunch Program?	76-100%	51%-75%	No response
9c. What was the estimated 2018-2019 average participation rate for the After-School Snack Program?	No response	No response	No response
10. Does your district participate in the community eligibility program?	No	No	No response

---

The administrator estimated that the average student participation rate for breakfast and lunch was 76-100%. The administrator did not provide an answer regarding the After-School Snack Program participation, but did indicate that the school does not participate in the Community Eligibility Program. The business manager did not enter an estimate for participation in the School Breakfast Program, but did estimate that 51%-75% of the students participate in the School Lunch Program, which was lower than the administrator's estimate of student participation in the district-offered nutrition program. The business manager had no answer regarding the After-School Snack Program. In line with the administrator, the business manager also indicated that the district is not part of the Community Eligibility Program. The nutrition director did not provide answers regarding student participation in any of the meal programs nor did she have an answer regarding participation in the Community Eligibility Program.

**Survey Section 4.** Survey Questions 11 and 12 asked about the number of vendors and the percentage of cafeteria ingredients that are provided by local vendors. The participants' responses are displayed in Table 6. The table includes the numbered survey questions in the first column. Survey Question 11 asked how many vendors there are for the cafeteria, excluding commodities. Survey Question 12 asked about the approximate percentage of ingredients from local farmers and vendors. Responses from the administrator, business manager, and nutrition director are placed in corresponding Columns 2-4.

Table 6

*Participant Answers for Survey Questions 11-12*

Survey question	Administrator	Business manager	Nutrition director
11. Approximately how many vendors are there for the cafeteria, excluding commodities?	No Response	6-10	1-5
12. What is the approximate percentage of ingredients from local farmers and vendors?	No Response	51%-75%	65%-75%

The administrator did not provide answers for Survey Questions 11 and 12. The business manager's estimate of the number of vendors was six to ten, and she approximated that 51%-75% of the ingredients were sourced from local farmers or vendors. However, the nutrition director estimated a smaller volume of vendors at approximately one to five vendors and a higher rate (65%-75%) of ingredients from local farmers/vendors. The nutrition director wrote in that these items are primarily milk, cheese, and produce.

**Survey Section 5.** Questions 13 and 14 asked whether there is an active Wellness Committee and whether competitive foods are sold on campus. The answers from the participants are displayed in Table 7. The table includes the numbered survey questions in the first column. Survey Question 13 asked whether there is an active Wellness Committee. Survey Question 14 asked whether there are competitive foods (e.g., soda or chips) sold on campus. Responses from the administrator, business manager, and nutrition director are placed in corresponding Columns 2-4.

Table 7

*Participant Answers for Survey Questions 13-14*

Survey question	Administrator	Business manager	Nutrition director
13. Is there an active Wellness Committee?	Yes	No	No
14. Are there competitive foods (such as soda or chips) sold on campus?	No	No	No

In response to Survey Question 13, the administrator indicated that there is a Wellness Committee in the district. Regarding Survey Question 14, the administrator indicated that there are no competitive foods sold on campus. However, in contrast to the administrator's response to Survey Question 13 regarding a Wellness Committee, the business manager marked that there is not an active Wellness Committee. The business manager answered Survey Question 14, stating that competitive foods are not sold on campus. Regarding Survey Question 13, the nutrition director was not sure whether there is an active Wellness Committee. In response to Survey Question 14, the nutrition director marked that there are no competitive foods sold on campus,

but added as a comment that students bring them. Although all three participants noted that that competitive foods are not sold on campus, there were inconsistencies among their responses regarding whether there is an active Wellness Committee.

**Survey Section 6.** Survey Questions 15-21 are designed on a Likert scale. The survey questions were answered by selecting a value within the range of 1-4: 1 (*Low*), 2 (*Medium*), 3 (*Above Average*), and 4 (*High*). Table 8 displays the participants' perceptions of their ability, role, and School Lunch Program. Table 8 includes the numbered survey questions in the first column. Survey Question 15 asked about the participant's perceived competence in skills needed for their role (e.g., grant writing/reporting, computer skills, marketing, budget management, staff management, food-handling, nutrition, community collaboration, procurement, recipe creation, food systems education, garden education). Survey Question 16 asked about the participant's overall perceived competence at job (regardless of skill level). Survey Question 17 asked about the participant's overall perceived competence at job (regardless of skill level). Survey Question 18 asked about the participant's perceived level of autonomy in their job role. Survey Question 19 asked about the participant's perceived level of support for job requirements. Survey question 20 asked about the participant's perceived level of student satisfaction with food quality. Survey Question 21 asked about the participant's perceived level of parent satisfaction with food quality. Responses from the administrator, business manager, and nutrition director are placed in corresponding Columns 2-4.



Table 8

*Participant Answers for Survey Questions 15-21*

Survey question	Administrator	Business manager	Nutrition director
15. Your perceived competence in skills needed for your role (grant writing/reporting, computer skills, marketing, budget management, staff management, food-handling, nutrition, community collaboration, procurement, recipe creation, food systems education, garden education)	3	3	4 (1 computer)
16. Your overall perceived competence at job (regardless of skill level)	4	3	4
17. Job satisfaction	3	3	4
18. Perceived level of autonomy in job role	4	3	4
19. Perceived level of support for job requirements	3	2	2
20. Perceived student satisfaction with food quality	4	4	4
21. Perceived parent satisfaction with food quality	4	4	4

In response to Survey Question 15, the administrator self-perceived as *above average* in competence for the skills needed to perform the role related to the School Lunch Program. In response to Survey Question 16, the administrator self-perceived as highly competent in the overall job. In response to Survey Question 17, the administrator's job satisfaction was rated *above average*. In response to Survey Question 18, the administrator's perceived level of autonomy was rated *high*. For Survey Question 19, the administrator reported that the level of

support for the job requirements was *above average*. In response to Survey Questions 20 and 21, the administrator indicated that both the student and parent satisfaction with the food quality was *high*.

The business manager responded to Survey Question 15 with a ranking of *above average* for the perceived level of skills needed for the role in the School Lunch Program. In response to Survey Questions 16, 17, and 18, the business manager rated the overall job competence, job satisfaction, and level of autonomy in the job role as *high*. In response to Survey Question 19, the business manager rated the level of support for the job requirements as *average*. In response to Survey Questions 20 and 21, the business manager's perception of satisfaction with food quality by students and parents was *high*.

In response to Survey Question 15, the nutrition director indicated that she is highly competent (but added a comment that noted a below-average competence regarding computer use). In response to Survey Questions 16, 17, and 18, the nutrition director's perception of her overall job competence was *high*, as were her job satisfaction and level of autonomy. However, in response to Survey Question 19, the nutrition director's perceived level of support for job requirements was rated *average*. In response to Survey Questions 20 and 21, the nutrition director indicated that both students and parents have a *high* level of satisfaction with the food quality.

**Survey Section 7.** The final two survey questions confirmed all three participants' willingness to be interviewed and provided options for the participants to select a preferred interview date and time. There was also a space to write in a date and time if the listed options were not feasible.

### **Presentation of Survey Results by Theme**

**Support of program.** Participants indicated that a majority of ingredients are sourced from local farmers and that there are no competitive foods sold on campus. The participants feel competent in their roles

**Challenges to program.** The participants might be lacking information about the budget and participation rates. This might hinder informed decisions about the program. Only the administrator confirmed that there was an active Wellness Committee. The fact that the other two participants said that there was no Wellness Committee, indicates that they are not participating, if indeed there is one. The creation of a menu and recipe research are aided by the use of technology, so the fact that the nutrition director felt that the director's computer skills could be better might a barrier to the success of the program.

### **Presentation of Individual Interview Results**

For the purposes of this study, three participants were individually interviewed: the district administrator, the business manager, and the nutrition director. Interviews convened at a mutually convenient time at the study site in the participant's offices. The interview protocol consisted of 25 questions; with two demographic questions (e.g., "What is your role at the district?"), and 23 questions that were open-ended and semistructured. The interview questions were developed from the research questions and conceptual framework designated for the study.

The interview questions were organized along different themes according to the research questions and conceptual framework of the study. Predetermined questions were generated concerning (a) demographic information, (b) what supports or impedes a sustainable school lunch program in a small, rural school, and (c) the school food system.

Table 9 displays the combined time for all three interviews which amounted to 101 minutes and 33 seconds. The administrator’s interview lasted for 35 minutes, 38 seconds. The business manager’s interview was 37 minutes and 18 seconds long. The nutrition director’s interview was the shortest, totaling 28 minutes and 37 seconds. The average duration of the interviews was 33 minutes and 18 seconds. Once the interview recordings were transcribed by Rev.com, the transcripts contained a total word count of 15,001 for all three interviews. Individually, the word counts for the administrator, business manager, and nutrition director, respectively, were 5,192, 5,836, and 3,973 total words. The average total word count was 5,000 words.

Table 9

*Length and Word Count of Individual Interviews*

Interview	Administrator	Business manager	Nutrition director	Total length of all interviews	Total word count for all interviews
Length of time	35 min. 38 sec.	37 min. 18 sec.	28 min. 37 sec.	101 min. 33 sec.	
Word count	5,192	5,836	3,973		15,001

For the purposes of examining and interpreting the qualitative data in this study, the individual interview transcripts were transcribed, printed, and organized. To gain a general sense of the data, the researcher read each transcript individually. The researcher also reviewed each interview transcript, line by line, and noted key words and phrases in the margin to create codes. A subsequent review of the interviews provided an opportunity for the researcher to synthesize code terms into a common set of themes. This level of analysis resulted in the following themes:

“adds to program success,” “challenges,” “budget,” “process-protocol,” “wish,” and “systems thinking”. A Google sheet was used to organize the data in a digital format. For the purposes of organizing the data from the individual transcripts and to analyze further the results, the researcher used columns and color-coding. The first column in the Google Sheet held a row for each of the identified themes. The next three columns were color coded and labeled for each participant (e.g., administrator, business manager, and nutrition director). The initial coded lines of the transcripts were copied and pasted from the Rev.com digital transcripts into corresponding Google sheet cells for each participant and the associated theme. For example, sections of the administrator interview that discussed positive effects on the School Lunch Program were copied and pasted into the aligned theme cell for, “adds to program success.” Some of these interview sections had codes such as, “process,” “training,” and “cost.” Additional Google sheets were created for each separate theme. The first page was a duplicate of the first Google sheet, containing all the coded transcript lines aligned with the corresponding theme. Additional pages for each Google “theme” sheet were created with tabs labelled for common codes which related to the theme. For example, the sheet for “challenges” held tabs for the codes “time,” “rural,” and “staffing.” Each tabbed page provided a column for the theme and a column for each participant. The interview lines in each cell showed the sections which had been coded with terms relating to the tabbed code.

### **Presentation of Interview Results by Question Group**

**Demographics, Interview Questions 1-2.** The first two interview questions asked for the participant’s role and an estimate of how many school lunches were served on an average day. The administrator explained that they serve as the superintendent-principal of the single school district, meaning that they are the only certificated management. The other two participants

reported their roles to be business manager and nutrition director. The nutrition director said that they are also the cook. All three participants had similar estimates of the lunch count, ranging from 140-170 students per day for the district of 211 students.

**Meal schedule, Interview Question 3.** The administrator provided a detailed account of the breakfast (also referred to as “snack”) and lunch schedule.

In the morning they’re served breakfast during a 15 minute snack recess. That 15 minutes can be used either entirely for eating and conversing within the cafeteria or bits and pieces. They’re given a two minute warning prior to the ending of that recess to help them clean up. But the process really is that, if they want to have breakfast, then they go into the cafeteria first and then eat their food. But they can flip flop that if they want. They’re supervised in there, but largely by instructional aides during that recess in the morning time. Then, they’re free to sit with whatever peers during that same age group. That’s kindergarten through third grade, and then the second group is at 10:35 and that’s fourth grade through eighth grade. . . . We have staggered lunch. [First] recess and then they eat lunch after, which is actually incorporated into the wellness policy. The board approved that all students to the maximum extent possible would be playing first and then eating. Most classes are given 15 minutes of playtime and then 15 minutes of eating time. There are two classes that have very large numbers of students and so we’ve given them 20 minutes of eating time just to allot for checking in and getting their condiments and all of their things. They’re also younger, so they need a bit more direction.

**Cafeteria environment, Interview Question 4.** When asked to describe the cafeteria environment the administrator took a big breath and sighed, and smiled. There was a strong sense that this was a special part of the campus.

It's our meeting place. The cafeteria is where we play our sports games and where we have our assemblies and that's where we do special projects and have plays and invite community in there. There's a lot that happens. It's our gathering place as the kitchen in the home might be or the living room might be. It is our space, and I think it really does start with the staff.

All three participants reported that the cafeteria is a welcoming space for the students. The business manager explained that there are outdoor picnic tables adjacent to the cafeteria where classes can take turns eating lunch, but even the description of lunch inside, painted a positive experience.

You walk in and you smell this really good food. And they all seem to love the food. And they can sit with their friends and eat together in groups as long as they're behaving. And we have flowers on the tables.

The nutrition director, stated, "I think we're very receptive and fun to be around. I think that makes a positive environment." The administrator echoed this thought, stating,

They're incredibly welcoming, kind and compassionate. They give each student eye contact every day. No matter what, if you're in the lunch line, you know somebody's going to see you. That offers an incredible opportunity for both the student and the staff to check in with one another.

According to the administrator, the positive cafeteria environment is intentional. "This year we have taken a really hard look at what our processes are and we're constantly refining them." The administrator explained that additions of a clear bell schedule have helped to improve the traffic flow in and out of the cafeteria between classes and a strategic location for the lunch line has enabled the cafeteria staff to both observe for behavior monitoring and to plan

ahead as they see a student with a special dietary need approaching their turn in line. The administrator has taken a proactive approach to make sure both aides and students understand the processes and expected behavior.

Every year we do two days of rotation for all of the classes where they go to every space on campus and learn what the expectations are for that space. They're also written down and taught to each of the classes. Each day after a break, a significant break, like Thanksgiving or a longer holiday, all of the teachers review what those expectations are. In all of the classes they're explicitly taught and then they go and practice and then they review all of the time.

These "expectation stations" ensure that students are aware and have an opportunity to practice the desired behavior. The administrator added,

They stand in line, they know what they're supposed to be doing in line, how to be respectful to the kitchen staff. They talk to whoever is checking them in on our electronic check-in system. They know where all of the components that they need are including water and how to clean up their space.

All three participants commented that the cafeteria is noisy during meals. The nutrition director noted, "The noise level is fairly large at this point." The administrator added, "It's very loud. The kids are very excited to sit and talk to one another, but they don't eat as much. They require a little bit of encouragement for that. It's a loud time." The business manager had similar thoughts, stating,

It can be a little bit noisy in the lunchroom. And if the line gets too long, that's why we stagger kids, because if the line gets too long then you have very impatient kids that



decide they want to start ripping stuff off the wall or pushing each other. Kids figure out what they can do to fill their time.

Behavior is an area in which there is a need for improvement. New teacher negotiations have meant that teachers no longer remain on duty during lunch, sitting at the tables and eating with their students. Although some staff members occasionally eat in the cafeteria, behavior monitoring has become the duty of paraprofessionals who serve as classroom aides. The administrator reflected on this recent change:

There is a learning curve that occurs when you have instructional aides who perhaps have never supervised large groups of students. It's both establishing what the expectations are in the cafeteria as well as what the expectations are for the adults and correcting behavior and supporting them.

This sentiment was echoed by the business manager.

I think that the aides could use more training in how to really deal with kids when they're acting out. And they could be more roaming and not be in one area so much. So, I think there could be work on how the atmosphere is handled as far as when it's getting rambunctious of bringing it back down and making kids eat quietly.

In general, however, the business manager summed up the cafeteria environment as enjoyable, and credited it to the staff. "What makes the cafeteria great is the people that work in it. They're amazing. Those women in there are amazing at what they do."

**Staffing, Interview Questions 5, 10, and 11.** The main kitchen staff is composed of the nutrition director who serves as the lead cook, an assistant cook, and a dishwasher. The assistant cook helps with prep and prepares the breakfast items. The nutrition director noted, "She's really great at how she is with the kids." The dishwasher also does some prep work. The nutrition

director commented that it was important for the dishwasher to have some additional responsibilities. “I think it keeps her motivated and she feels like she’s part of the team. It’s really important for her to have that kind of morale going. All three of these positions are part-time. The nutrition director is contracted to work 6 hours a day, but often adds extra hours to account for food purchasing and delivery. The assistant cook is employed for 5.5 hours a day and the dishwasher comes in for 4 hours each day. There are many adults who take part in staffing the cafeteria. As the nutrition director explained,

We have three different aides that monitor behavior. We have one that checks all the students in and who also monitors behavior. And then for help, that’s been a little bit off this year. Typically, we have two kids come in that are helpers starting from Grade 5 on up to eighth grade. It rotates every week. Luckily, we have three moms that have been coming in and volunteering, which has been really helpful. So, we have somebody on Tuesday and then we have somebody else on Thursday and Friday.

Additional help comes from students who simply want to pitch in. The nutrition director explained, “We definitely have kids who like to sweep or wash the tables. So, we kind of try and monitor how many kids are allowed to do that. And typically, they’re given a dragon ticket as a reward for doing help.” The dragon tickets are a part of the district’s positive behavioral intervention and supports (PBIS) system and are given out to recognize desired behavior. These tickets serve as a recognition of good behavior and as raffle tickets.

Additional district staff is also involved with the School Lunch Program. There is a front office person who processes the free and reduced-price lunch applications at the beginning of the year. The business manager explained that this individual is also responsible for transferring the

lunch count information from a software program called eTriton into the CNIPS database for reimbursement from the state.

The front office person, they are the ones that usually take the money from the parents when they pay for their lunches. We use a lunch program called eTriton to track all of the money that comes in, whether the kids are free, reduced[-price], or fully paid. So she will collect the money and post it in eTriton.

**Kitchen workspace and equipment, Interview Question 6.** All of the respondents remarked that the kitchen is well designed and equipped. The nutrition director commented, “Having a speed rack has really helped because it gives me space to do things. I think just maximizing the space has really been helpful. I mean it is really quite nice. It’s a really nice kitchen. I love it.” The nutrition director’s minimal and regular approach to ordering means there is always enough storage space in the pantry and cold storage areas. When describing the kitchen the nutrition director said, “I love the kitchen. I think it’s great. I think it’s a nice space. We got a new mixer, a new refrigerator. I feel it’s actually pretty dialed in at this point.”

Although the administrator would still like to see some facility improvements in the cafeteria (e.g., new curtains and a streamlined electrical system to plug in an emergency generator), the district is upgrading equipment as needed. One of the recent purchases was a used Hobart mixer from a local business. This was an upgrade for the school kitchen. The administrator explained,

Last year, we purchased another mixer. It’s a good mixer. I think there are certainly improvements that can be made and that we continue to think about making. We also purchased a new refrigerator and we have everything now continually serviced like our

grease trap and our hood. But I do think that there are some spaces that could use some updating.

The business manager agreed that the kitchen facility seems to be outfitted well since the addition of a freezer, a new refrigerator, and the replacement of the Hobart mixer. There is encouragement from the district office to get the equipment needed. “I always remind [the nutrition director] that if there’s something she needs; she needs to buy it.”

**Menu and recipe development, Interview Questions 7-8.** There are a few factors that are taken into consideration when designing the menu and choosing recipes. The nutrition director considers availability of quality ingredients, required components of a reimbursable meal, staff demands, and student preference. The menu is designed to be predictable and to pace the staff labor demands throughout the week. The nutrition director explained,

I’ve kept a pretty steady schedule. Monday’s kind of like a pasta or Italian theme.

Tuesday is usually a Mexican theme. Wednesday I always do a meat, some kind of meat product. Thursday’s vegetarian and then Friday I used to always do pizza but now I’m shuffling it around because people don’t want pizza every Friday. I kind of have somewhat of a set theme.

The menu items are varied, ranging from curried rice to spanakopita. The administrator noted, It helps students to become aware of the different styles of food. We certainly do have students who always choose PB and J [peanut butter and jelly] and that’s just what it is, but that is a small proportion of students. Most of them really like the food. I’ve never seen so many salad eaters. They eat so many vegetables and come back for seconds on vegetables, and there’s just not a lot of waste.

When asked how the nutrition director knows whether students like or dislike a recipe, she explained that the amount of waste is an indicator of whether a recipe is a success. “We kind of use the kids as our test to a certain degree. If it’s one of those days where there’s a lot of leftovers (that’s how we actually can tell), if there’s a lot of compost.”

Another aspect of menu design and the district PBIS system is the green tray award. The administrator explained, “One of the components of our schedule is that every month a student is chosen as the green tray award and they get to choose their favorite meal to have, and that’s incorporated into the monthly meal.”

In terms of food preparation, scratch cooking is the norm for this kitchen. The business manager explained, “Most of our food is all made from scratch. We don’t really do processed food, except for in the form of like on Taco Tuesdays they’ll have tortillas that are already done.” The administrator added, “And pizza also, our pizza is handmade in the kitchen with handmade sauce.” The homemade food preparation extends to the School Breakfast Program. The business manager noted that all baked goods are made in house as well as other popular breakfast items.

They make their own granola. So there is really not a lot of processed food. There’s definitely no high fructose corn syrup. There’s very little sugar that’s used. So I’m always really impressed with what they do in the kitchen and what they serve the kids.

**Procurement, Interview Question 9.** Procurement for this small, rural school is different than it is for most, larger, urban districts, as the business manager explained.

Other schools might get commodity meats; well we buy a cow and we have a butcher, and then we bring that organic grass-fed beef from here to our school. We’ll only use organic chicken. And so, with the whole procurement, it’s a little bit different on how big

districts do it, or big city areas do it, because they have so many more options where we're pretty selective. We don't use vendors that aren't organic.

Procurement is the responsibility of the nutrition director and in this case entails not only the phone orders, but also driving to the markets to get the desired ingredients. The administrator commented on the dedication to quality food.

[The nutrition director] will go to [a town 25 miles away] in the middle of a day or be here earlier to accept a delivery and is very good at combining orders with other organizations to keep the costs low to get good quality food.

The administrator added,

I know that [the nutrition director] works very hard to keep all of our costs very low, while finding quality ingredients. She works with local vendors, and those who have good relationships and good products, she will continue to work with, but also isn't afraid to give feedback should the quality be low.

The nutrition director reiterated the importance of quality ingredients. "I try and get some diversity and what's fresh and what's in season. We're pretty sticklers about quality."

Milk is a product that varies significantly between brands, and there are only two options in this county. Historically, the district has combined orders with neighboring businesses and used cold storage space in the local market to accommodate deliveries from their preferred milk vendor. The nutrition director noted,

It's always been a quality thing as far as procurement goes, and what's available. We've always maintained the milk, that particular [local] brand and in doing so, having that vendor, we're also able to get the quality of chicken and the hot dogs through the same vendor.

The quality of the food was pointed out by the business manager as well. “We are not going to buy just any bad hotdogs. We make sure we buy the organic, really good, hot dogs from a good vendor.”

The district does use some commodity products. The nutrition director described this source as minimal, equating to about 5% of their ingredients.

We basically are more apt to get the canned fruit for backup or for baked goods. And we also get the pasta; we definitely use the pasta since it’s the whole wheat. One thing I really do like of the commodities is that they’ve had this dried fruit mix, which has been really good for the granola.

The district strictly avoids using any of the commodity meat products, but has found that some of the frozen fruit items and canned tomato products meet their standards. Even so, none of the participants consider the use of commodities as a contributor to cost savings.

**Training, Interview Question 12.** The kitchen staff trains all of the adult and student volunteers for the kitchen. The kitchen staff receives the required trainings for mandated reporters and sexual harassment prevention training. These are offered online at no cost. The nutrition director reported that the kitchen staff is required to attend a certain number of hours of NSLP training each year. They receive certificates upon completion. The director must complete 12 hours, and the assistant cook must complete 6 hours of training. Many of these trainings are offered at the county office of education without a fee, but are located in a different town. The nutrition director explained that that can create a challenge.

A lot of times they’re scheduled to where neither one of us can get there. So this year we’re going to try and find more webinars and do them to get those hours in that way because of just not being able to make it to the training networks.

The business manager added,

Typically what happens is [the nutrition director] and [the assistant cook] will not go to a training together. And so if [the nutrition director] goes, then [the assistant cook] is in charge. But [the nutrition director] usually always comes and preps everything beforehand, so it's not as much when she's gone. And then [the assistant cook] will be in charge and we have some great parent volunteers that will come and step in and help when someone's gone.

The nutrition director indicated that cardiopulmonary resuscitation training would be beneficial, but has not had the opportunity to take it.

**Family food values, Interview Question 13.** The district tries to be responsive to a variety of food values. The administrator reported,

We have a large population who believe in eating organic and raw foods. I believe that, if you were to poll our staff, they have similar values and that single use plastics are really frowned upon. Some families believe that their students need to eat gluten free and we acknowledged that whether or not they have Celiacs. We acknowledge food preference as well as dietary restrictions that aren't medical.

The nutrition director added that school families value both quality and quantity. "They want to make sure their kids are being fed." The administrator explained,

There's a real divide here between many of our families. Some of our families are just happy to have food. There are some of our families who come and are provided with the [food] pantry. They get a bag of food every week and that largely is supplied by donations from our community versus organizations like Food for People. We end up supplementing and creating our own pantry here because of the food interest of people or



the food availability. We do have some families who are living either doubled up or homeless and don't have the availability of cooking and so they need to have food that is pre-prepared. Then we know those students are counting on our meals. It's important to us that they are served quality meals every day and so we try and stay open as much as possible and really help them to be enrolled in the afterschool program as well should they need additional food.

The business manager shared that many families have been drawn to the district because of the food program.

The families here seem to find that eating organic food is very important for their kids. And that is why there's some people that want to come to our school is because of our cafeteria program, because they want their kids to have the organic fruits and vegetables and the organic meat that we serve. And that's a really important thing to our parents.

**Input and feedback, Interview Question 14.** The School Lunch Program at this district was completely overhauled 13 year ago. The business manager recalled, "It was surveys from parents and talking to parents that really drove it to go the way that it did." When asked whether there were currently opportunities for the school community to provide input and feedback about the School Lunch Program, the administrator responded, "There are multiple times during the year where we ask the community about our Local Control Accountability Plan (LCAP) goals and one of them is school climate and cafeteria is one of the places that we seek feedback." The nutrition director said that parents often come to the office or the kitchen to ask questions, to make requests, or to voice concerns. Both the business manager and the nutrition director noted how approachable the administrator is for families.

**Supporting initiatives and education, Interview Questions 15-16.** When asked about what other efforts on campus supported the School Lunch Program, the respondents shared that the district has a culture that appreciates food as demonstrated through the Wellness Policy, informal classroom cooking, the school gardens, and upper grade elective courses such as cooking. The school has a greenhouse, a vegetable garden, a native plant garden, and additional small planting areas with berries and flowers. The garden program is a stipended, part-time position that is funded through the district's Education Foundation and run by the school's recently retired sixth grade teacher. The administrator related,

We have a gardening program that's for all of our students. Every class has access to the garden program. All classes through the fourth grade have a specific learning time every week where they learn about growing food and actually participate in both the growth and the harvesting. I don't know if anybody else told you about this beautiful moment where we had kale that had been planted the year before that was harvested by one grade level that was washed by another grade level and then was taken to our culinary class and made into kale chips and distributed to the whole school for everybody to try.

The business manager added that many of grades engage in cooking projects in their classrooms, using a mobile cooking cart. Students, aides, and volunteers then run between the class and the school kitchen to request supplies, ingredients, or to use the oven.

I know second grade does a lot of cooking. I know first grade does a lot of cooking. So, each of our classes, we actually have a cooking cart so a teacher can take that to their classroom and it has everything they'll need on it if they're cooking in their classrooms. And plus the cafeteria always helps them to facilitate or help with whatever they need help with.

The K-8 school offers culinary electives for the junior high students and, throughout the month of May, the entire district engages in a project from U.C. Berkeley's Lawrence Hall of Sciences called MARE (Marine Activities, Resources and Education). The school is located within walking distance to the ocean and tide pools and many of the families work in the fishing industry. There is a strong awareness of the connections within the marine food ecosystem. The administrator commented, "We have a lot of education during MARE month. Our students will write letters to community and legislators about single use plastics and really impact change." The cafeteria program practices sustainable habits as explained by the administrator, "Everything is washable and reusable. We start our education with nutrition there too and talk about reusable and we have a composting bin and everybody knows what to do and separate the liquids from the solids." The administrator expanded on how instruction around food and health extends beyond the classroom.

We have a culinary class that's an elective for our sixth through eighth graders where they can learn about food preparation and nutritional value. It's also built into science and health standards, so there's a lot of education just in the classroom that is required, but it's also a constant conversation. We talk to families about healthy snacks if they want to bring in a healthy snack for a birthday celebration. We're also aware that there are birthday celebrations and there is candy. We talk about how there are these things that are very delicious and enticing, but what does a balanced diet look like and what does health look like? What does wellness look like? Really addressing the whole student, the whole child versus just cafeteria. It's an articulated conversation that happens throughout the community.

The nutrition education that is offered at this district is more informal and is integrated throughout the school day and infused into the community culture.

**Unique, Interview Question 17.** Question 17 asked respondents what was unique about their School Lunch Program. The overwhelming response was the quality of the food in terms of ingredients and preparation and as the nutrition director shared, “I think what makes it special is the effort that’s put into making a good lunch.” In addition to planning menus, cooking, serving, and reporting, the nutrition director at this district often leaves the kitchen between the breakfast and lunch service to drive 10-25 miles to neighboring towns to pick up the ingredients for subsequent days. The nutrition director recognized that this is something most people in her role do not do, “Quality is number one. I mean, just the fact that I go and pick up the produce.” The administrator said, “The focus on high quality, organic, locally sourced, in season food, make it unique.” The business manager mentioned the organic produce and chicken along with the purchase of an entire local steer for grass-fed beef and added, “I think it’s the quality of products that we have here to serve our kids that is really different from a lot of cafeteria programs.”

**Point of pride, Interview Question 18.** Respondents beamed when given the opportunity to share what they were proud of in regard to the district’s School Lunch Program. The responses focused on the people and the quality food.

I’m proud of the food we’re feeding our kids and I’m proud of the people that are making that food. It’s people . . . parents come to have lunch with their kids because they know they’re going to get a good lunch here. And it just makes you feel good knowing that kids are getting good nutrition when they’re at school.

The nutrition director shared a story demonstrating how much she values student satisfaction.

Do you want to hear a story? This is really cute. This girl was at a local place, I'm having pizza somewhere. And someone had said, "Oh, isn't this pizza good?" And the little girl says, "The pizza at the school's the best." It's little things like that.

When the nutrition director finished sharing that story she was teary-eyed and smiling. The administrator responded that she was proud of the "focus on high quality, organic, locally sourced, in-season food" and added, "It's all of those, and smiles."

**Challenges, Interview Question 19.** Interview question 19 asked respondents to reflect on what they felt were challenges of operating a school lunch program in a small rural district. Staffing and time were the primary barriers. The administrator explained that there are fewer job applicants for cafeteria roles and fewer that might meet the necessary qualifications. It is not merely the limited population, but the uniqueness of the role.

If you were to put an application out for cook wanted, it would look very different for our organization than it would for the local pub down the street. Because they're responsible for that sourcing and there's just an incredible amount of responsibility and ingenuity. It's very easy to say, oh, I'm just going to order everything from Cisco. It's all in one. Comes at one time. But having somebody who is willing to and devoted to, I think the larger cause helps too. Finding somebody whose passion is both children and food is unique. In rural communities, you don't have quite as big a pool to draw from.

The rarity of qualified, devoted individuals and the smaller district size means that there are fewer employees to cover the range of jobs on campus.

One of the challenges is certainly the reporting and the checking in and then making sure that there's a specific staff member that is allotted to just making sure everybody has every element and then checked in. That's challenging because we sure would love to use

that person in another way as well. I think staffing is always a challenge in a rural area as well as transportation. [The nutrition director] has to drive long distances and forge relationships that are based on her personal relationships or her personal connections from previous jobs or word of mouth. It definitely takes a certain personality to be able to fill those roles, but also a certain amount of ingenuity to be able to quickly think on your feet and change as necessary.

The business manager commented that with fewer specialized roles, it is more difficult to comply with some of the fiscal responsibilities.

When they're coming to audit they like to have so many different people look at different things. We don't have that many people that can look at it. So that's always a problem, that there's just one person, or a couple people, that are really looking at what the numbers are.

The nutrition director expressed that it was challenging keeping up with the requirements of the NSLP and lamented the lack of time. Finding time for training, for ordering, for paperwork, and prepping everything for service within the defined schedule was difficult, especially considering that the nutrition director needs to leave campus to shop and deliver many of the ingredients.

**Financial success, Interview Question 20.** Question 20 addressed the heart of this study. "What do you feel are the biggest reasons for the financial success of your program?" The nutrition director attributed the financial success to "consciousness" when ordering and prepping food so as to obtain the highest quality ingredients and to minimize waste. The administrator echoed this thinking, stating, "Frugality, local sourcing and passion make this program succeed." The business manager stated, "The biggest reasons are the food and the people that are cooking it. In my opinion it's food that kids want to eat and it's good."

Quality food, minimal waste, and dedicated people appear to be the recipe for success for this district's School Lunch Program. Participants have repeatedly defined quality food as scratch-cooked meals that kids like to eat and that are made with locally sourced, organic ingredients.

**Overcoming challenges, Interview Question 21.** The success of this School Lunch Program has not been realized without tremendous innovation and dedication. The district has approached challenges from many perspectives and has forged unique partnerships with community businesses, with parents, and with vendors to mitigate the challenges of running a profitable school lunch program in a rural setting. Procurement of organic ingredients has been an ongoing struggle. The business manager explained, "We have a lot of vendors that won't come and deliver here, because we're so out of the way. So [the nutrition director] drives to go get a lot of stuff." Other solutions have involved sharing orders with a local cafe for vendors who had a minimum order requirement that exceeded the needs of the school. Local farmers agreed to personally deliver combined orders to the local cafe on Saturdays. The cafe would then store the items and the kitchen would retrieve them when school resumed. Other farmers arranged for a drop off point in a neighboring town, and the nutrition director would pick up the combined order and deliver the cafe's portion on the way to the school. At one point, the milk delivery was only once a week, so the multiple crates of milk would not fit in the cafeteria's cold storage. The local market agreed to receive and store the order and a parent volunteer would transport the crates to the school in small batches that could be accommodated by the existing cafeteria refrigerator. Purchasing produce at the farmer's market on a Saturday is not always an option for schools, but this district has made it work through the dedication of the nutrition director and the office. The business manager explained the process.

So as long as the vendor's at the farmer's market, we'll write up any little receipt, and show what was bought, and our nutrition director will show me that, yes, I bought these 10 pounds of carrots from this vendor and this is their receipt. They're not typical receipts that you get from a big company. I'm more than happy to take those receipts and process those and pay those people from the farmer's market. No problem. And the other good part is that they're so excited to have our school involved, that they're fine with waiting for payment until I can get it to them, which is awesome.

Since the transition of the School Lunch Program 13 years ago, the district has employed five different nutrition directors. The business manager shared that they have not all been equally successful.

We have definitely had some nutrition directors that have not been on board the same way that others are. And that was a hard thing, even in talking. I mean, there's really only one person that was really difficult. And you saw that our program suffered because of it. They weren't doing the things that we wanted to and they only lasted 1 year because of that. So our solution to that was, okay, after talking and not having it work, that person needs to go and get somebody that can follow what our vision is of what we want to have.

It was during the transition to the next nutrition director that the district developed a new Wellness Policy and Wellness Committee which began to meet a few times a year. Putting the district vision and expectations into the school board of trustees' policy was an effort to document the desired direction of the meal programs and to facilitate carryover of these ideals to current and future district staff whether administration or cafeteria personnel.



**Potential changes for success, Interview Questions 22-23.** The respondents indicated there was not much room for improvement to this program that is serving quality food, and bringing in a sustaining revenue. The nutrition director mentioned that she would like more time to be able to do more nutrition education and outreach about the menu items, “I do think having more nutritional information or involvement with the kids on that level. I think that would be a nice addition.”

The business manager considered the prospect of selling more lunches to increase revenue.

We’ve actually been asked in the past if we would do lunches for [a nearby school] or [another nearby school] has wanted to get a quote from us on how much we would charge them to do lunches. And we’ve talked about it a couple of times and have turned them down, probably because we want to focus on our own school with our own kids . . . . And sending out lunches, would the quality be as good?

Both the business manager and nutrition director feel that they are operating at their maximum capacity, given staffing, time, and facilities.

The district administrator considered the impact of good nutrition beyond the scope of the School Lunch Program and expanded on the importance of access to food.

I think that’s an area where we could grow with our nutrition, especially for some needy families. One of the things our staff is trained on is checking in with students first thing in the morning to see how they are and see if they’ve eaten. I think, as you witnessed before, the first thing I asked a student who was really upset was, “Have you eaten?” and she said, “No.” The first thing we did was get her some food. Just knowing that it’s really hard to operate on all cylinders when you don’t have any fuel.

**Advice, Interview Question 24.** When asked what advice they would offer to a similar-sized district that might be seeking to turn its budget around, the nutrition director said, “Trust that quality is really important. It does make a difference.” The business manager shared,

I think it’s teamwork of everybody. You have to have your parents want it, you have to have your staff and your administration want to do it. Because it’s a big undertaking to change a school lunch program, but it’s worth it to do it for sure.

The administrator suggested,

Come talk to our lunch program director and observe. Come see, because there’s so much that you can read and there’s so much that you can talk about. But if you come and see what it actually looks like, how many refrigerators we actually have to have, how many cups and how are we serving? That that you don’t have to have chocolate milk. Just come and observe would be my number one suggestion.

### **Presentation of Individual Interview Results by Theme**

**Support of the program.** The prominent themes that emerged which were in support of a financially solvent school lunch program were, responsiveness, procurement, facility, education, and quality.

**Responsiveness.** The district has multiple avenues to incorporate stakeholder needs. The LCAP requires that districts elicit input and feedback from parents and community. The administrator creates many opportunities throughout the school year for these stakeholders to provide feedback about school climate and the cafeteria. In addition, the business manager commented on the administrator’s availability to the public, “She pretty much has an open-door policy.” This provides channels of communication for parents to discuss dietary needs or even preferences. Districts are required to accommodate for dietary restrictions, supported by a

doctor's note, but this administrator takes a more inclusive approach to responding to family needs. "Some families believe that their students need to eat gluten free, and we acknowledge that whether or not they have Celiacs. We acknowledge food preference as well as dietary restrictions that aren't medical." The district also provides a food pantry to address the needs of their community who struggle to obtain sufficient food. Aware that some of these families are homeless, the school food pantry stocks items that require minimal preparation.

We do have some families who are living either doubled up or homeless and don't have the availability of cooking and so they need to have food that is pre-prepared. We know those students are counting on our meals. It's important to us that they are served quality meals every day and so we try and stay open as much as possible and really help them to be enrolled in the afterschool program as well should they need additional food.

The nutrition director has responded to this need as well, commenting that, "There's the desire for quality and, or like to know where it is coming from, but I feel like there's also a desire for quantity to a certain extent. They want to make sure their kids are being fed." In response, the nutrition director is conscientious about making extra portions available of fruits and vegetables, even though it means purchasing more products.

The business manager explained that driven by surveys and parent conversations, the district transformed its conventional School Lunch Program to focus on foods that were more appealing to the families. The Site Council convened to develop a revised and comprehensive Wellness Policy to reflect the shifting food culture. The business manager recalled, "There were about 150 kids here then, but we were only serving somewhere between 40 and 50 lunches a day. And there weren't that many lunches being served. And as soon as we changed it, it shot up."

Lunch participation rose from 30% of enrolled students to 80% during the first transition year. Currently about 71% of students participate in the School Lunch Program.

The nutrition director responded that student preferences play an important part of menu development. “We kind of use the kids as our test to a certain degree. If it’s one of those days where there’s a lot of leftovers . . . . That means we know that’s something we don’t want to do again, which is really nice having that. I can monitor what’s good and not good.” Students recognized with the green tray award also get to choose the menu for one day of the month.

**Procurement.** Sourcing and obtaining quality ingredients are tasks that this district has made a priority. The administrator commented, “What’s interesting for our school is we purchased an entire cow, and actually I think we got a cow and a half or two cows this year. That’s locally sourced, and specific to our school.” Approaches like this have meant that the district relies on good relationships with vendors, farmers, and locals. Even though the cost of the steer was budgeted for, the vendor offered to donate it for the past 2 years. The other exceptional practice is that the nutrition director will carve out sections of her work day personally to drive across the county to obtain the local and organic ingredients that cannot be delivered to the school. When placing orders with local vendors who do make deliveries, the nutrition director probes for tips on the freshest and best-priced produce (the menu does not specifically name which fruits or vegetables will be served so that adjustments can be made, depending on the best available ingredients). The nutrition director explained, “I try and get some diversity and what’s fresh and what's in season. We’re pretty sticklers about quality.”

**Facilities.** In an era in which many schools do not have a full onsite kitchen, this district is fortunate to have the space and equipment needed to create meals from scratch. The nutrition director shared that the kitchen is very functional, especially with the addition of a speed rack,

which she obtained a couple years ago. The second-hand dishwasher was donated by a school family. The used Wolf commercial range was found locally on Craigslist. The mixer is also second-hand, purchased from a local bagel shop that was upgrading. The district received an equipment grant a few years ago and purchased an additional freezer and new refrigerator. The nutrition director commented, “I love the kitchen. I think it’s great. I’ve always. I think it’s a nice space. We got a new mixer, a new refrigerator. I feel it’s pretty dialed in at this point.” The administrator remarked,

It is clean, it’s very well maintained, it’s warm and inviting. Oh, we also have an outdoor eating space. I think that’s important. We have an amazing grounds, and so when the weather permits, and even when it’s a bit drizzly and cold out, the kids still really like to sit outside.

**Education.** The approach to nutrition education is less explicit than in some districts. It is more holistic, taking place in the garden, in science class, in culinary class, at the compost bin, and during in-class opportunities to bake pumpkin pies or to sample Harvest of the Month featured produce. The business manager shared,

Our nutrition education goes in a different way, because I think that that’s where our garden comes into play with that. And when they can actually see where their food comes from, they help plant it, they help water it, they help harvest it. And I think that’s a huge education with food. And then the kids are willing to try those things because they grew them. So to me that’s huge in education. Which is different than a lot of other schools and how they educate on nutrition, but that’s what works for our school.

**Quality.** The overarching commitment to quality appeared throughout all three interviews. According to the nutrition director, “Quality is number one.” Clearly though, there is

a balance between price, student preference, and quality. The business manager remarked, “Like hot dogs, we are not going to buy just any bad hotdogs. We make sure we buy the organic, really good hot dogs from a good vendor.” To maintain the quality ingredients, the staff has made strategic choices with vendors as noted by the nutrition director.

It’s always been a quality thing as far as procurement goes, and what’s available. We’ve always maintained the milk, that particular [local] brand and in doing so, having that vendor, we’re also able to get the quality of chicken and the hot dogs through the same vendor.

The business manager also explained that a district dedication to quality drove their decision to turn down offers to supply other districts with lunches. There was concern that the same level of quality would not be maintained, given the time constraints, prep space, and packaging restraints of producing additional lunches, even if it were a source of increased revenue.

**Challenges to the program.** The predominant themes that challenge this district to maintain a fiscally solvent school lunch program are rural setting, staffing, and time. The rural setting exacerbates the challenges of time and staffing.

**Rural setting.** In a small community that is 25 miles from the nearest urban center, the geography limits who will deliver goods and it increases the time it takes to do so. With fewer competing viable vendors, the district has little opportunity to “shop around” for diversity and lower prices. The strongest disadvantage of the rural setting though, is the scarcity of good employees.

**Staffing.** Finding and retaining qualified staff is difficult. In relation to the level of responsibility and required skills, the position of nutrition director does not rank very high on the salary schedule. All of the kitchen positions are part-time and do not offer benefits, yet it is

critical that the employees are reliable and show up every day. There are no substitutes available if someone is absent from work. In the event that the nutrition director and assistant cook are out, it would fall to the administrator to prepare the lunches. The rural setting makes it challenging for employees to attend trainings 25 miles away, and some do not have reliable Internet to access online training.

**Time.** The nutrition director spends a lot of time sourcing ingredients and picking them up because there are few vendors who have the products needed and who deliver. A concern is that this extra demand contributes to the turnover in nutrition directors for this district. The kitchen operates under a tight schedule. Food must be prepped and ready to serve the instant students come to the counter. At 140-150 lunches per day, the kitchen is at capacity in terms of both prep space and the time it takes to prepare and serve the meals within the allotted time frame. The nutrition director expressed concern about the pacing of the lunch line and about those students who spend more time waiting for food than they have to eat the food. The kitchen staff is constantly under time pressure.

### **Presentation of Artifacts**

As a part of this comprehensive study, a variety of preselected artifacts were collected for analysis. These documents included the district wellness policy, menus, production records, the CNIPS monthly summaries for 2018-2019, and the cafeteria budget summary for 2018-2019. Analysis of the district Wellness Policy began with several readings. The researcher then coded the document by highlighting text that supported the success of the food program, followed by highlighting with a different color, the references to challenges. The researcher analyzed menus by looking for patterns in the entrée types for each day of the week, across all four menus. Unique entrée items were circled and counted to assess how many different entrees were offered

each month. Analysis of the two production records consisted of an examination of the form structure and contents of each entry. Fiscal information was available to the researcher and was able to be analyzed from the budget summary; therefore, the analysis of the CNIPS documents was focused on the number of reimbursable meals provided. The data from the ten monthly CNIPS reports was put into an Excel spreadsheet with seven columns: one for the months of August through June; three for the free, reduced-price, and paid lunches; and three for the free, reduced-price, and paid breakfasts. The counts for each type were entered into the respective cells.

The presentation of results is discussed separately for each artifact type. First, data is presented by individual document, and then a synthesis of data from all artifacts is presented by theme.

### **Presentation of Artifact Results by Individual Document**

**Wellness policy.** The Wellness Policy for the district in this study was adopted in 2015 and resembles the model Wellness Policy Guide offered from the Center for Ecoliteracy (2010). It addressed physical activity, school-based learning experiences, professional development, waste reduction, annual reporting, and a wellness committee.

**Physical activity.** The following excerpt from the policy captures the approach to physical activity.

The district will provide opportunities to ensure that students engage in healthful, vigorous physical activity to promote physical, mental, emotional, and social well-being. Besides promoting high levels of personal achievement and a positive self-image, physical education activities should teach students how to cooperate in the achievement of common goals . . . . Students shall be given opportunities for physical activity through



a range of before and/or after school programs, including, but not limited to, intramurals, interscholastic athletics, and physical activity clubs.

**School-based learning experiences.** The governing board of the district recognizes that experiential learning activities that assist students to make connections between diet, health, and the environment are critical to the formation of student understanding of personal wellness within a larger context of environmental health. Through the use of experiential learning opportunities in school gardens and cooking classes, students can better understand where their food comes from and how the food choices that they and their families make affect the health of the larger social and natural communities within which they live.

**Professional development.** This comprehensive Wellness Policy shows a regard for the impact that school personnel can have on the holistic wellness of students and an understanding that the staff need training.

Using the local food system as a context for learning and embedding nutrition education in a school's curriculum generates new content for students to learn. It also requires teachers to learn new content and new strategies for teaching it. For food service personnel, new menus require new ways of purchasing, preparing, and presenting foods.

**Waste reduction.** This section is a testament to the systems in place at the district. Through the use of reusable trays and utensils, composting, recycling, and on-site scratch cooking, the amount of waste is minimized.

**Nutrition Services Annual Report.** The nutrition director is mandated to provide an annual report to the board of trustees, including

- A description of the level of service for each site and level of participation;
- A profit and loss statement for the past fiscal year;

- An outreach and promotion marketing plan (with assistance from the student health council);
- A budget for the future year;
- A report on the progress in meeting the Wellness Policy goals;
- A report on the nutritional quality of the food being served;
- An inventory of equipment;
- A budget for maintenance and replacement equipment;
- An accounting of Child Nutrition Services' financial reserve, if any, and a budget allocating the reserve; and
- An annual review of school-food sales that determines the percentage of food purchased from local sources and the total dollar amount spent on local food; the income benefit or loss because of increases in local purchasing; opportunities to increase purchases of local and seasonal items; effects on participation and on fruit and vegetable consumption; the nutrition education students are receiving and how it is administered.

**Wellness Committee.** The policy outlines the stakeholder makeup of the committee and dictates that it will meet at least 3 times a year. This group is meant to be responsible for addressing food-related topics of concern to the school community and making wellness-policy recommendations to the board.

In the Wellness Policy for the study site, the district acknowledged the importance of sharing and enjoying food and physical activities as ways to nurture and celebrate diversity, and as bridges for building friendships, intergenerational bonds, and strengthening communities. In this document, the district stated that fresh, seasonal, local, and sustainably grown foods are the

recommended source of nutrition, and that the district should avoid prepackaged, highly processed foods in an effort to reduce waste. It credited farm-to-school programs as a way to support the economy and local farmers. The policy makers lamented America's decreasing skills necessary for farming, gardening, food preservation, and cooking. In the text, they recognized the lunch period as part of the educational program and encouraged food to be integrated across content area lessons. The Wellness Policy explicitly stated that the board would support efforts to ensure "an economically sustainable meal program" (p. 2). It also stressed a commitment to maintaining an instructional garden for hands-on experiences, kitchen classrooms, and farm visits.

**Menus.** The lunch/breakfast menus were collected to provide a comprehensive picture of the types of meals that are served to students in the district that participated in this study. The district provided the researcher with 4 months of different lunch menus. The menus examined were February 2018, April 2019, May 2019, and June 2019.

Each month, the lunch menu is posted on the school Web site and printed versions are available in the school office and the cafeteria. The top of each menu included the meal pricing which is as follows: Full price student lunch is \$3.00 and reduced-price lunch is \$.40. Adult lunch is \$4.00. Full-price student breakfast is \$1.50 and reduced-price breakfast is \$.30. Milk is only \$.50. The top of the menu also provides instructions for ordering a peanut butter and jelly sandwich in place of the daily entree. The top of the menu provided a phone number for the front desk person for questions regarding lunch and breakfast accounts. The menu is formatted like a calendar, listing the lunch entree for each day. The lower half of the menu shows a 1-week menu plan for breakfast, which shows the breakfast item that will be offered each day of the week. The bottom of the menu has a note, saying that menu items might change, and that "a variety of

organic fruits and vegetables offered every day, white non-fat and 1% milk options available every day.” No further details are provided about what types of fruits or vegetables will be served. Each month also included 1 day marked, “Green tray award-student X’s choice.” The nutrition director explained that once a month, during a school assembly, the kitchen staff recognizes a student who has shown behavior aligned with the character education program on campus. This student gets to choose for one day from the cafeteria repertoire a lunch menu entree of his or her choice .

As indicated in the nutrition director’s interview, the entrees followed a theme for certain days of the week. For example, all four menus listed pasta entrees for Mondays, Mexican dishes for Tuesdays, vegetarian entrees for Thursdays, and either pizza or hotdogs on Fridays. There was no discernable theme for Wednesdays. In terms of variety, the 65 school days represented in the four menus advertised 35 unique lunch entrees. This predictable variety was mentioned by the nutrition director as a way for the kitchen staff to maintain interest and for the students and families to surmise what might be on the menu, even if they had not looked at it. For example, if it were a Tuesday, families would know that it would be some type of Mexican dish.

Breakfast items for the 65 days on the four menus were less varied, with the 5-day cycle repeating every week. Monday breakfasts were muffins or bread, Tuesdays were oatmeal or yogurt and granola, Wednesdays were cereal and fruit or biscuits and gravy, Thursdays were breakfast burritos, and Fridays were smoothies or a bread item.

**Production records.** Production records were collected to serve as a reference for how much product is used to prepare the lunch meals. These figures help to put the lunch expenses into perspective. The district provided production records for two different days/meals. These forms were filled out by the nutrition director using the 2010 Food Based Menu Production

Record Number 6 template provided by the California Department of Education Nutrition Services Division. This form was revised in 2016 to separate data for fruits and vegetables and to provide differentiation between types of vegetables. The analysis of these forms began with an examination of the form structure and contents of each entry. The information that has the most bearing on the cafeteria budget appeared to be the amount of ingredients used, the number of meals estimated and actually served, and the amount of food that was leftover. These data reflect how well the kitchen estimates how much food to prepare and the types and amounts of ingredients used.

The February 12, 2018, production record referenced a meal of minestrone soup topped with mozzarella cheese, and sides of English muffin, pears, green salad, corn, and Brussel sprouts. A sample entry from this record showed that the kitchen prepared 140 portions with 10.75 pounds of a green salad mixture of Romaine lettuce and a spring mix. Each serving size was 1 cup, resulting in a  $\frac{1}{2}$  cup contribution for the vegetable contribution to the meal. The estimated lunch count for the day was 160 and the actual number of meals served was only 154. The only leftover food in the kitchen for this date was 1 pound of green salad which was saved as “carry over” for a future date.

The meal for the production record dated February 13, 2018, consisted of bean and cheese burritos, oranges, green salad, carrots, cucumber, and tomato, with sides of sour cream and salsa. The meal also included low fat 1% and nonfat chocolate milk. A peanut butter and jelly sandwich was also part of this day’s meal, available by preordering with the morning lunch count. The record divided the ingredients up into corresponding requirements for a reimbursable meal and included the lunch count for adults and students, as well as the portion size and contributions to the meal pattern requirements. For example, for the meat or meat alternative

section, black beans and grated cheddar cheese were listed. The planned serving size for each item was  $\frac{1}{4}$  cup, equaling a 1 ounce meat or meat alternate contribution to the meal pattern. The nutrition director recorded that 120 portions of each were prepared for an estimated lunch count of 160. The actual lunch count turned out to be 164 (152 students and 12 adults). The cafeteria staff used six Number 10 cans of black beans and 10 pounds of cheddar cheese. There were 10 left over burritos that went into the compost. The meals are presented as offer versus serve. Offer versus serve is an elected service style that was designed to decrease food waste so that students can decline certain foods they do not want and make choices about what they would like to eat, provided they select at least three different components of the reimbursable meal (USDA, Economic Research Service, 2019). This method can reduce the amount of waste that the students dump in the compost, but does require good estimation on the part of the kitchen staff to know how much of each item to prepare. The 10 leftover burritos represent an approximate kitchen food waste amount of 8.33%.

**CNIPS Monthly Summaries.** The CNIPS Claim for Reimbursement Summary was obtained for each of the school months for the SY 2018-2019. These summaries included the counts and reimbursement amounts for the School Lunch Program and the School Breakfast Program for all of the free, reduced-price, and paid meals served. The fiscal information was available to the researcher and could be analyzed from the budget summary; therefore, the analysis of these documents was focused on the number of reimbursable meals provided. An excel spreadsheet was created with a column for each month and reimbursement category, as depicted in Table 10.

Table 10

*CNIPS SY 2018-2019 Lunch and Breakfast Counts*

Month	Lunch free	Lunch reduced price	Lunch paid	Total lunch	Breakfast free	Breakfast reduced price	Breakfast paid	Total breakfast
Aug	377	136	0	513	195	69	269	533
Sep	1097	339	1009	2445	622	185	662	1469
Oct	1464	445	1402	3311	874	262	926	2062
Nov	872	301	677	1850	498	160	478	1136
Dec	938	334	688	1960	580	189	483	1252
Jan	1145	372	851	2368	674	217	569	1460
Feb	945	311	721	1977	636	212	529	1377
Mar	1295	427	959	2681	933	290	710	1933
Apr	1130	340	811	2281	756	237	603	1596
May	1325	445	1026	2796	900	279	773	1952
Jun	541	184	444	1169	369	125	350	844
2018-2019 Totals	11129	3634	8588	23351	7037	2225	6352	15614

The total number of lunches and breakfasts combined totaled 38,965 meals. The SNA (2019) identified MEQs as one of the key performance indicators for measures of performance in a school meal program. A breakfast counts as .67 of a MEQ and a lunch is 1 MEQ. The 15614 breakfasts amount to 10,461 MEQ. Combined with the 23,351 MEQ from lunches the district served 33,812 MEQ. The interview results indicated that the nutrition director works 6 hours per

day, the assistant cook works 5.5 hours per day, and the dishwasher works 4 hours per day. This totals 15.5 planned productive labor hours per day, or 2,790 per school year. MEQ, divided by planned productive labor hours, amounts to the MPLH. The MPLH for this program equals 12.

Using the 2018-19 enrollment of 203 students for a 180 day school year, these figures represent a 64% ADP rate in the School Lunch Program and 43% ADP rate in the School Breakfast Program. It should be noted that the August entry for paid lunches appears disparate from the other months, potentially reflecting an error in the data. The chart below shows the proportions of payment sources (not amounts) for lunches and breakfasts according to claims for free, reduced-price, or paid meals (see Figure 5).

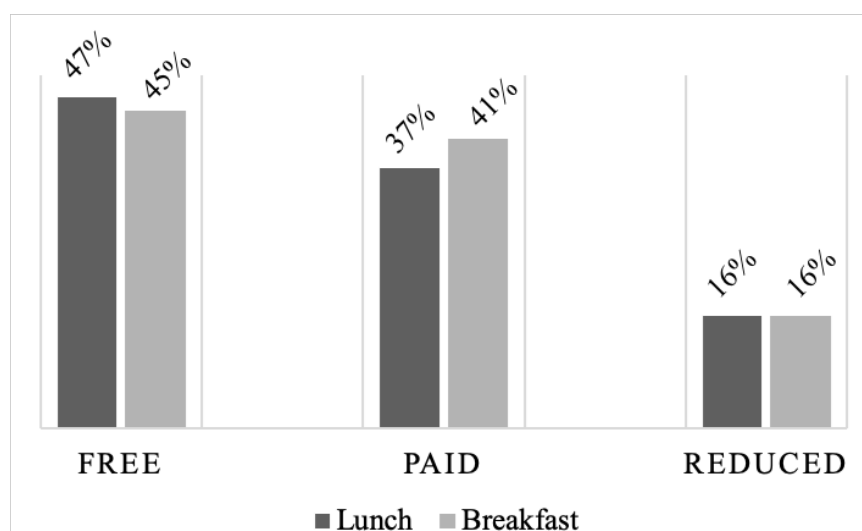


Figure 5. Proportions of lunch and breakfast reimbursements.

This can be interpreted to mean that 47% of the claimed lunches were for students who qualified for free meals. Similarly, 45% of the claimed breakfasts were for students who qualified for free meals. Both lunch and breakfast reflect a similar pattern in reimbursement types.

**Cafeteria budget.** The district provided the researcher with a summary of the 2018-2019 cafeteria budget in Excel spreadsheet format. The researcher applied formulas to the spreadsheet



to determine totals for comparison among the various categories of spending and revenue. Charts were created in Excel to display the results for easier analysis. The combined expenses totaled more than the revenue received for that school year; however, the program did not encroach on the General Fund because of a carryover balance from previous years. Figure 6 charts the budget summary.

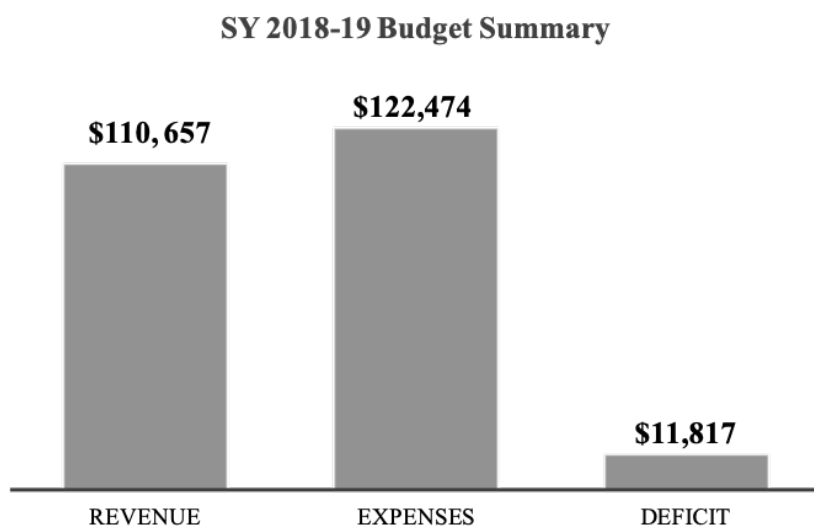


Figure 6. SY 2018-2019 budget summary.

The amount of revenue totaled \$110,657. The amount spent during the SY 2018-2019 totaled \$122,474. The deficit amount was \$11,817. The deficit amount was covered by the reserve or “carry over” amounts in the Cafeteria fund from previous years. The carry-over amount in the cafeteria fund was \$34,593, which was just under the maximum allowed amount of 3 months average operating expenses.

Figure 7 depicts the ratio of spending between food, labor, and other expenses. Included within the “other” category are materials and supplies (.4%), food service supplies (1.08%), equipment (1.02%), employee mileage (1.15%), laundry and cleaning (1.24%), repairs-equipment (.6%), and contracted services (2.01%).

SY 2018-19 Cafeteria Spending

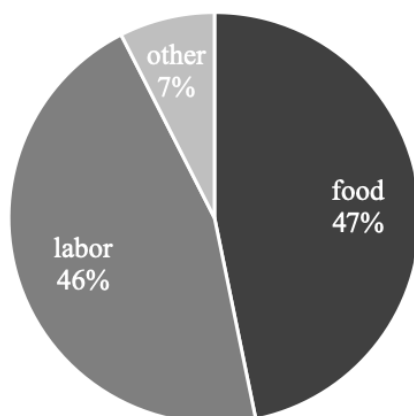


Figure 7. SY 2018-2019 cafeteria spending.

Labor expenses include the wage for part-time the nutrition director, assistant cook, and dishwasher, as well as a small amount for substitute employee expenses. Statutory benefits were also included in this category. They are the Public Employees Retirement System, Social Security, Medicare, state unemployment insurance, and worker's compensation. The distribution of expenses is almost equal between monies spent on labor and food.

Figure 8 provides a breakdown of the dollar amounts spent for the same three categories.

SY 2018-19 EXPENSES

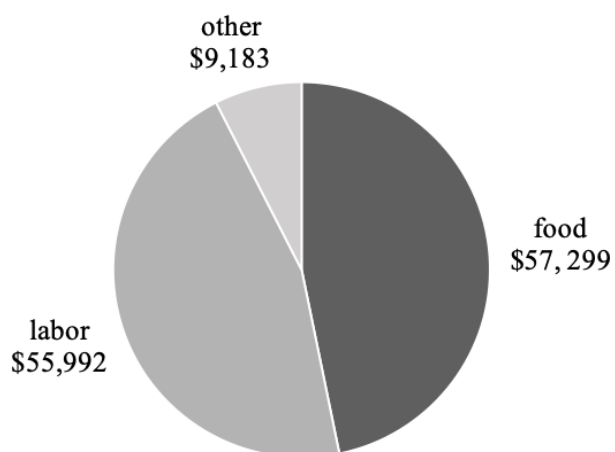
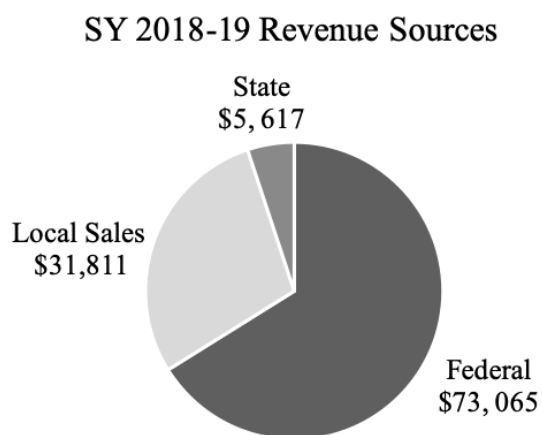


Figure 8. SY 2018-2019 cafeteria category spending.

Expenses for the cafeteria totaled \$122,474. The total spent on food was \$57,299. The total spent on wages and statutory benefits for labor equaled \$55,992. Other expenses included \$485 for materials and supplies, \$1,326 for food service supplies, \$1,244 for equipment, \$1,408 for employee mileage, \$1,521 for laundry and cleaning, \$736 for equipment repairs, and \$2,462 for contracted services such as grease trap cleaning and hood maintenance. These other expenses totaled \$9,183. With information from the CNIPS summaries and the budget, these conversions allowed the researcher to calculate the average price per meal of \$3.63, based on the 2018-2019 expenditures.

The different sources of income for the cafeteria fund and their respective contributions are depicted in Figure 9.



*Figure 9.* SY 2018-2019 cafeteria revenue sources and amounts.

The district was reimbursed from two sources: the USDA and the State of California. State reimbursement is paid for all free and reduced-price meals. State reimbursement totaled \$5,617 (5% of income). USDA federal reimbursement is paid for all free, reduced-price, and full-price student meals. This payment totaled \$73,065 or 66% of the cafeteria income. Additional revenue was earned through the sale of full-price lunches, which was paid directly to the district from

participating students in the amount of \$31,811. This income is reflected in the “Local Sales” category and amounted to 29% of the revenue. A small amount of interest was also earned, totaling \$165.

The average revenue per meal for each type of revenue was calculated by dividing the income amounts by the MEQ amount of 33,812. The results are displayed in Table 11.

Table 11

*Average Revenue per Meal*

Revenue source	Average revenue per meal
Federal	\$2.16
State	\$0.17
Full price	\$0.94
All types combined	\$3.27

The average revenue amount for each meal, regardless of income source was \$3.27. The average cost per meal, regardless of reimbursable category was calculated by dividing the total of all program expenses by the MEQ. This equaled \$3.62, translating to a loss of .35 per meal.

### **Presentation of Artifact Results by Theme**

**Support of program.** The Wellness Policy ensures that district values will be upheld throughout shifts in cafeteria personnel or leadership. It emphasizes the use of local, sustainably grown ingredients and hands-on garden and nutrition education. The menus offer variety to appeal to student preferences and to balance the prep work throughout the week for the kitchen staff. The themed entrees for each day of the week make it easy for families to plan their participation in the program. The production records reveal that there is minimal waste from over

production of food. The CNIPS report shows healthy participation rate in the School Lunch Program and the School Breakfast Program and the budget has a large carry-over balance, which made up for the deficit spending. The large amount of excess allows for unexpected expenses or necessary equipment purchases in the future.

**Challenges to program.** The required time and skill to create daily production records detracts from the time available to tend to other kitchen duties (e.g., procurement, food prep, cleaning, and nutrition education). Some of the menu entrees are ambitious to prepare within the allotted prep time. This could cause stress for the kitchen staff.

### **Presentation of Observation Results**

Notes were recorded by hand in a paper journal. The researcher had a separate page with a physical description and sketch of the facility. The data regarding the atmosphere was extracted from the running notes of activity and comments to include in the analysis of the overall environment. Throughout the analysis, events were coded in the margin of the notebook as either “supporting” or “challenging.”

The researcher observed the kitchen and cafeteria for the entire work shift of the nutrition director. The day began at 8:00 am and ended at 1:30 pm. The data is presented in two sections: Environment, and Activity.

**Environment.** Observations about the physical space and the atmosphere are reported in the next section. The physical space includes the facility and the equipment and furniture within it. The atmosphere describes the climate or feeling in the space.

**Physical space.** The kitchen was attached to the cafeteria/gymnasium space on campus. There was an entrance from the parking lot that led into an 8' by 8' room that housed a commercial refrigerator and a stand up freezer. There was also a rack of shelves that held

cleaning supplies. Inside this room there was a faucet with a hose attached which reached to the outside, for ease in cleaning floor mats. This room led into the kitchen, which included a pantry room of approximately 8' by 15'. This room had wooden shelving to hold cooking equipment such as sauce pans, funnels, and pitchers. The perimeter of the room was lined with stacked 5 gallon plastic containers holding grains, flour, sugar, and other dry ingredients in bulk. There was also a speed rack stored in this room. The main kitchen had one wall outfitted with counter space for dirty and clean dishes on each side of a commercial dishwasher. Opposite that was a large sink for cleaning produce and a handwashing sink. Moving around the corner was the preparation area, cooking area, and service line. Leading off the main kitchen space was a small office nook, approximately 3' by 5' which had a built in desk, a single drawer file cabinet, and two upper cabinets for the nutrition director's paperwork. A small staff bathroom was accessible from this office space. The kitchen had an older Wolf range with six burners, a grill, and an oven. There was also a standing convection oven. The center of this space had a butcher block island with storage for mixing bowls and large pots. One side of the island was outfitted with a large, attached can opener for the Number 10 cans. Adjacent to the other side of the island was the large Hobart mixer. The island also had drawers for small utensils such as spoons and serving tongs. Shelving below the service line stored plastic water cups, plastic bowls, and reusable lunch trays, which were stacked sideways in milk crates. This is also where supplies such as plastic wrap and tin foil were stored. Adjacent to the service line counter were upper cabinets which held spices and some smaller dishes such as cups and bowls. The service line had a window opening out to the cafeteria-gym space. This could be closed off with a metal rolling door (much like a garage door). The service line area was approximately 10' in length, with a 5' glass sneeze guard fixed along the center portion. From the kitchen there was a door that led out

to the cafeteria-gym. To the right was the small window where students could place their empty lunch trays onto the dish counter. Beyond that was the access door from the cafeteria-gym to a small pantry. This room was about 8' by 15' and housed a chest freezer and a refrigerator. The walls had built in shelving to hold canned goods.

The cafeteria-gym space was organized to serve multiple purposes. There were folding lunch tables that were on wheels and stored in a corner until breakfast time. Once unfolded and positioned, these tables with attached benches filled the space. On one end on the room was a built in raised stage with curtains, used for performances and assemblies. The lunch service line was on the opposite end. In a central location a “dumping station” was set up for mealtimes. This consisted of a tray with two dish tubs; one for solid food waste which was destined for the school composting system, and one for dirty silverware. Below that was a 5-gallon bucket for liquids such as soup or milk. Adjacent to these was a large, lined trash can for paper waste, including milk cartons and napkins. Nearby this station was a table covered in a brightly colored floral vinyl cloth. This table held a 5-gallon drinking water dispenser, a stack of plastic cups for water, silverware, and napkins. During meal service (breakfast and lunch), there was a small table and chair placed at the end of the serving line. This is where an aide would check off students receiving reimbursable meals on an iPad. There were also condiments on the table.

**Atmosphere.** The kitchen was warm, well-lit, clean, and organized. The kitchen staff was friendly with each other. When students were in the cafeteria-gym, it was very loud. During breakfast, there was minimal supervision. There were students throwing a ball into one of the indoor basketball hoops and three students were chasing each other around the room and onto the stage. During lunch, there was more supervision. Students remained at their tables, but the noise level was quite high. It was difficult for the kitchen staff to communicate with students as they

went through the lunch line. The tables were cleaned and smelled of bleach. There were no flowers on the tables, but school staff commented that there usually were vases of flowers on each table, provided by a neighborhood volunteer.

### **Activity**

**Breakfast and lunch prep 8:10 am–10:14 am.** The researcher arrived at 8 am. The custodian had already put out the serving tables and drinking water. At 8:10 am the nutrition director arrived, unloading groceries from her own car in parking lot through the backdoor. She had already been to Cash and Carry to purchase food this morning. The nutrition director proceeded to put groceries away, taking tortillas to the pantry, cheese to the back fridge and expressing burnout. She said, “Procurement,” as she unboxed Number 10 cans of pineapple, marinara sauce, and bundles of English cucumbers. She said,

Running on minimum is annoying. Milk has gone bad . . . no deliveries because of power outage. There won't be any until 4:00 pm on Wednesday. I have to go get milk. Cash and Carry didn't have any. I'm going to the local market, Murphy's for better milk later today. Rumiano, our local milk vendor stopped delivering. They retired.”

Ten minutes later the nutrition director continued to move swiftly in and out of the space, carrying a case of oranges to the pantry and packing lunch trays that had been drying in milk crates to place under the counter for service later. The milk crates allow the trays to be stored without trapping water in between them, which attracts ants. While taking a case of taco shells to the pantry, the nutrition director commented, “I need to call and cancel my dentist appointment. It is today at 2:00 in Weaverville. It's just too far to go and I need to get milk.” Weaverville is a 2-hour drive away and there are not many dentists available locally for people who do not have



dental insurance. The nutrition director and other kitchen staff do not receive health benefits from the district.

The assistant cook entered the kitchen from the back door at 8:25 am with her own children, commenting that she was bored of routine and suggesting that she and the nutrition director switch duties that day. It was agreed that the assistant cook would make the pasta dish and the nutrition director would do the baking. They decided in the moment what to bake for that morning's breakfast. The nutrition director went to the pantry and returned with three Number 10 cans and some eggs. "I'm going to make commodity pear muffins." She asked the assistant cook to boil eggs for breakfast service. At this point there were nine kids playing in the gym without supervision.

At 8:55 am, the first batch of muffins went in the oven and the music teacher arrived with a student, explaining that the student wants to know what is for lunch and that there were no menus to be found. At 9:00 am more muffins went into the oven and the nutrition director shared, "It's a been a blessing to see my kids every day." The assistant cook began looking for a clean apron (the nutrition director and staff wash and bring back the aprons). The nutrition director began lamenting the fact that it is hard to keep up with the paperwork,

I know I'm not doing my full job. It's frustrating. I know it's more important to feed the kids. You just have to resign yourself to knowing you're doing a good thing. The fact that we have kids who like eating Brussel sprouts.

At 8:34 am, a teacher came into the kitchen to borrow cookie sheets and containers, and shared that she might need to use the kitchen oven today. The assistant cook got onions out to chop for the spaghetti sauce. The nutrition director mixed muffin batter in the Hobart mixer, and stopped to answer the phone, reciting a shopping list. It was a milk order. The nutrition director

commented that tomorrow, right before lunch, as she does every Tuesday, she will pick up produce at a café in a nearby town. The district has a shared order from Veritable Vegetable, which gets delivered to the café. She cannot get all the local produce needed, especially fruit, locally, and so keeps asking Veritable Vegetable for smaller order limits and to deliver to the school, but they will not. The nutrition director's two children came into the kitchen and said goodbye to their mom before going to class. The assistant cook continued to cut onions and the nutrition director returned to muffins, putting the batter into tins.

By 9:05 am, the nutrition director was washing the muffin mixing dishes and directing the assistant cook to use up the leeks in the spaghetti sauce. She did not want them to go to waste. A few minutes later, the nutrition director was on her cell phone, cancelling her dental appointment which had to be rescheduled for 5 months later. "That what happens when you're on MediCal." Meanwhile, a student asked the assistant cook for some waxed paper for a classroom cooking project. They conversed in Spanish. After the student left the assistant cook commented, "I'll probably burn out after 2 years. This is my second year."

The nutrition director took muffins out of the oven, while sharing that she still needed to leave and go get milk at the market. Unsure of the quality of the muffins, she commented, "I want it to be epic every time. But it's always those times when I think it's not good and they end up loving it." The assistant cook busied herself rinsing and flattening the cans from the marinara sauce so that they could be recycled. After removing the last of the muffins from the oven at 9:27 am the nutrition director left, while on the phone, to take the menu to the webmaster so that it could be posted on the school Web site and printed for students.

By 9:30 am, the assistant cook was washing dishes from the spaghetti sauce preparation, the nutrition director was placing another order on the phone and asking someone to place a cone

in the parking lot to save her spot. The nutrition director left to go get milk for the breakfast and lunch service and for the school administrator who had requested some so that she could make hot chocolate for some students. The dishwasher arrived at 9:34 am and immediately started washing dishes and cleaning up the prep spaces. The custodian stopped by to chat, and a student came in asking for two spatulas. A few moments later the afterschool director came in and began chatting about her weekend shooting guns.

At 9:40 am, all of the dishes had been done, and the dishwasher put plastic, reusable snack trays out. The dishwasher moved quickly from task to task and set up the table and iPad to mark students who would receive breakfast. The assistant cook continued prepping, working on washing and slicing oranges for breakfast. She used an orange slicing machine that was on a rolling cart, which was stored in the canned food pantry, off the cafeteria.

At 9:51 am, the nutrition director returned with gallons of milk. They would need to pour 8 ounces of milk into cups during service, since they did not get the milk order delivery. The dishwasher made ranch dressing with buttermilk and mayonnaise for the condiment table.

A teacher and aid came in to use the oven for salt dough sugar skulls. The dishwasher informed the nutrition director, "We're out of garlic powder." The afterschool director added, "I need chicken." The nutrition director, who procures food for the afterschool supper program responded, "There is a big frozen one in there," gesturing toward the canned food and chest freezer pantry.

A classroom aide entered at 9:58 am to wash classroom dishes from a cooking project. The nutrition director returned to prepping for lunch, bringing bags of bread from the pantry for peanut butter and jelly sandwich orders. While moving through the kitchen, the nutrition director removed Halloween decorations and commented, "I don't like those machine cut carrots."

At 10:09 am, the salad dressing was completed, the nutrition director was on the phone in her office, and the assistant cook was preparing to boil pasta and getting more cups out for milk.

The nutrition director referred to her computer to get the lunch count from the Aeries student information system. The assistant cook remarked, “I’m ready with five minutes to spare,” while the dishwasher put milk out to prepare for breakfast service.

At 10:13 am, the nutrition director made a cup of coffee for the dishwasher who pointed out that the battery was dead on the iPad used for marking off students who get breakfast and lunch. The nutrition director retrieved a printed list of names, and the dishwasher sat down to record student breakfasts on the paper.

**Breakfast service 10:15 am–10:50 am.** As soon as the students started coming in for breakfast, the nutrition director received a phone call about an order, but she was quickly back on the breakfast line, asking students whether they wanted an egg or cheese with their muffin. A few moments later the nutrition director left the line to put an empty bowl on the share table because students were placing unwanted orange slices directly on the table.

Between students in line, the dishwasher jumped up to do dishes, and the nutrition director prepared a cup of coffee for herself. Meanwhile, the assistant cook was continuing to prepare the spaghetti sauce for lunch. During this time the classroom teacher came to check on the sugar skulls that were in the kitchen oven. This was a busy time. The dishwasher was putting clean dishes away, restocking milk cups, and a classroom aide came into the kitchen to get a broom to tidy up the cafeteria space. The nutrition director’s child was on the floor in the kitchen office.

By 10:30 am, the service line was slowing down, the dishwasher was stacking clean trays, and the assistant cook was getting edamame out of the freezer to serve at lunch. The

nutrition director was starting to make the 17 peanut butter and jelly sandwiches that had been ordered by students (in place of the entrée).

The upper grade students came in for breakfast at 10:31 am, and the assistant cook was disciplining some students who were playing in the cafeteria. Between students on the service line, the nutrition director finally took a sip of her coffee.

The dishwasher marked off upper grade students as they received their breakfast, while the assistant cook was breaking down edamame boxes to recycle, and cutting more oranges. At 10:40 am, the nutrition director chatted with a student in the line and said, “Your nacho day is coming.” This was the student who had won green tray award and the privilege of choosing the menu for one day of the month. Another student entered the kitchen to hug the assistant cook while she stirred the spaghetti sauce. The staff moved quickly between tasks, the nutrition director putting oranges away, the dishwasher back to dishes, and the assistant cook cleaned the orange slicer.

At 10:43 am, the nutrition director continued to serve students, placing parchment paper over the peanut butter and jelly sandwiches to protect them from flies. The assistant cook retrieved lettuce from the refrigerator and began prepping the salad for lunch. The administrator came into the kitchen at this time, asking when she could use the stove for hot chocolate. The kitchen staff took this opportunity to ask the administrator if there was an aide who could supervise in the cafeteria. The kitchen staff felt overwhelmed trying to serve breakfast and prepare lunch, while students were unattended in the cafeteria. At 10:50 am, the bell rang and all students returned to class. The dishwasher put the milk back in the refrigerator and lunch preparation continued.

**Lunch prep 10:51 am–12:04 pm.** Fifty minutes after the nutrition director had made the cup of coffee, the dishwasher finally had her first sip, while cutting cucumbers. The assistant cook continued prepping the edamame and pasta and the nutrition director resumed making peanut butter and jelly sandwiches. Everyone seemed to know what needed to be done without any discussion.

At 11:07 am, the assistant cook began peeling carrots, while the dishwasher wiped tables with bleach water. At 11:15 am, the assistant cook placed pasta in the hot water. The pasta was whole wheat and a commodity product. Next, the assistant cook began making more balsamic vinegar dressing, while the dishwasher prepared the other condiments. The nutrition director was back on the phone at 11:30 am, giving Veritable Vegetable another order and making notes. She asked her staff, “Do we have any field trips this week?”

The administrator came in at 11:43 am to make hot chocolate. The assistant cook was cleaning the kitchen counter and the nutrition director was mixing the spaghetti sauce into the cooked pasta. The nutrition director commented, “I’ve got to make dead bread dough tomorrow for all the classes.”

At 11:55 am, the dishwasher strained the hot edamame through a colander and put cucumbers on the service line. The administrator prepped cabbage to add to the salad. At this point students came into the kitchen for hot chocolate with the administrator. They helped her stir the hot milk.

At noon, in preparation for lunch service, the dishwasher put the milk out on the table, the nutrition director gave the service line one last cleaning, and the kitchen staff prepared a tray of food for the aide who would be assisting during lunch. The dishwasher directed the aide to choose whether she wanted to mark off names or pour milk, while the nutrition director began

preplating the Kindergarten trays (they are not offer vs. serve because it is too difficult for the Kindergartners to see the food choices, and it takes too much time for them to make choices).

**Primary lunch service 12:05 pm–12:30 pm.** By 12:07 am, the primary grades lunch service was underway. The nutrition director and assistant cook served from the lunch line, asking students whether they wanted spaghetti, extra sauce, salad, edamame, cucumber, or canned pears. The assistant cook was at the end of line, ensuring that students had selected at least three of the required components for a reimbursable meal. The dishwasher, checked names, and a teacher jumped in to help pour milk (usually the milk is in cartons and self-serve). The aide helped with condiments.

At 12:10 pm, the nutrition director remembered to get a bowl of sliced oranges and put them on the counter as back up, in case the pears ran out. It was a noisy line, with staff constantly asking the kids what they wanted on their trays. It took 1 minute and 22 seconds, for one student to get from the beginning of the service counter to the end of the counter.

Five minutes later, the assistant cook replaced the empty pear bowl with the oranges and the nutrition director set down a full container of cucumber. The dishwasher was getting rags ready to wipe tables and was cleaning the hot chocolate pan. During service the nutrition director's child came into the kitchen to talk to her mom.

At 12:19 pm, the last student reached the service counter just as students began coming back for seconds. The nutrition director started boiling more water in case more pasta would be needed for the upper grade. The kitchen staff prepared food in smaller quantities, repeatedly, to avoid waste.

By 12:25 pm, the line was empty and the assistant was making more salad, grating carrots, and picking out old leaves from the organic spring mix. The aide swept in the cafeteria

and got additional gallons of milk out of the refrigerator. The dishwasher continued with dishes and rinsed empty milk cartons to recycle. The assistant cook intervened as four students rushed into the kitchen for brooms. They all wanted to sweep.

At 12:32 pm, a teacher and the nutrition director conversed about dough needs for the next day, while the assistant cook began heating more edamame. Finally, the nutrition director got a chance to finish unpacking groceries from the morning, putting rice and flour into the pantry, and hugging her daughter as she walked through the cafeteria.

Once again, at 12:37 pm, the assistant cook rolled out the orange slicer to cut more oranges. The dishwasher, put dishes away. While, wiping out the fridge, the nutrition director was reminded to check the schedule of class helpers. The assistant cook requested two particularly helpful students and the nutrition director replied, "I'll go find them" on her way to the playground.

By 12:45, the assistant cook had drained the new batch of edamame and the nutrition director checked the pasta cooking on the stove. The dishwasher continued washing and putting away dishes, readying for the upper grade lunch service.

**Upper grade lunch service 12:50 pm–1:12 pm.** The student helpers arrived at 12:50 pm and the aide returned to check student names, just as student began filing in. The nutrition director and assistant cook busied themselves getting the pasta drained and assisting the student helpers in getting their hair tied back and gloves on. Lunch service began with the nutrition director, assistant cook, and two student helpers serving students. At times, the nutrition director would leave the line to finish prepping the new batch of spaghetti.

The lunch service is staggered by grade so that everyone does not come at once, creating a long wait. At 12:55 pm, the next class arrived to eat, and the nutrition director returned to the



line. The upper grades moved quickly through the line and, by 1:05 pm, all had been served and the student helpers filled their own lunch trays. The assistant cook began serving second portions and the aide handed out extra peanut butter and jelly sandwiches and PBIS tickets for good behavior. The nutrition director's child came in for a hug, and the last small bowl of spaghetti was packaged up, along with a single serving of salad. Nothing was wasted. At 1:10 pm, the nutrition director stated, "Now's the wind down," as she ate the last peanut butter and jelly sandwich.

**Post lunch service 1:13 pm–1:30 pm.** The last two cups of extra spaghetti sauce were saved for Friday's pizza sauce and the kitchen staff began cleaning floor mats. At 1:15 pm, the assistant cook took the extra oranges to afterschool, along with some ground pepper that they needed. The dishwasher finished up the dishes and wiped down lunch tables with the student helpers, who then received cookies baked by the nutrition director. At 1:25 pm, the aide refilled the salad dressing for the next day and the nutrition director reviewed her menu and vendor order stating, "Everyone knows what to do. Our routines are established." By 1:30 pm, the nutrition director had put the dumping station away, taken the compost to the garden, and walked out towards her car to leave, with the recycling in hand.

### **Presentation of Observation Results by Theme**

**Support of the program.** Through observing the kitchen staff, it was evident that there are a number of variables that contribute to the success of this School Lunch Program. Those variables include the facility, the equipment, the staff, and shared values that encompass a sense of frugality and prioritization of quality food. The kitchen design is able to accommodate the production of meals for this size of school. There is adequate preparation space and storage for cold, frozen, and dry goods. The kitchen is fully equipped with everything the nutrition director

wants, including a speed rack for cooling or even storing items on baking sheets, a large Hobart mixer, a dishwasher, a convection oven, and a stove with six burners and an additional oven. The dedication and work ethic of the staff ensure that they will go that extra step to obtain quality ingredients and to cook from scratch. The kitchen staff also creates a welcoming atmosphere for everyone on campus, both the students and adults. As demonstrated by the number of visitors throughout the day, the kitchen is clearly a place where people want to be and the relationships the staff have with the students seem to be critical factors of their job satisfaction. The staff is also very conscious of food waste and sustainability. They try not to over-prepare food, and they take their time to recycle materials and reuse ingredients when possible. Above all, the staff believes in prioritizing quality ingredients.

**Challenges to the program.** The kitchen staff members face challenges that make their jobs more difficult, and potentially less sustainable. Some of the deterring factors are time, procurement, and cafeteria environment. The observation made it evident that this staff is multitasking from the moment the workers arrive until they leave. They are under pressure to have everything ready for service times and to have the correct ingredients on hand. They must serve food in a timely manner so that students have time to eat, and between the demands of food preparation, they are trying to complete other duties such as food ordering and paperwork for the NSLP. Procurement in a rural area means the nutrition director has to be innovative. It requires extra effort to shop and unload the ingredients and to form relationships with other businesses to share orders. There are very few options for vendors who meet the quality expectations for this program. It also became evident that student supervision was a stress for the kitchen staff. Many times throughout the day, they were the only adults in the cafeteria, and they felt that they could not adequately supervise students and prepare food from the kitchen, where they had limited

visibility into the cafeteria-gym space. They also commented that they did not feel skilled in managing students. Another stress for the kitchen staff was the noise. They said that it was noisier now, and that it made it very difficult to converse with students as they went through the lunch line. These challenges all weigh on the staff and their concern is that they will burn out, unable to sustain this level of commitment and work ethic.

### **Summary of Findings**

There were three participants in this mixed-methods, single-site, case study. Data were collected from surveys, interviews, observation, and the following artifacts: wellness policy, lunch menus, production records, and the cafeteria budget. The data collected affirmed that the primary drivers of the success of this program are commitment to quality food, dedicated staff, a conscientious attitude towards waste and spending, a well-designed and equipped kitchen, and students who have had hands-on food systems learning. The most prominent challenges to a self-sustaining program include lack of time, few vendors who deliver the desired ingredients, difficulty finding and retaining qualified staff, and the remoteness of a rural setting, which contributes to the previous two points.

## CHAPTER 5

### CONCLUSION

Although the authors in the literature highlighted innovative approaches (Dunn, 2018; Just et al., 2014; Løes & Nölting, 2009; Morgan & Sonnino, 2013; Poppendieck, 2010) and tips from the USDA for NSLP implementation (USDA, Food and Nutrition Service, 2012), information was lacking about what works for the unique combination of small school organizations in rural settings. The USDA recognized that districts are challenged to balance the requirements of the NSLP, while maintaining quality. As Ralston and Newman (2015) stated, “School foodservice programs face ongoing tradeoffs between meal cost, student participation, and nutrition quality” (p. 5). This challenge is amplified in smaller scale, school settings where fewer student meals are sold.

The purpose of this study was to examine the characteristics that support a financially viable school lunch program in a small rural school district. This single-case study was used to examine how the participating site operates regarding spending, staffing, food procurement, nutrition education, and stakeholder input. The best practices, combined with identification of potential roadblocks, can inform other small districts in a rural context. This study was driven by the overarching question, “How can small, rural schools operate a nutrition program that is financially self-sustaining?” The two supporting research questions were used to explore what the site administrator, business manager, and nutrition director perceived could support a financially self-sustaining cafeteria budget and also what might hinder such results.

This final chapter presents an interpretation of findings that compares and contrasts the research data to previous publications. It also includes implications, recommendations for action, recommendations for further study, and limitations of the research study.

## **Interpretation of Findings**

This study was centered on one main research question; “How can small, rural schools operate a nutrition program that is financially self-sustaining?” Two additional questions supported this research, and were focused on the perceptions of the school administrator, business manager, and nutrition director regarding what these school professionals perceive supports or impedes a financially viable school nutrition program. The following interpretation presents the answers to these questions as the researcher considered the synthesis of the literature review and research data through the lens of systems thinking. The presentation of these ideas begins with the two supporting research questions. The main research question is addressed last, with an expanded and inclusive discussion of how a small, rural school can operate a nutrition program that is financially self-sustaining.

### **Supporting Research Question 1**

The overarching research question for this study was supported by two supporting questions, the first of which was, “What factors or practices do administrators, business managers, and nutrition directors of small, rural school, nutrition programs perceive positively contribute to the operation of a self-funding nutrition program?” The data from surveys, individual interviews, and observations presented five main areas that were noted to be a key to the financial success of this small, rural, cafeteria program. The participants all made mention of the facility, the staff, responsiveness, procurement, and food systems education.

Gunderson (2014) explained that adequate facilities certainly have an impact on the capacity of a kitchen. The school site in this study has a full kitchen, which included a convection oven, a six-burner Wolf range and oven, a commercial dishwasher, a Hobart mixer, and freezer and refrigerator space. During her individual interview the nutrition director who

participated in this study commented multiple times that the kitchen was perfectly designed and equipped. The nutrition director also noted that there was always enough cold and dry storage space. The research participants agreed that the kitchen facility at this district was considered ideal for their needs. Moreover, as the administrator noted, the cafeteria is the “heart” of the school. The administrator indicated that the school cafeteria is the warm place to be, early in the morning where a hungry student can get food before the day begins. It was also discussed that this space is where school assemblies are held for celebrations and performances, and; a place where every student that goes through the lunch line is seen, greeted by name, and valued as a part of the school community.

The staff members sing each other’s praises in recognition of how hard they each work. This admirable feat of serving organic, scratch-cooked meals is profitable and successful because everyone involved in the system is dedicated to serving quality food, they love the students, and they are willing to find innovative ways to overcome complex challenges. Capra (2005, as cited in Barlow and Stone, 2011) explained how important it is for members of a system to recognize openings for the breakthrough of novelty.

The design of the School Breakfast Program and School Lunch Program included in this study was formed after soliciting feedback from parents, community, students, and teachers. Since its inception 13 years ago, the district has continued to formally collect opinions, ideas, and concerns on an annual basis, and on a daily basis, the kitchen staff is always checking in with students and observing what they eat and do not eat, to guide menu planning and recipe development. This responsiveness and implementation of stakeholder values has been one of the reasons that meal sales have been steady at the school site included in this study. These findings align with the work of Løes and Nölting (2009) and Morgan and Sonnino (2013) who reported

that students and parents are more likely to support a food program that aligns with ideals of sustainability.

Procurement is the purchasing and collection of supplies. For this case study site, it requires that the nutrition director personally speak to farmers, community cafés owners, organic distributors, and the local market. There is no one-stop-shop option. This system of relationships enables the kitchen to obtain quality ingredients, sometimes at a bargain because of creative planning and collaboration. This portion of the food system touches many elements of the community. Local farmers, students with farmer relatives in town, café customers who benefit from the joint order of field greens that the nutrition director picked up at the farm and delivered to the café and school, the local market who sells cases of oranges to the school and agrees to store school milk in their walk-in, the business manager who sees the squash farmer at the farmer's market and reminds them to send an invoice, the local rancher who donates a steer because they want to see the community kids eating grass-fed beef . . . the connections ripple out and become stronger and multiply each year. The results of this study support the research of Tonti (2017) and Poppendieck (2010) who praised programs that foster collaboration and support between school districts and farmers.

The students at this school, Grades TK-8, have had many opportunities to connect to the food they eat and to consider its path. For example, every week, students get to garden in one of the schools three garden spaces with the garden coordinator, a retired teacher. They pull weeds, plant beds of garlic, harvest chard and potatoes, wash spinach, and pot starts of cilantro in the green house. Every grade level participates in cooking activities throughout the year, making raviolis, pumpkin pie, applesauce, or day of the dead bread. Food education (not necessarily nutrition education) helps students to understand where food comes from and to understand the

impact of their food choices. These student experiences with food at the school site align with the recommendations from Smeds (2017) that hands-on lessons are more successful in teaching children about food systems. This small, rural school district also participates in ocean studies every spring. Students study all elements of ocean ecology, including how agriculture affects the ocean, different types of fishing and the food systems in the sea. Perhaps this creates a student population that appreciates the effort to bring quality meals to the cafeteria each day.

### **Supporting Research Question 2**

The second supporting research question was used to examine the factors or practices that administrators, business managers, and nutrition directors of small, rural, nutrition programs perceive impede the operation of a self-funding nutrition program.

Many of the researchers cited in this in the review of the literature connected to this study underscored the challenges to a small, rural, school lunch program (e.g., scale, staffing, and remoteness; Copeland, 2013; Fitch & Santo, 2016; Forner, 2016; Hoffman et al., 2018; Yettik et al., 2014). Even USDA researchers alluded to the challenges of running a successful program and pointed to potential areas of improvement (Ralston et al., 2008; USDOE, 2018, p. 8).

The findings from this research suggest that many of the challenges and successful practices discussed in the literature are the same for the study site, which is very small (fewer than 250 students) and in a rural setting. Previous researchers discussed challenges faced by school lunch programs as procurement, expense, geography, and capacity constraints (Feenstra et al., 2017; Ken, 2014; Morgan & Sonnino, 2013; Ollinger et al., 2011; Poppendieck, 2010; Tonti, 2017). Factors that were identified as challenges in both the literature review and in the data from this study include food procurement and capacity.



Previous studies explored the complicated regulations regarding procurement of food ingredients for cafeteria programs (Feenstra et al., 2017; Fitch & Santo, 2016). Larger districts needed to put out bids for conventional orders and, if they wished to buy local, they could do additional paperwork to apply the geographical preference points before evaluating the best price. This system allots points that, in effect, lower the bid for local products (Fitch & Santo, 2016). Fortunately, neither of these set of circumstances were issues for the site included in this study, for the school district did not meet the minimum amount for purchases which would necessitate these complex processes. Nevertheless, the research participants noted that procurement was a challenge. The nutrition director has few choices for vendors, and even fewer who provide the types of local and organic products desired. She noted that, of those vendors available, only one or two would make deliveries to the rural school site. The result was that there are multiple vendors, who each provide only a portion of what is needed. Once ingredients are located, the nutrition director loads up her personal van, and delivers most of the ingredients to the school herself. Food procurement is seen as a challenge; however, the district considers their ability to navigate the system, one of their strengths. Despite the lack of vendors who can deliver, the nutrition director, through agile thinking and persistence, still obtains the ingredients of choice by fostering relationships with community farmers and businesses and by delivering food items to the school in her own vehicle.

Hoffman et al. (2018) addressed the capacity constraints faced by rural school cafeterias, including limited vendor availability. Hoffman's research and this study's findings suggested that an additional factor that limits the capacity of a cafeteria program is qualified staff. During her individual interview the district administrator commented that it is very difficult to find someone willing to work for minimal pay, without benefits, and who must also be able to think

on her feet and have a passion for students and food. These findings are supported by the work of Fitch and Santo (2016), Hoffman et al. (2018), and Ralston et al. (2008) who also discussed how the knowledge that is required to comply with procurement and daily production paperwork can be overwhelming. The participants noted that paperwork and reporting were minor challenges, but the staff members acknowledged that, for them, it is not as high a priority as serving quality food. Again, staffing is a challenge that the school district feels they have been very fortunate in overcoming. The district is strategic about hiring individuals who have demonstrated values that are aligned with the wellness policy. Many of the kitchen employees have served in other roles at the school prior to working in the cafeteria. The kitchen is staffed with employees who are credited with making the program successful because they are dedicated to the students and quality food.

Some of the challenges identified in the literature review were not consistent with this study's data. Expenses, facilities, and scale did not appear to be concerns for the small, rural school included in this research. The study site did spend a higher percentage on labor than the average SFA for the SY 2014-2015, expending 50% for personnel and benefits versus 44% (Fox & Gearan, 2019, p. 39). However, the site has maintained a carryover balance since at least 2012. For SY 2018-2019, there was an ending carryover balance of \$12, 921. Figure 10, displays these excess amounts that were carried forward as balances.

### Research Site Carry Over Balance

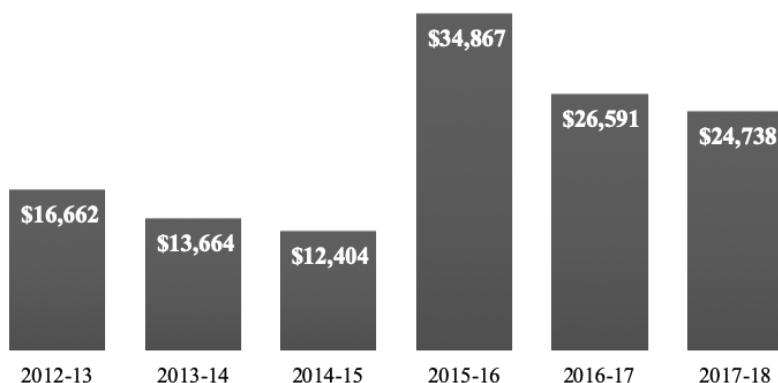


Figure 10. Research site carry-over balance.

As a result, this balance indicates that any excess transportation, labor, or product expenses have been budgeted. The school district runs a self-sustaining cafeteria program that is not hindered by the higher price of local or organic ingredients.

Ollinger and Guthrie (2015) explained that scale was a critical factor in determining which meals to serve as part of a child nutrition program, noting that per-meal breakfast costs declined by about 50% if the number of breakfasts served were equal to lunches. March and Gould (2001) conducted a study of self-sufficiency in Kansas school meal programs. They reported that an enrollment of at least 400 students at the school level site was necessary to break-even and that, as enrollment increased, the percentage of schools able to achieve financial success increased. However, for this study's research site, an enrollment of 203 was enough to reach a balanced budget, even without meeting Ollinger and Guthrie's recommended goal of equal breakfast and lunch sales. In this case study, there were 23,351 lunches sold, compared to 15,614 breakfasts during the SY 2018-2019.

### **Unique Challenges to Research Site**

Two challenges that were revealed from the results of this case study were related to time and cafeteria environment. Yet, these types of programmatic challenges were not encountered or revealed in the existing literature that was reviewed for this research study.

In her individual interview and during the cafeteria observation, the nutrition director repeatedly lamented the time pressure that the cafeteria staff is under. She noted that everything must be ready at precise times. This is dependent on the correct ingredients being delivered on time, staff arriving on time, equipment all functioning, food preparation going as planned, and the service line moving quickly. During the course of the observation the researcher noted multiple events throughout the day that created time pressure for the cafeteria staff. For example, during an observation at the site's cafeteria, the milk was not delivered. As a result, the nutrition director had to stop preparing food to go buy gallons of milk at the local market. This meant that one of the staff would have to hand-pour 8 ounces of milk into each cup. Consequently, the dishwasher would have more cups to wash and would have to wash them throughout service to maintain enough clean cups for students. Having a staff person pour milk meant the service line moved more slowly, which meant the line of students was extra-long and the students at the end of the line did not have their allotted time to eat their meal.

The nutrition director, particularly, tries to juggle the food ordering, unpacking, prepping, and paperwork, all while attending to students with a sincere interaction and monitoring the nutrition components of the students' selections. There isn't time to do the nutrition education she would like to. It becomes a triage where she focuses on her number one goal: feed the students a quality meal.

The results of this study revealed that an additional strain on the staff is the noisy cafeteria environment. The stress that this causes the staff endangers the success of the program. If the staff members were to leave, it would be difficult to replace them with equally experienced and dedicated employees. Before school and especially during the breakfast recess, students play in the cafeteria/gym, unmonitored and out of direct line of sight for the kitchen staff. The kitchen staff is aware the students are there are feel compelled to engage in behavior management and are unable to focus on their kitchen tasks. The cafeteria is very loud when students are present. The noise makes it very hard for the kitchen staff to communicate with students as they go through the lunch line. Students must work their way down the line as quickly as possible, responding to each offer of a menu item. During the cafeteria interview the kitchen staff remarked several times that this noise makes their already stressful job hard to bear.

### **Overarching Research Question**

The supporting research questions were used to explore the opinions and experiences of the district administrator, business manager, and nutrition director for the research site. The overarching research question for this study addressed these issues as well as information from reviewed literature and the artifacts collected from the research site. The researcher considered all of these information sources to answer the driving question of this study: “How can small, rural schools operate a nutrition program that is financially self-sustaining?” In addition to the elements that the administrator, nutrition director, and business manager attributed to their financial success with the cafeteria budget, the literature review and analysis of the cafeteria budget, the CNIPS report, school menus, and production records suggest some key practices. The participants in this study credited the facility, the staff, responsiveness, procurement, and food systems education as contributing to a financially solvent cafeteria budget. The analysis of

the cafeteria budget and the CNIPS record illuminated operational baselines that have resulted in a successful program. Moreover, the researcher concludes that the school district's Wellness Policy has had a positive influence on the design of the program.

To be financially viable, small, rural schools need to maximize participation in their meal programs. The CNIPS report showed a healthy participation rate in the School Lunch Program and the School Breakfast Program. Using the 2018-2019 enrollment of 203 students for a 180-day school year, the district had a 64% ADP rate in the School Lunch Program and 43% ADP rate in the School Breakfast Program. Ollinger and Guthrie (2015) said the answer lies in numbers and scale. These participation rates can serve as a guide, but at some point, regardless of participation rate, the actual number of meal sales must meet a certain threshold. A very small district with only 30 students might not be able to operate a self-sustaining cafeteria budget, even if 100% of their students participated in the meal program.

Districts must employ efficient kitchen staff and create menus that can be prepared within the range of suggested MPLH (Lott et al., 2018). An MEQ, divided by planned productive labor hours, amounts to the MPLH. The MPLH for this program equals 12. SNA recommends an MPLH of 11 for high productivity in a "conventional" meal program. However, it should be noted that the MPLH for this site includes the work of the nutrition director, who is not only preparing and serving, but also calling in orders, completing paperwork, and shopping for ingredients off site. In this case, the MPLH of 12 is highly productive and efficient. The staff members need to be efficient with their use of time and their use of ingredients. The research site kitchen staff is careful not to produce too much food and to incorporate leftovers into future meals.

Maximizing sales is dependent on offering appealing meals. Figure 11 compares the research site included in this study to an average SFA.

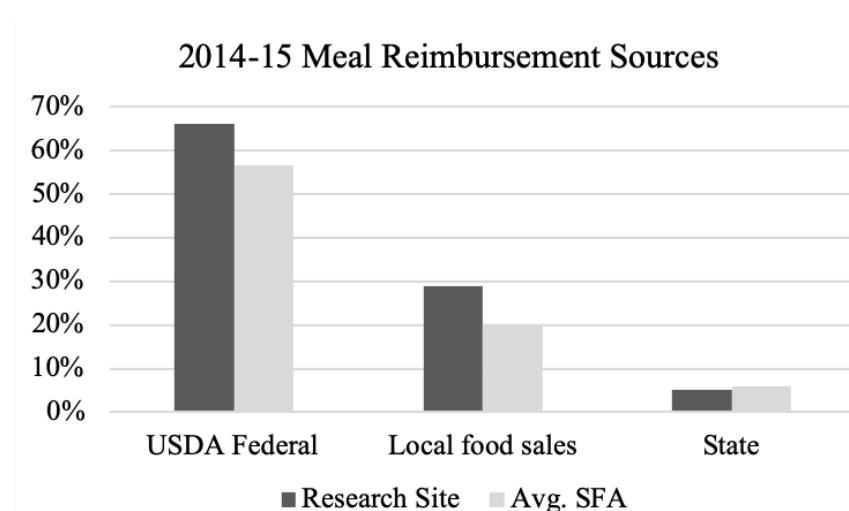


Figure 11. SY1024-2015 meal reimbursement sources.

This research site does not have any competitive foods sold; therefore, 100% of “local sales” funds come from the sale of reimbursable meals. The average SFA represented in this figure, likely attributes a large portion of its sales to competitive foods. This information represents a telling discrepancy between the research site and the average SFA. The research site is making large gains from full-priced meals compared to other sites.

The higher percentage of income from local food sales at the research site is a strong indicator that the meals are appealing to the students and families who pay full price. This aligns with the findings of Tonti (2017) and Just et al. (2014) who reported that better quality and more appealing meals might lead to more sales and increase revenue. The participants indicated that a majority of ingredients are sourced from local farmers and that there are no competitive foods sold on campus. The absence of competitive foods supports the cafeteria program by concentrating all sales on reimbursable meals. This is extra incentive to make these meals as

appealing as possible. The Wellness Policy ensures that these a-la-carte or competitive foods are not sold.

The Wellness Policy must ensure that district and community values are upheld throughout shifts in cafeteria personnel or leadership. To create more appealing meals, the research site has been very responsive to parent and student values. Concerned about the environmental, health, animal welfare, and social justice implications of food choices, an increasing number of people want to eat in ways that not only satisfy taste buds, but also reflect personal values in these areas as well (Fitch & Santo, 2016, p. 1). Aligning food programs with values (e.g., sustainability via organic ingredients) is another approach to draw in more customers (Løes & Nölting, 2009; Morgan & Sonnino, 2013). The Wellness Policy explicitly stated that the board of trustees would support efforts to ensure “an economically sustainable meal program” (p. 2). It also stressed a commitment to maintaining an instructional garden for hands-on experiences, kitchen classrooms, and farm visits.

Hands-on educational opportunities for students can boost the financial success of cafeteria program. These types of experiences in school gardens and classroom kitchens connect them to food (Rauzon et al., 2010, Smeds, 2017). Ideally, these connections will be honored in the offerings of the cafeteria program and sales will benefit. Contento (1981) recommended that nutrition education curricula avoid the focus on nutrients and classification of foods into dietary groups. Many children are not developmentally ready to understand concepts as abstract as nutrients. According to Contento, pupils might be better served with hands-on experiences from the real world. Contento also suggested that curriculum designers should ask the children what they like to eat and how they make choices.



## Implications

Best practices and strategies from this case study in which the researcher examined a small, rural, school meal program will be shared with other like-sized programs to support viability and to decrease a district's encroachment on the general fund. As demonstrated through the literature, school food programs have the potential to have positive impacts on our environment, health, and learning (Weaver-Hightower, 2011). To sustain effective programs, financially solvent models are needed.

As Barlow and Stone (2011) stated, "Food systems are difficult to change because they are nested in larger educational, economic, and political systems that in turn reflect much bigger trends—among them centralization, industrialization, standardization, and globalization" (p. 10). Resistance will be encountered when changing a standardized system. Districts that are losing money might be disinclined to invest more to create higher quality meals; however, as this researcher's study shows, it could pay off with financial, health, and ecological benefits. These districts should consider revising their wellness policies to support scratch-cooking, to reduce competitive food sales, and to increase student connection to local food systems through local food procurement, school gardens, and student-cooking lessons. On a federal level, policy changes should make funding available for kitchen facilities infrastructure. Districts without onsite, fully operational kitchens need funds to purchase stoves, ovens, cold storage, dishwashers, mixers, and to remodel food storage and preparation areas for scratch-cooking. The value in this case study model is that it is proof that a small, rural district can produce meals cooked from scratch with organic and local ingredients and can maintain a viable cafeteria budget. Ruis (2017), who studied the history of NSLP, suggested that administrators might see

single districts making changes and, after many have proven success, it might be easier to influence policy change. Let this serve as an example of success to motivate and inspire.

### **Recommendations for Action**

From the findings of this mixed-methods, single-site case study, the following five actions are recommended for a small, rural cafeteria striving to operate a fiscally sustainable budget.

**Support passionate staff.** A staff who upholds the values of the meal program and who ultimately cares about students is critical to operating a successful cafeteria program. Provide training for staff members who need support. Offer flexible scheduling and foster a pleasant work environment. Recognize the value of the cafeteria work and allow for innovation.

**Invest in the kitchen facility.** The kitchen must have the necessary equipment and space to create appealing meals. The equipment does not need to be new, but it needs to meet the needs of the staff that uses it. Recommended items are a dishwasher, a speed rack, a commercial mixer, a 6 burner range, a convection oven, an upright and a chest freezer, and at least two refrigerators. Preparation space and dry storage are also important. Consult with the nutrition director when outfitting the kitchen and explore potential equipment grants from USDA.

**Procure quality ingredients.** Each site has its own culture. Find out what is important to the students and families. Provide what they want. The stakeholders might want local or organic ingredients. Take the time and spend the money to provide a meal that families want to pay for.

**Provide scratch-cooked meals.** Cooking from scratch allows the kitchen to be more economical in the amounts by adjusting to the daily order, rather than being bound by package size. Scratch-cooked meals can be customized to suit the tastes of the students, to use left-overs, or to highlight a seasonal vegetable.

**Provide opportunities for hands-on learning about food systems.** Give students a chance to make connections with their food. Let them work in a school garden. Take them on field trips to local farms, dairies, and ranches. Encourage lessons in cooking. Make meal time an interactive and enjoyable tasting experience.

### **Recommendations for Further Study**

This research fills a gap that was present in the existing literature, providing a comprehensive view of a small, rural, school cafeteria program. The following recommendations for future research offer opportunities to build from this study to collect more generalizable findings.

Further research should use a larger number of school districts is necessary to establish trends and to provide basic benchmarks for operating ratios. Multicase studies are needed of similarly sized and situated districts that have a financially viable cafeteria budget and others that encroach on the general fund. A multicase study provides data from more than a single site, allowing analysis of the differences and the similarities between the cases (Baxter & Jack, 2008; Stake, 1995). Multicase studies can be used to support contrasting results for expected reasons or support similar results in the studies (Yin, 2003). This will establish a benchmark of characteristics and financial management of small, rural, school meal programs including MPLH, proportions of spending, and revenue sources.

The literature on very small districts is limited; therefore, the researcher recommends that scholars extend the scope of this line of research to include child nutrition programs in urban areas for school sites with fewer than 250 students as well as small, rural, high schools. Research on all types of very small districts might inform best practices for small cafeteria programs in

rural settings, for the small scale operations have unique practices that are relevant, regardless of the grade-span served or the geographical setting.

This work can also be furthered by focusing on particular elements of a cafeteria program which this study did not address fully. There are many variables that could be examined in further depth.

- **Start-up:** It would be beneficial to have additional research to identify successful management practices for implementation of a financially viable cafeteria program in small rural setting.
- **Stakeholders:** Studies that include the perceptions of students, teachers, parents, and vendors would provide a broader understanding of small, rural, cafeteria programs that would enrich the literature base for small, rural, cafeteria programs. Details of the decision-making process and the roles that parents and children have in this process are not well understood in the context of NSLP participation. A better understanding is crucial to inform better the policy makers concerning how to target informational and persuasive campaigns.
- **Income and expense comparisons:** Additional budget analysis of multiple sites would further provide more guidance for districts in terms of best fiscal practices. One area to focus on would be a comparison of operating expenses and income of small, rural cafeterias who do scratch cooking versus those who do not.

### **Limitations**

Upon conclusion of this study, certain limitations were realized. The results of this study are limited in scope and meaning because this was a single-case study. Although this research design provided thick, rich data, the findings cannot be generalized or compared. In contrast, a

multiple-case study could be used to analyze the data both within each site and across sites (Yin, 2003). A more comprehensive report of this site would have been obtained if the study had a wider range of participants, including all the kitchen staff, students, teachers, and parents. Moreover, the partial intent of this research was to provide a roadmap, or best practices for a small, school meal program situated in a rural setting. The researcher acknowledges that the recommendations might not be feasible for all such sites. For example, the responsibilities of the cafeteria staff are exceptional, considering that they do not receive healthcare benefits and that they are among some of the lowest paid staff in the district. Other districts might not be able to duplicate a similar rate of labor expenses and expect the same output from the staff.

### **Conclusion**

This in-depth look at a small, rural, cafeteria program has made it evident that financial success is dependent on two foundational elements: value alignment and agile innovation.

There was a coherence of effort by the staff at this research site. The participants all valued quality food. For them, this meant local and organic ingredients, scratch-cooking, and recipes that were responsive to student preferences. The participants also shared an appreciation for frugality which translated to procurement practices, recycling, and conscientious preparation of the correct amounts of food. Their work, driven by shared values, had a more targeted impact on the system.

A benefit that small schools experience is that the staff is in close communication, all at a single site. Wheatley and Kellner-Rogers (as cited in Barlow & Stone, 2011) have recognized the value of this connection, “To create better health in a living system, connect it to more of itself” (p. 4).

Wheatley and Kellner-Rogers (as cited in Barlow & Stone, 2011) went on to add, “In a social system like a school community, this can be accomplished by bringing people addressing parts of the problem together in networks of support and conversation” (p. 4). At this research site, the administrator, business manager, and nutrition director are frequently in the same room, chatting in the hallway, or sitting side by side at an assembly. Each of these participants represents a different part of the school food system, but together, through continuous conversation and shared values, they are able to address challenges from their unique perspectives and positions of authority. They are a part of the conversation together; therefore, they are able to dream up innovative solutions, having a better understanding of the work and role of their counterparts in the system. Systems theorist Senge (2006b) echoed the value of this connection, “vision without systems thinking ends up painting lovely pictures of the future with no deep understanding of the forces that must be mastered to move from here to there” (p. 12).

Authors Roza and Swarts (2007) questioned whether nutrition directors and school administrators are capable of making informed decisions about innovative strategies, given the complexity of a school, food program budget and the many variables that affect success. The survey responses suggested that this study’s participants might have been lacking information about the budget and participation rates. This could hinder agile innovation within the program. However, the research site staff is connected, and they indicated that someone would have the necessary information. Therefore, although each individual participant did not have all of the information, she communicated so that decisions were not made in a vacuum. They make informed decisions with consideration of different perspectives throughout the system.

An additional benefit of connection is trust. The participants in this study trusted each other to suggest unique solutions and to create space to try new ideas; this paved the way for agility. Barlow and Stone (2011) addressed change within a system.

Change can't be imposed, but the process can be facilitated. Facilitating the emergence of change calls for a different kind of leadership that supports a system's capacity for generating creative solutions by nurturing its networks of connection and communication, by creating climates of trust and mutual support, and by encouraging questioning and rewarding innovation. Leaders need to be able to recognize the emergent novelty, articulate it, and incorporate it into the organization's or system's design. To accomplish this sometimes requires that they loosen their control and take the risk of dispersing authority and responsibility more widely. (p. 6)

Although change can be stifled in the world of public education, the meal program at this site is able to change and respond to student and community needs. Senge (2006a) promoted the idea that high-functioning systems eschew stasis and require adaption according to outside demands. An organization with agility is able to adjust and reorganize. This agility becomes a mindset. When the milk order does not arrive, when the power outage threatens to thaw a year's supply of local beef, or when the cheese vendor retires, the staff at this district was able to make quick, informed decisions to solve their problems and adapt.

There is value in the food served to students. It can support physical health, it can model sustainability, it can provide opportunities for positive social interactions at the table or at the lunch counter, it can promote learning, it can fuel the local economy, and it can pay for itself. A small rural cafeteria program can operate within its budget provided the district implements a

program of shared values and agile thinking that is viewed as a vital component of the education system.



## REFERENCES

- Anfara, V. A., & Mertz, N. T. (2006). *Theoretical frameworks in qualitative research*. Thousand Oaks, CA: Sage. doi:10.4135/9781412986335
- Barlow, Z., & Stone, M. K. (2011). Living systems and leadership: Cultivating conditions for institutional change. *Journal of Sustainability Education*, 2(1), 1-29.
- Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report*, 13(4), 544-556.
- Belot M., & James, J. (2011). Healthy school meals and educational outcomes. *Journal of Health Economics*, 30(3), 489–504. <https://doi-org.une.idm.oclc.org/10.1016/j.jhealeco.2011.02.003>
- Bennett, A. J., Bending, G. D., Chandler, D., Hilton, S., & Mills, P. (2011). Meeting the demand for crop production: the challenge of yield decline in crops grown in short rotations. *Biological Reviews*, 87(1), 52–71. doi:10.1111/j.1469-185x.2011. 00184.x
- van Berkum, S., Dengerink, J., & Ruben, R. (2018). *The food systems approach: sustainable solutions for a sufficient supply of healthy food* (No. 2018-064). The Hague, The Netherlands: Wageningen Economic Research. doi:10.18174/451505
- Bitman, M., Pollan, M., Salvador, R., Schutter, O. D. (2015). A national food policy for the 21st century: Food is the new internet. Retrieved from <https://medium.com/food-is-the-new-internet/a-national-food-policy-for-the-21st-century-7d323ee7c65f#melr4gbkt>
- Bloomberg, L. D., & Volpe, M. (2018). *Completing your qualitative dissertation: A road map from beginning to end*. Thousand Oaks, CA: Sage.

- Botkins, E. (2017). *Three essays on the economics of food and health behavior*. (Doctoral dissertation). The Ohio State University, Columbus. Retrieved from <https://etd.ohiolink.edu/>
- Bramwell, R. (2018). MKThink: Systems thinking for school lunches. Retrieved from <http://www.mkthink.com/2016/06/07/systems-thinking-for-school-lunches/>
- Briggs, M. (2005). Rethinking school lunch. In M. K. Stone and Z. Barlow (Ed.), *Ecological Literacy: Educating our children for a sustainable world* (pp. 241-249). San Francisco, CA: Sierra Club.
- California Department of Education. (2019). *Local School Wellness Policy*. Retrieved from <https://www.cde.ca.gov/ls/nu/he/wellness.asp>
- California Center for Rural Policy. (2015). *Food report final: Food systems and security*. Retrieved from <http://www2.humboldt.edu/ccrp/projects/food-systems-security/>
- California School Dashboard. (2018). Getting to know California school dashboard. Retrieved from [https://www.caschooldashboard.org/assets/pdf/california-school-dashboard\\_English-v2.pdf](https://www.caschooldashboard.org/assets/pdf/california-school-dashboard_English-v2.pdf)
- Capra, F. (1997). The web of life: A new scientific understanding of living systems. *Colonial Waterbirds*, 20(1), 152. doi:10.2307/1521798
- Capra, F. (2009). The new facts of life: Connecting the dots on food, health, and the environment. *Public Library Quarterly*, 28(3), 242-248. doi:10.1080/01616840903110107
- Capra, F., & Luisi, P. L. (2014). *The systems view of life: A unifying vision*. Cambridge, United Kingdom: Cambridge University Press.
- Carson, R. (1962). *Silent spring*. Boston, MA: Houghton Mifflin.

- Child Nutrition Act of 1966. Pub. L. 89-642 (1966).
- Child Nutrition and WIC Reauthorization Act of 2004. Pub. L. 108-4981 (2004).
- Contento, I. (1981). Children's thinking about food and eating: A Piagetian-based study. *Journal of Nutrition Education* 13(1), 86-90. doi.org/10.1016/s0022-3182(81)80017-9
- Copeland, J. D. (2013). One head-many hats: Expectations of a rural superintendent. *The Qualitative Report*, 18(77),1-15.
- Cornish, D. L, Askelson, N. M., & Golembiewski, E. H. (2015). Professional networks among rural school food service directors implementing the Healthy, Hunger-Free Kids Act. *The Journal of Child Nutrition and Management*. 39(1),1-13. Retrieved from [https://schoolnutrition.org/uploadedFiles/5\\_News\\_and\\_Publications/4\\_The\\_Journal\\_of\\_Child\\_Nutrition\\_and\\_Management/Spring\\_2018/Operating-School-Meals-in-Rural-Districts-Challenges-and-Solutions-Spring2018.pdf](https://schoolnutrition.org/uploadedFiles/5_News_and_Publications/4_The_Journal_of_Child_Nutrition_and_Management/Spring_2018/Operating-School-Meals-in-Rural-Districts-Challenges-and-Solutions-Spring2018.pdf)
- Creswell, J. W. (2015). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. Upper Saddle River, NJ: Pearson.
- Dayen, D. (2014). The farm bill still gives wads of cash to agribusiness. It's just sneakier about it. Retrieved from <https://newrepublic.com/article/116470/farm-bill-2014-its-even-worse-old-farm-bill>
- De Bourdeaudhuij, I., & Van Oost, P. (1998). Family members' influence on decision making about food: Differences in perception and relationship with healthy eating. *American Journal of Health Promotion* , 13(2), 73-81. doi.org/10.4278/0890-1171-13.2.73
- Demas, A., Kindermann, D., & Pimentel, D. (2010). School meals: A nutritional and environmental perspective. *Perspectives in Biology and Medicine*, 53(2), 249-256. Baltimore, MD: Johns Hopkins University Press. doi:doi:10.1353/pbm.0.0160

- Denzin, N. K. (1978). *Sociological Methods*. New York, NY: McGraw-Hill.
- Diaz, R. J., & Rosenberg, R. (2008). Spreading dead zones and consequences for marine ecosystems. *Science*, *321*(5891), 926-929.
- Dillon, J., Rickinson, M., Sanders, D., Teamey, K., & Benefield, P. (2003). *Improving the understanding of food, farming and land management amongst school-age children: A literature review*. London, United Kingdom: National Foundation for Educational Research and King's College London.
- Dunn, E. (2008, August 8). The ex-Noma chef who wants to make school food reform the next big business. *The New Yorker*. Retrieved from <https://www.newyorker.com/culture/annals-of-gastronomy/the-ex-noma-chef-who-wants-to-make-school-food-reform-big-business>
- Edsource, (n.d.). Glossary. Retrieved from <https://edsources.org/glossary/average-daily-attendance-ada>
- Ericksen, P., Stewart, B., Dixon, J., Barling, D., Loring, P., Anderson, M., & Ingram, J. (2012). The value of a food system approach. In J. Ingram, P. Ericksen, & D. Liverman (Eds.), *Food security and global environmental change* (pp. 25–45). Oxon, United Kingdom, and New York: Taylor & Francis.
- Feenstra, G., Capps, S., Levings, K., James, E., Laurie, M., Maniti, M., & Lee, E. (2017). Getting the farm to the school: Increasing direct, local procurement in Yolo County schools. *California Agriculture*, *71*(3), 125-129. Retrieved from <https://doi.org/10.3733/ca.2017a0024>
- Fitch, C., & Santo, R. (2016). Instituting change: An overview of institutional food procurement and recommendations for improvement. *The Johns Hopkins Center for a Livable Future*,

*Editor*. Retrieved from [https://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-a-livable-future/research/clf\\_publications/pub\\_rep\\_desc/instituting-change.html](https://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-a-livable-future/research/clf_publications/pub_rep_desc/instituting-change.html)

Fornier, M. (2016). *Hardball leadership: How to achieve student academic success in a rural school district*. Lanham, MD: Rowman and Littlefield.

Fox, N., & Condon, E. (2012). *School Nutrition Dietary Assessment Study-IV: Summary of findings*. Washington, DC: U.S. Department of Agricultural, Food and Nutrition Services, Office of Research and Analysis.

Fox, M. & Gearan, E. (2019). *School nutrition and meal cost study summary of findings*. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service, Office of Policy Support. Retrieved from <https://www.mathematica.org>

Geist Rutledge, J. (2015). From charity to security: the emergence of the National School Lunch Program. *History of Education, 44*(2), 187-206.

Gibson, K. E., & Dempsey, S. E. (2015). Make good choices, kid: Biopolitics of children's bodies and school lunch reform in Jamie Oliver's Food Revolution. *Children's Geographies, 13*(1), 44-58. <https://doi.org/10.1080/14733285.2013.827875>

Gilbert, J., Schindel, A., & Robert, S. (2018). Just transitions in a public school food system: The case of Buffalo, New York. *Journal of Agriculture, Food Systems, and Community Development, 8*(B), 95-113. <https://doi.org/10.5304/jafscd.2018.08B.011>

Gore, A. (2006). *An inconvenient truth: The planetary emergency of global warming and what we can do about it*. New York, NY: Rodale.

- Greenhalgh, T., & Peacock, R. (2005). Effectiveness and efficiency of search methods in systematic reviews of complex evidence: Audit of primary sources. *British Medical Journal*, 331, Article 1064. <https://doi.org/10.1136/bmj.38636.593461.68>
- Griffin, A., & May, V. (2012). Narrative analysis and interpretative phenomenological analysis. In C. Seale (Ed.), *Researching society and culture* (pp. 441-458). London, United Kingdom: Sage.
- Gunderson, W. G. (2014). *National School Lunch Program (NSLP) background and development*. Washington, DC: USDA. Retrieved from <https://fns-prod.azureedge.net/sites/default/files/NSLP-Program%20History.pdf>
- Healthy, Hunger-Free Kids Act of 2010. Pub. L. 111-296 (2010).
- Hammersley, M., & Atkinson, P. (1989) *Ethnography: Principles in practice*. London, United Kingdom: Routledge.
- Harvard School of Public Health. (n.d.). Healthy eating plate [webpage]. Retrieved from <http://www.hsph.harvard.edu/nutritionsource/healthy-eating-plate-vs-usda-myplate>
- Henry J. Kaiser Family Foundation. (2007). Food for thought: Television food advertising to children in the United States. Retrieved from <http://kff.org/other/food-for-thought-television-food-advertising-to/>
- Hoffman, V., Srinivasan, M., Levin, M., & Scarmo, S. (2018). Operating school meal programs in rural districts: Challenges and solutions. *Journal of Child Nutrition and Management*, 42(1). Retrieved from [https://schoolnutrition.org/uploadedFiles/5\\_News\\_and\\_Publications/4\\_The\\_Journal\\_of\\_Child\\_Nutrition\\_and\\_Management/Spring\\_2018/Operating-School-Meals-in-Rural-Districts-Challenges-and-Solutions-Spring2018.pdf](https://schoolnutrition.org/uploadedFiles/5_News_and_Publications/4_The_Journal_of_Child_Nutrition_and_Management/Spring_2018/Operating-School-Meals-in-Rural-Districts-Challenges-and-Solutions-Spring2018.pdf)

Johnson, R., & Monk, J. (2018). Congressional Research Service. What is the Farm Bill?

Retrieved from <https://fas.org/sgp/crs/misc/RS22131.pdf>

Just, D. R., Wansink, B., & Hanks, A. S. (2014). Chefs move to schools. A pilot examination of how chef-created dishes can increase school lunch participation and fruit and vegetable intake. *Appetite*, 83, 242-247. Retrieved from <https://doi.org/10.1016/j.appet.2014.08.033>

Ken, I. (2014). Big business in the school cafeteria. *Contexts*, 13(3), 84-87. Retrieved from <https://doi.org/10.1177/1536504214545769>

Kogan, R. (2019, March 13). Rollback of nutrition standards not supported by evidence, Retrieved from the Health Affairs Blog Web site. doi:10.1377/hblog20190312.130704

Kuhlemeier, H., Van Den Bergh, H., & Lagerweij, N. (1999). Environmental knowledge, attitudes, and behavior in Dutch secondary education. *The Journal of Environmental Education*, 30(2), 4-14. doi:10.1080/00958969909601864

Ladies, G. S., Bartholomaeus, A., Bregitzer, P., Doerrler, N. G., Gray, A., Holzhauser, T., . . . & Parrott, W. (2015). Genetic basis and detection of unintended effects in genetically modified crop plants. *Transgenic Research*, 24(4), 587-603. Retrieved from <https://doi.org/10.1007/s11248-015-9867-7>

Lang, T., & Heasman, M. (2015). *Food wars: The global battle for mouths, minds and markets*. Abingdon, United Kingdom: Routledge.

Lappé, A. (2011). *Diet for a hot planet: the climate crisis at the end of your fork and what you can do about it*. New York, NY: Bloomsbury.

Lappé, F. M. (1971). *Diet for a small planet*. New York, NY: Ballantine.

- Larsen, J., Jhavar, M., Urahn, S., Coukell, A., Ratliff, J., Promislo, S., . . . & Branzelle, S. (2014). Serving healthy school meals in California. Retrieved from <https://www.pewtrusts.org/~media/assets/2014/11/kitscaliforniareport111214final.pdf>
- Learning Through Landscapes in London. (2003). *Grounds for celebration: Measuring the impact of school grounds projects in London*. Report from the London Electricity Group and Learning Through Landscapes in London Reception at the House of Commons, 23 January. London: LTL in London.
- Levine, S. (2018). Eating to learn, learning to eat: The origins of school lunch in the United States by Andrew R. Ruis (review). *Bulletin of the History of Medicine*, 92(2), 397-398. Johns Hopkins University Press. Retrieved March 22, 2019, from Project MUSE database.
- Løes, A. K., & Nölting, B. (2009). Organic school meal systems—towards a more sustainable nutrition. *Agronomy Research*, 7(Special issue II), 647-653. Retrieved from <http://orgprints.org/16335/1/LoesandNolting2009AgronomyResearchfinal.pdf>
- Lott, K., Richardson, P., & Rushing, K. (2018). *Calculating key performance indicators*. Arlington, VA: School Nutrition Association. Retrieved from [https://fns-prod.azureedge.net/sites/default/files/tn/LWPsummary\\_finalrule.pdf](https://fns-prod.azureedge.net/sites/default/files/tn/LWPsummary_finalrule.pdf)
- Mabie, R., & Baker, M. (1994). *Strategies for improving agricultural literacy and science process skills of urban fifth and sixth graders in the Los Angeles unified school district*. Paper presented at the Annual Western Region Agricultural Education Research Meeting, Honolulu, HI.
- March, L. D., & Gould, R. A. (2001). Indicators of financial self-sufficiency in Kansas school meal programs. *The Journal of Child Nutrition and Management*, 25, 30-34.



- McNeal, J. U. (1999). *The kids market: Myths and realities*. Rochester, NY: Paramount Market.
- Meadows, D. H. (2008). *Thinking in systems: A primer*. Hartford, VT: Chelsea Green.
- Merriam, S. B. (1998). *Qualitative research and case study applications in education. Revised and expanded from case study research in education*. San Francisco, CA: Jossey-Bass.
- Merriam-Webster. (n.d.). Agroecology. Retrieved from <https://www.merriam-webster.com/dictionary/agroecology>
- Meunier, R. A., Talbert, B. A., & Latour, M. A. (2002). Evaluation of the incubators in the classroom program: Does it increase fourth grade students' knowledge of agriculture-related science concepts? *Journal of Agricultural Education*, 43, 3, 49–59. Retrieved from <https://doi.org/10.5032/jae.2002.03049>
- Miles, M. B., & Huberman, M. (1994). *Qualitative data analysis: An expanded sourcebook*. Thousand Oaks, CA: Sage.
- Morgan, K., & Sonnino, R. (2013). *The school food revolution: Public food and the challenge of sustainable development*. New York, NY: Routledge.
- Morrison, M. (1996). A curriculum for food: places left at the school table? *Curriculum Journal*, 7(1), 51–73. doi:10.1080/0958517960070105
- deMunck, V. C. & Sobo, E. J. (Eds). (1998). *Using methods in the field: A practical introduction and casebook*. Walnut Creek, CA: AltaMira.
- National Center for Education Statistics. (n.d). *Public elementary and secondary school enrollment, number of schools, and other selected characteristics, by locale: Fall 2012 through fall 2015*. Retrieved from [https://nces.ed.gov/programs/digest/d17/tables/dt17\\_214.40.asp](https://nces.ed.gov/programs/digest/d17/tables/dt17_214.40.asp)

- National Institute of Health. (n.d.). Childhood obesity prevention. Retrieved from <http://www.nhlbi.nih.gov/health/educational/wecan/about-wecan/background.htm>
- National School Lunch Act of 1946. Pub. L. 396 (1946).
- National School Lunch Program. (2015). *History of Education*, 44(2), 187-206.  
doi:10.1080/0046760X.2014.979252
- Nestle, M. (2013). *Food politics: How the food industry influences nutrition and health* (Vol. 3). Berkeley, California: University of California Press.
- Nestle, M., & Wilson, T. (2012). Food industry and political influences on American nutrition. In *Nutritional Health* (pp. 477-490). Totowa, NJ: Humana Press.
- O'Hagan, M. (2010, September 25). School lunch has so many issues to chew on, it's tough to change. *Seattle Times*. Retrieved from <http://seattletimes.nwsourc.com/html/pacificnw>
- Ogden, C. L., Carroll, M. D., Kit, B. K., & Flegal, K. M. (2014). Prevalence of childhood and adult obesity in the United States, 2011-2012. *Journal of American Medical Association*, 311(8), 806-814.
- Ollinger, M., & Guthrie, J. (2015). *Economies of scale, the lunch-breakfast ratio, and the cost of USDA school breakfasts and lunches* (Economic Research Report No. 196). United States Department of Agriculture, Economic Research Service. Retrieved from [https://www.ers.usda.gov/webdocs/publications/45438/54357\\_err-196.pdf?v=42313](https://www.ers.usda.gov/webdocs/publications/45438/54357_err-196.pdf?v=42313)
- Ollinger, M., Ralston, K., & Guthrie, J. (2011). *School foodservice costs: Location matters*. (Economic Research Report Number 117). Washington, DC: U.S. Department of Agriculture. Retrieved from <https://eric.ed.gov/?id=ED521217>
- Patton, M. Q. (1999). Enhancing the quality and credibility of qualitative analysis. *Health Services Research*, 34(5), Part II, pp. 1189-1208.

- Patton, M. Q. (2002). Two decades of developments in qualitative inquiry: A personal, experiential perspective. *Qualitative Social Work, 1*(3), 261-283.
- Patton, M. Q. (2015). *Qualitative research and evaluation methods: Integrating theory and practice* (4th ed.). Thousand Oaks, CA: Sage.
- Petřini, C. (2010). *Terra Madre: Forging a new global network of sustainable food communities*. White River Junction, VT: Chelsea Green.
- Piaget, J. (1959). *The language and thought of the child* (Vol. 5). Chicago, IL: Psychology.
- Pollan, M. (2009). *Food rules: An eater's manual*. London, United Kingdom: Penguin.
- Pollan, M. (2010, May). The food movement, rising. *New York Books Review*. Retrieved from <https://michaelpollan.com/articles-archive/the-food-movement-rising/>
- Poppendieck, J. (2010). *Free for all: Fixing school food in America* [Kindle version]. Retrieved from [https://www.amazon.com/Free-All-America-California-Studies-ebook/dp/B005W2QJW4/ref=mt\\_kindle?\\_encoding=UTF8&me=](https://www.amazon.com/Free-All-America-California-Studies-ebook/dp/B005W2QJW4/ref=mt_kindle?_encoding=UTF8&me=)
- Ralston, K., & Newman, C. (2015, August). School meals in transition. (Economic Research Service, Economic Information Bulletin Number 143). Washington, DC: U.S. Department of Agriculture. Retrieved from [https://www.ers.usda.gov/webdocs/publications/44003/53570\\_eib143.pdf?v=0](https://www.ers.usda.gov/webdocs/publications/44003/53570_eib143.pdf?v=0)
- Ralston, K. Newman, C., Clauson, A., Guthrie, J., & Buzby, J. (2008). *The national school lunch program: Background, trends, and issues*. (Economic Research Report Number 61). Washington, DC: U.S. Department of Agriculture. Retrieved from <https://files.eric.ed.gov/fulltext/ED502404.pdf>
- Ratnieks, F. L. W., & Carreck, N. L. (2010). Clarity on honey bee collapse? *Science, 327*(5962), 152–153. doi:10.1126/science.1185563

- Rauzon, S., Wang, M., Studer, N., & Crawford, P. (2010). *Changing students' knowledge, attitudes and behavior in relation to food: An evaluation of the school lunch initiative*. Berkeley, CA: University of California at Berkeley, College of Natural Resources and School of Public Health. Center for Weight and Health,. Retrieved from [http://www.schoollunchinitiative.org/pdfs/sli\\_eval\\_full\\_report\\_2010.pdf](http://www.schoollunchinitiative.org/pdfs/sli_eval_full_report_2010.pdf)
- Rivas, C. (2012). Coding and analysing qualitative data. *Researching society and culture*, 3, 367-392.
- Roberts, C. M. (2010). *The dissertation journey: A practical and comprehensive guide to planning, writing, and defending your dissertation*. Thousand Oaks, CA: Corwin.
- Roza, M., & Swartz, C. (2007). School spending profiles: A framework to enlighten resource allocation decisions. *Public Budgeting and Finance*, 27(1), 69-85. doi:10.1111/j.1540-5850.2007.00869.x
- Ruis, A. R. (2017). *Eating to learn, learning to eat: The origins of school lunch in the United States*. New Brunswick, NJ: Rutgers University Press.
- Salatin, J. (2007). *Everything I want to do is illegal: War stories from the local food front*. Swoope, VA: Polyface Farm. doi:10.1080/10496500802487982
- Salatin, J. (2011). *Folks, this ain't normal: A farmer's advice for happier hens, healthier people, and a better world*. New York, NY: Hachette.
- Saloutos, T. (1974). New Deal agricultural policy: An evaluation. *The Journal of American History*, 61(2), 394-416. doi:10.2307/1903955
- Schensul, S. L.; Schensul, J. J., & LeCompte, M. D. (1999). *Essential ethnographic methods: observations, interviews, and questionnaires* (Book 2 in Ethnographer's Toolkit). Walnut Creek, CA: AltaMira.

- School Milk Nutrition Act of 2015-2016. H.R. 2407, 114th Cong. (2015-2016).
- School Nutrition Association. (2019). School nutrition professionals: Roles and responsibilities. Retrieved from <https://schoolnutrition.org/AboutSchoolMeals/SNPRolesResponsibilities/>
- School Nutrition Association. (2020). School meal trends and stats. Retrieved from <https://schoolnutrition.org/aboutschoolmeals/schoolmealtrendsstats/#4>
- Senge, P. (2006a). The leaders new work: Building learning organizations. In J. V. Gallos (Ed.), *Organization development* (pp. 765-792). San Francisco, CA: Jossey-Bass.
- Senge, P. M. (2006b). *The fifth discipline: The art and practice of the learning organization*. Broadway Business.
- Senge, P. M., & Sterman, J. D. (1992). Systems thinking and organizational learning: Acting locally and thinking globally in the organization of the future. (pp. 353-370)
- Shute, N. (2011, December 12). Local senator pushes local pears for school lunches. *The Salt, National Public Radio*. Retrieved from [http://www.npr.org/sections/thesalt/2011/12/12/143588970/2012903500\\_pacificplunch26.htm/oregon-senator-pushes-local-pears-for-school-lunches](http://www.npr.org/sections/thesalt/2011/12/12/143588970/2012903500_pacificplunch26.htm/oregon-senator-pushes-local-pears-for-school-lunches)
- Smeds, P. (2017). *Farm education: Sustainability, food and education* (Doctoral dissertation). Natural Resources Institute Finland (Luke), Helsinki, Finland.
- Spradley, J. (1979). *The ethnographic interview*. New York, NY: Holt, Rinehart and Winston.
- Steward, J. (1955). *Theory of culture change: The methodology of multilineal evolution*. Urbana, IL: University of Illinois Press.
- Svenfelt, A. & Milestad, R., & Jansson, A-M.. (2005). On the importance of tightening feedback loops for sustainable development of food systems. *Food Policy*, 30. 224-239. 10.1016/j.foodpol.2005.02.003.

- Swan, E., & Flowers, R. (2015). *Food pedagogies*. Ashgate..
- Tonti, L. (2017). Food for thought: Flexible farm to school procurement policies can increase access to fresh, healthy school meals. *Health Matrix*, 27, 463. Retrieved from <https://scholarlycommons.law.case.edu/healthmatrix/vol27/iss1/16/>
- U.S. Department of Agriculture. USDA (2012, January 26). *Nutrition standards in the National School Lunch and School Breakfast Programs* (Vol. 77). Fed. Reg. 4088 (Thursday, Jan. 26, 2012). Retrieved from <https://www.gpo.gov/fdsys/pkg/FR-2012-01-26/pdf/2012-1010.pdf>
- U.S. Department of Agriculture. (2014). Community eligibility provision: Guidance and Q&As-revised. Retrieved from <https://www.education.nh.gov/program/nutrition/documents/cepsp21-2014v2s.pdf>
- U.S. Department of Agriculture. (2015). *The community eligibility provision (CEP): What does it mean for your school or local educational agency?* Retrieved from ERIC database. (ED577156)
- U.S. Department of Agriculture, Food and Nutrition Service, National School Lunch Program. (2018). Feeding the future with healthy school lunches. Retrieved from <https://www.fns.usda.gov/nslp/national-school-lunch-program-nslp>
- U.S. Department of Agriculture. (2019). Food and nutrition services. Retrieved from <https://www.fns.usda.gov/tn/local-school-wellness-policy>
- U.S. Department of Agriculture, Economic Research Service. (2008). Irrigation and water use. Retrieved from <https://www.ers.usda.gov/topics/farm-practices-management/irrigation-water-use.aspx>

- U.S. Department of Agriculture, Economic Research Service. (2018a). Frontier and remote area codes. Retrieved from <https://www.ers.usda.gov/data-products/frontier-and-remote-area-codes/>
- U.S. Department of Agriculture, Economic Research Service. (2018b). National school lunch program. Retrieved from <https://www.ers.usda.gov/topics/food-nutrition-assistance/child-nutrition-programs/national-school-lunch-program.aspx>
- U.S. Department of Agriculture, Economic Research Service. (2019). Food consumption and demand. Retrieved from <https://www.ers.usda.gov/topics/food-choices-health/food-consumption-demand/>
- U.S. Department of Agriculture, Food and Nutrition Service. (2012). Just the facts! Meeting the challenge of rising food costs for healthier school meals. Retrieved from [https://permanent.access.gpo.gov/gpo59422/jtf\\_costs.pdf](https://permanent.access.gpo.gov/gpo59422/jtf_costs.pdf)
- U.S. Department of Agriculture, Food and Nutrition Service. (2017, July 8). *National school lunch, special milk, and school breakfast programs, national average payments/maximum reimbursement rates 2017, Vol 82*. Fed. Reg. 35177 (Friday, July 28, 2017). Retrieved from <https://www.gpo.gov/fdsys/pkg/FR-2017-07-28/html/2017-15956.htm>
- U.S. Department of Agriculture, Food and Nutrition Service. (2018, May 8). *Child nutrition programs: Income eligibility guidelines, Vol. 83*, Fed. Reg. 20788 (Tuesday, May 8, 2018). Retrieved from <https://www.gpo.gov/fdsys/pkg/FR-2018-05-08/pdf/2018-09679.pdf>
- U.S. Department of Agriculture, Food and Nutrition Service; U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; and U.S. Department of

- Education. (2005). *Making it happen! School Nutrition Success Stories*, January.  
Retrieved from <http://www.fns.usda.gov/TN/Resources/makingithappen.html>.
- U.S. Department of Agriculture Regulation, 7 CFR § 210.2 – Definitions (2016). (53 Fed. Reg. 29147).
- U.S. Department of Agriculture Regulation, 7 CFR § 210.14 - Resource management (2016).
- U.S. Department of Agriculture Regulation, 7 CFR § 210.19 - Additional responsibilities (2016).
- U.S. Department of Education. (2018). Section 5005 report on rural education final report.  
Retrieved from <https://www2.ed.gov/about/inits/ed/rural/rural-education-report.pdf>
- U.S. Government Accountability Office. (2005). School meal programs: Competitive foods are widely available and generate substantial revenues for schools. Retrieved from <http://www.gao.gov/new.items/d05563.pdf>
- U.S. House of Representatives, Committee on Agriculture, *Committee on Agriculture Report*, 79th Congress (1946, June 4) Pub L. No.396, 60 Stat. 231. Retrieved from <http://legisworks.org/congress/79/publaw-396.pdf>
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Walsh, D. (2012). Doing ethnography. In C. Seale (Ed.), *Researching society and culture* (pp. 246-258). London, United Kingdom: Sage.
- Weis, L. (1992). Food for America: A day at the farm for third graders, *The Agricultural Education Magazine*, 64(11), 5–6. Retrieved from [https://www.naae.org/profdevelopment/magazine/archive\\_issues/Volume64/Vol64\\_No11.pdf](https://www.naae.org/profdevelopment/magazine/archive_issues/Volume64/Vol64_No11.pdf)
- Weaver-Hightower, M. B. (2011). Why education researchers should take school food seriously. *Educational researcher*, 40(1), 15-21. doi:10.3102/0013189x10397043



- Williams, D. L., & Wise, K. L. (1997). Perceptions of Iowa secondary school agricultural education teachers and students regarding sustainable agriculture, *Journal of Agricultural Education*, 38, 2, 15–20.
- Woodward, A., & Porter, J. R. (2016). Food, hunger, health, and climate change. *The Lancet*, 387(10031), 1886-1887. doi:10.1016/S0140-6736(16)00349-4
- World Health Organization. (2009). Global health risks: Mortality and burden of disease attributable to selected major risks. Retrieved from <http://www.thehealthwell.info/node/9612>
- Yettik, H., Baker, R., Wickersham, M., & Hupfeld, K. (2014). Rural districts left behind? Rural districts and the challenges of administering the Elementary and Secondary Education Act. *Journal of Research in Rural Education*. 29(13):1–15.
- Yin, R. K. (2003). *Case study research: Design and methods*. Thousand Oaks, CA: Sage.

## APPENDIX A: INVITATION TO PARTICIPATE

Dear XX,

As a doctoral student at the University of New England, I am conducting a study about what supports and impedes a small, rural, school lunch program in maintaining a balanced cafeteria budget. Ultimately, the goal of this study is to identify key practices that have contributed to a program's success. These findings may be helpful to other small rural school districts.

You are invited to participate in:

- A 15-20 minute paper survey
- A one-on-one, 60 minute interview at your school site

I will also request to schedule time to observe a work shift in the cafeteria and will email you a separate request for the following documents to be included in the artifact analysis.

- 2018/19 cafeteria budget
- 2018/19 annual California Nutrition Information and Payment System (CNIPS) summary report
- District Wellness Policy
- 2-3 cafeteria production records

If you are willing to participate, please review the attached consent form (which I have also sent to you in the mail). If you have any questions about the study, please email me at [rslentz@une.edu](mailto:rslentz@une.edu) or call me at (707) 834-0786.

I will visit your school site as soon as you email me confirming that your signed consent form is ready to be collected. During that visit I will make a copy for you and provide you with the paper survey. Once the survey is completed you may return it via email or mail, or request it to be picked up. After I have received your completed survey I will call to confirm your preferred interview date and time.

Regards,  
Rosie Slentz

## APPENDIX B: INTERVIEW PROTOCOL

Job role:

Location:

Date:

Time start:

Time end:

Permission to record? Y N

Introduction script:

*Thank you for sitting down with me today. As you know, my name is Rosie and I'm a doctoral candidate at the University of New England. I'm going to ask you a few quick questions to get us started before we begin a deeper conversation about the very successful School Lunch Program here. But first I want to confirm that you agree to have this interview recorded with a digital recorder. Is that okay?*

*The interview questions are organized along three different themes based upon the research questions and conceptual framework of the study. Predetermined questions were generated concerning demographic information, what supports or impedes a sustainable school lunch program in a small rural school, and the school food system.*

## APPENDIX C: EMAIL REQUESTING 2018-2019 DOCUMENTS

To: Superintendent/Principal  
CC: Business Manager; Nutrition Director

Dear XX,

I am appreciative that you are willing to participate in my research to glean best practices for small, rural, school lunch programs. To have a more complete understanding of the National School Lunch Program at your district, I would like to review some specific documents, listed below. Thank you for sharing these documents with me so they can be analyzed as a part of my comprehensive study. Please email the digital files to me at [rslentz@hcoe.org](mailto:rslentz@hcoe.org).

- 2018/19 cafeteria budget
- 2018/19 annual CNIPS summary report
- District Wellness Policy
- 2-3 cafeteria production records

My research timeline necessitates that I review these documents within the week. If you have questions, or if you anticipate a delay in sharing the files, please let me know by calling (707) 834-0786 or by emailing [rslentz@hcoe.org](mailto:rslentz@hcoe.org).

Regards,  
Rosie Slentz

## APPENDIX D: SURVEY QUESTIONS

Please answer these questions to the best of your ability with information pertaining to the SY 2018-2019. If you do not know or do not have access to the information, or do not want to answer, you may disregard the question.

(Circle your answer choice.)

1. What is your job role at the district?
  - a. Administrator
  - b. Business Manager
  - c. Nutrition Director
  - d. Other
  
2. What is your age range?
  - a. 0-17
  - b. 18-45
  - c. 46-65
  - d. 65 or older
  
3. What is your education level? (Circle all that apply)
  - a. Completed high school
  - b. Completed some college or technical training
  - c. College graduate (BA or BS)
  - d. Attained specialized certification or credentialing
  - e. Masters degree
  - f. Doctorate degree
  
4. Estimated percentage of cafeteria budget spent on personnel:
  - a. Less than 10%
  - b. 11% to 25%
  - c. 26% to 50%
  - d. 51% to 75%
  - e. Greater than 75%
  
5. Estimated percent of cafeteria budget spent on nonfood supplies?
  - a. Less than 10%
  - b. 11% to 25%
  - c. 26% to 50%
  - d. 51% to 75%
  - e. Greater than 75%
  
6. Estimated percent of cafeteria budget spent on food?
  - a. Less than 10%
  - b. 11% to 25%
  - c. 26% to 50%

- d. 51% to 75%
  - e. Greater than 75%
7. Estimated percent of cafeteria budget spent on professional development or training for cafeteria staff (including nutrition director)?
- a. Less than 10%
  - b. 11% to 25%
  - c. 26% to 50%
  - d. 51% to 75%
  - e. Greater than 75%
8. Estimated percent of cafeteria budget spent on waste removal expenses (e.g., lunch waste)?
- a. Less than 10%
  - b. 11% to 25%
  - c. 26% to 50%
  - d. 51% to 75%
  - e. Greater than 75%
9. What was the estimated 2018/19 average participation rate for the:
- a. Breakfast program
    - i. 0-25%
    - ii. 26%-50%
    - iii. 51%-75%
    - iv. 76%-100%
  - b. Lunch program
    - i. 0-25%
    - ii. 26%-50%
    - iii. 51%-75%
    - iv. 76%-100%
  - c. After School snack program
    - i. 0-25%
    - ii. 26%-50%
    - iii. 51%-75%
    - iv. 76%-100%
10. Does the district participate in the Community Eligibility Program?
- a. Yes
  - b. No
  - c. Not sure
11. Approximately how many vendors are used by the cafeteria, excluding commodities?
- a. 1-5
  - b. 6-10
  - c. 11-15

- d. More than 15
12. What is the approximate percent of ingredients provided by local farmers/vendors?
- a. 0-25%
  - b. 26%-50%
  - c. 51%-75%
  - d. 76%-100%
13. Is there an active Wellness Committee?
- a. Yes
  - b. No
  - c. Not sure
14. Are there competitive foods (such as soda or chips) sold on campus?
- a. Yes
  - b. No
  - c. Not sure

Likert Scales: 1-4

The following questions can be answered by selecting a value within the range of 1-4.  
1: Low, 2: Medium, 3: Above Average, 4: High

15. Your perceived competence in skills needed for your role in relation to the food program (grant writing/reporting, computer skills, marketing, budget management, staff management, food-handling, nutrition, community collaboration, procurement, recipe creation, food systems education, garden education)
- a. Low competence in job skills (1)
  - b. Medium competence in job skills (2)
  - c. Above average competence in job skills (3)
  - d. High competence in job skills (4)
16. Your overall perceived competence at performing the job (regardless of skill level)
- a. Low competence at job performance (1)
  - b. Medium competence at job performance (2)
  - c. Above average competence at job performance (3)
  - d. High competence at job performance (4)
17. Job satisfaction
- a. Low satisfaction with job (1)
  - b. Medium satisfaction with job (2)
  - c. Above average satisfaction with job (3)
  - d. High satisfaction with job (4)

## 18. Perceived level of autonomy in job role

- a. Low level of autonomy in job role (1)
- b. Medium level of autonomy in job role (2)
- c. Above average level of autonomy in job role (3)
- d. High level of autonomy in job role (4)

## 19. Perceived level of support for job requirements

- a. Low level of support for job requirements (1)
- b. Medium level of support for job requirements (2)
- c. Above average level of support for job requirements(3)
- d. High level of support for job requirements (4)

## 20. Perceived student satisfaction with food quality

- a. Low student satisfaction with food quality (1)
- b. Medium student satisfaction with food quality (2)
- c. Above average student satisfaction with food quality (3)
- d. High student satisfaction with food quality (4)

## 21. Perceived parent satisfaction with food quality

- a. Low parent satisfaction with food quality (1)
- b. Medium parent satisfaction with food quality (2)
- c. Above average parent satisfaction with food quality (3)
- d. High parent satisfaction with food quality (4)

## 22. Are you willing to participate in a one on one, semi structured interview? The interview will be approximately one hour. It will take place with the researcher at your school site.

- a. Yes
- b. No
- c. Not sure

## 23. If so, which one of the following dates and times would you prefer to be interviewed?

- a. Oct. 29, 9am-10am
- b. Oct. 29, 11am-12pm
- c. Nov. 4, 2pm-3pm
- d. Nov. 4, 4pm-5pm
- e. Nov. 5, 2pm-3pm
- f. Nov. 5, 4pm-5pm
- g. Nov. 6, 2pm-3pm



- h. Nov. 6, 4pm-5pm
- i. Other:

24. Please provide your name and the contact information for your preferred method of communication to confirm your interview time. Understand that by providing contact information, your answers are no longer anonymous, but will be kept confidential.

Name:

Contact information:

Thank you for participating. Please email [rslentz@une.edu](mailto:rslentz@une.edu) a scanned copy of this completed survey or request to have it picked up in person.

## APPENDIX E: CONSENT FOR PARTICIPATION IN RESEARCH

**Project Title:** The Value of Good Food: Improving Lunch in Small Rural Schools

**Principal Investigator(s):** Rosie Slentz, Doctoral Student, UNE, [rslentz@une.edu](mailto:rslentz@une.edu).

**Faculty Advisor:** Heather Wilmot, Ed.D Lead Advisor, UNE, [hwilmont@une.edu](mailto:hwilmont@une.edu).

### **Introduction:**

Please read this form, or request that the form is read to you. The purpose of this form is to provide you with information about this research study, and if you choose to participate, document your decision.

You are encouraged to ask any questions that you may have about this study, now, during or after the project is complete. You can take as much time as you need to decide whether or not you want to participate. Your participation is voluntary.

### **Why is this study being done?**

The goal of this research is to learn more about what supports and impedes a small, rural, school lunch program in maintaining a balanced cafeteria budget and to share the best practices of a small, rural district.

### **Who will be in this study?**

Participants in this study will be current employees in a local, rural school district in northern California who are affiliated with the K-12 nutrition program. You must be at least 18 years of age to participate.

### **What will I be asked to do?**

You will be asked to complete this survey and participate in a follow-up, 60 minute in-person interview.

This survey has two sections and will take approximately 15 minutes to complete. Your responses will help me to better understand the context of your school lunch program and the people and processes involved.

The interview will take place at your school site in a private room for confidentiality.

During the interview, basic demographic questions will be asked as well as more in-depth questions related to the School Lunch Program at your district.

The interview will be audio recorded. The interview will be transcribed by the transcription service Rev.com. Once transcribed, it will be returned to you as an attachment by email. The email will be marked confidential.

You will be asked to review the interview transcript within 72 hours to verify that the researcher has accurately recorded your statements.

Once the transcripts have been reviewed, you will email the researcher with your approval for use in the study.

You may also be observed during a work shift in the cafeteria, if this is part of your professional role.

### **What are the possible risks of taking part in this study?**

There are limited risks associated with participation in this study. A reader may discern who the participants are because of the small population.

### **What are the possible benefits of taking part in this study?**

There are no direct benefits to you for participating in this study; however, other small rural districts may benefit from learning strategies to support a financially solvent school lunch program.

### **What will it cost me?**

There are no costs to participate in the study.

### **How will my privacy be protected?**

The interview will take place in a private room on campus for confidentiality.

The study will be published because of the researcher's goal of obtaining a Doctorate degree. Participant names nor will the name of the site will be included in any reports or publications related to this study.

The institution may ask for a copy of the study once completed, but no identifiable information will be supplied.

### **How will my data be kept confidential?**

Your name and the study site will be available to the researcher, but will not be made public at any time. A code will be used in place of your name in all study documents and the published study.

The interview will be recorded with the voice memo app on the researcher's iPhone that is password protected.

All data that the researcher collects will be kept confidential.

The researcher follows all standards set forth by the University of New England. Records or data obtained as a result of your participation in this study may be inspected by the persons conducting this study and/or by the University of New England's Institutional Review Board,

Research records will be stored on a password-protected computer and online account that is accessible only by the researcher.

Data will be coded using Microsoft Excel using the participant code on a password-protected computer.

All information collected will be kept for 1 year from completion date of the study.

The regulatory agency, dissertation advisors and the Institutional Review Board may review the research records.

All audio recordings will be kept on a secure, on a password-protected computer as well as the secure "cloud" drive of the researcher.

The recordings will be deleted after a member check of the transcriptions takes place. Any printed transcripts will be cross-shredded.

### **What are my rights as a research participant?**

Your participation is voluntary. Your decision to participate will have no impact on your current or future relations with the district, researcher, the University of New England or the Humboldt County Office of Education.

You may skip or refuse to answer any question for any reason.

You may stop participation in this study at any time and at any point in the study.

If you choose not to participate there is no penalty to you. You are free to withdraw from this research study at any time, for any reason. If you choose to withdraw from the research there will be no penalty to you.

You will be informed by email of any significant findings developed during the course of the research that may affect your willingness to participate in the research.

If you would like to request a copy of the research findings, please contact Rosie R. Slentz, Doctorate Student, at [rslentz@une.edu](mailto:rslentz@une.edu) after May 31, 2020.

### **What other options do I have?**

You may choose not to participate.

### **Whom may I contact with questions?**

The researcher conducting this study is Rosie R. Slentz. For questions or more information concerning this research you may contact her at 707-834-0786 and/or [rslentz@une.edu](mailto:rslentz@une.edu). You may also contact the student's faculty advisor Dr. Heather Wilmot at [hwilmot@une.edu](mailto:hwilmot@une.edu). If you choose to participate in this research study and believe you may have suffered a research related injury, please contact Dr. Heather Wilmot, [hwilmot@une.edu](mailto:hwilmot@une.edu).

If you have any questions or concerns about your rights as a research subject, you may call Mary Bachman DeSilva, Sc.D., Chair of the UNE Institutional Review Board at (207) 221-4567 or [irb@une.edu](mailto:irb@une.edu).

### **Will I receive a copy of this consent form?**

You will be given an electronic copy of this consent form. It will be provided to the email address that you include below.

### **Participant's Statement**

**I understand the above description of this research and the risks and benefits associated with my participation as a research subject. I agree to take part in the research and do so voluntarily.**

Printed Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Email Address: \_\_\_\_\_

### **Researcher's Statement**

**The participant named above had sufficient time to consider the information, had an opportunity to ask questions, and voluntarily agreed to be in this study.**

Printed Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## APPENDIX F: INTERVIEW QUESTIONS

## Demographic Questions:

1. What is your role at the district?
2. How many school lunches are served on an average day?
3. Tell me about the meal schedule. For example:
  - a. Is recess before or after lunch?
  - b. How much time do students have to eat?
  - c. Do students eat with teachers?
  - d. What else you can share about the meal schedule?
4. How would you describe the cafeteria environment in your school? For example:
  - a. Describe the lunch line routine
  - b. Describe the noise level
  - c. Tell me about behavior monitoring systems during lunch
  - d. In what ways is it pleasant or inviting for students?
  - e. In what ways could it be improved?

What else would you like to share about the cafeteria environment?

5. How is the lunch line staffed?
  - a. What adults are in the cafeteria during mealtimes and what are their roles?
  - b. Are students helping? If so, what types of tasks do students do? What is their grade range?
6. Tell me about the kitchen workspace and equipment.
  - a. Do you feel the equipment is adequate? Is there anything you are missing or could do without? Discuss how your workspace and equipment might influence what and how you serve.
  - b. What do you do if you run out of space in your refrigerator or freezer?
  - c. What do you do if you don't have enough prep space?
  - d. How would you describe the preparation of food in terms of processed components and made-from-scratch?
  - e. Which menu items require the most prep time? How often do you serve these?
  - f. Which menu items are really simple to make? How often do you serve these?
7. How is the menu developed? What are some of the things you take into consideration? For example:
  - a. Breakfast or snack menu?
  - b. Leftovers?
  - c. Refrigerator/Freezer space, oven/stove capacity?
  - d. time/labor required?

- e. Price of ingredients?
- f. Nutritional requirements?
- g. Seasonality of ingredients?
- h. Student or parent requests?
- i. Student favorites?
- j. Collaboration with local farmers? (Taco Tuesday)

What else would you like to share concerning menu development?

8. Tell me about recipe development and testing. For example:
  - a. How do you get your recipes?
  - b. How do you test the recipes?
  - c. How often do you add new items or recipes to the lunch menu?
  
9. Describe the procurement process.
  - a. How do you decide where to purchase food and what to purchase?
  - b. Can you tell me about your district's use of commodity foods?
  - c. Approximately what portion of your ingredients are commodity products? What kind of cost savings are realized to the cafeteria budget?
  - d. What are the particular commodity items that you prefer using or avoid using?
  
10. What are the different roles of people involved with the cafeteria program?
  
11. Tell me about staffing the cafeteria. For example:
  - a. Explain the distribution of labor hours during the school day
  - b. Does the staff bring any particular areas of expertise?
  
12. Tell me about training for those involved in the lunch program? For example:
  - a. Who gets training?
  - b. What kind of training is available?
  - c. What are the costs or challenges involved in someone receiving training? For example, finding a substitute, or distance from training location...
  - d. How frequent is training offered/received?
  - e. Who decides what training is necessary?
  
13. How would you describe the food values of the families you serve? For example:
  - a. What is important to them (and how do you know)?
  - b. How is that reflected in the program design?
  - c. How do they know it has been considered?
  
14. How is information about the School Lunch Program communicated to students and families? (prices, menu, nutrition education, ingredients, staffing)
  - a. What kind of information is found on the school Web site?
  - b. What kind of printed information is sent home with students?

15. Are there avenues for student, staff, or parent input and feedback on the food, service, or cafeteria environment?
16. What are some of the initiatives or projects on campus that support the success of the School Lunch Program? For example:
  - a. Gardening
  - b. Wellness Policy
  - c. Classroom cooking
  - d. Are there any other initiatives or projects that support the success of the School Lunch Program?
17. Describe some of the nutrition education efforts that take place on campus.
  - a. What is working well?
  - b. Tell me about student involvement in the garden.
18. What are some things about the program that make it unique or special? What do you do differently than other school lunch programs in the area?
19. What are you particularly proud of regarding the School Lunch Program?
20. What are some things that make running the NSLP challenging for you?
21. What are the biggest reasons for the financial success of your program?
22. What are some challenges you have overcome that made running the NSLP challenging for your district? Tell me more about that.
23. What are some areas that would make your program even more successful? What keeps you from pursuing these changes?
24. Who can make changes in the program? Describe the process for making those changes.
25. If you were helping another lunch program of similar size in the county, what advice would you give them?



## APPENDIX G: EMAIL REQUESTING MEMBER-CHECK

To: AA/BB/CC

Dear AA/BB/CC,

Thank you for participating in my research study. Attached you will find the transcription from our recent interview together. Please review the transcript and confirm that it accurately captures our conversation. If you see errors, please respond by email [rslentz@hcoe.org](mailto:rslentz@hcoe.org) within 72 hours so that I may make corrections and resubmit to you for a second review.

If I do not hear back within 72 hours I will presume that you approve the attached transcription.

Have a wonderful day,  
Rosie Slentz

Attachments: Interview Transcription

## DUNE: DIGITALUNE CONTRIBUTOR AGREEMENT

**LICENSE GRANT:** In consideration of the University of New England (together with any of its parents, subsidiaries or affiliates, "UNE") making my work available via DUNE: DigitalUNE, I do hereby grant UNE a nonexclusive, royalty-free, perpetual, irrevocable, fully assignable and fully sublicensable right and license to reproduce, display, perform, modify, create derivative works from, maintain and share copies of my original work noted above ("Submission") via DUNE: DigitalUNE, under and pursuant to the terms and conditions of this Agreement. UNE reserves the right to refuse or remove my Submission at any time and for any reason it deems appropriate.

**REPRESENTATION OF ORIGINAL AUTHORSHIP:** I represent and warrant that I have all rights, title and interests necessary to grant the license and permissions contained within this Agreement.

**COPYRIGHT:** I certify, represent and warrant that (i) I have full power and authority to enter into this Agreement and to submit my Submission to DUNE: DigitalUNE; (ii) the execution, delivery and performance of this Agreement does not violate the terms of any agreement or contract (oral or written) to which I am bound; (iii) the Submission does not and will not, as a result of use by UNE or any other party authorized by UNE as part of DUNE: DigitalUNE, violate or infringe any intellectual property or other rights of any third party, including, without limitation, any copyrights, patents, trade secrets, or trademarks; and (iv) the Submission does not and will not, as a result of use by UNE or any other party authorized by UNE as part of DUNE: DigitalUNE constitute defamation, invasion of privacy, or a violation of publicity or other rights of any person or entity. If portions of my Submission, including, without limitation, video, images, music, or data sets, are owned by third parties, I hereby represent that I have obtained all permissions and consents necessary to use such materials within my Submissions and to make such available via DUNE: DigitalUNE, and that all such third party materials are appropriately acknowledged and cited as part of my Submission. Furthermore, if my work includes interviews or other depictions of individuals, I have included signed permissions from such individuals allowing me to use their name and/or likeness within my Submission and to make such available via DUNE: DigitalUNE. In the event that a third party files an action or claim against UNE based on any misrepresentation I have made in this Agreement and/or as a result of my breach of this Agreement, then I agree to defend, indemnify, and hold harmless, UNE and its successors and assigns, officers, directors, agents, and employees, against any such action or claim, as well as any resulting loss, liability, or damage whatsoever (including, but not limited to, the reasonable expenses of investigation and defending against any claim or suit, any amount paid in settlement thereof, and any reasonable attorneys' fees). In the event of such a claim, I agree to cooperate with UNE in the defense of such matter and agree that UNE may, at its election, control the defense of such matter. I further agree to reimburse UNE for all costs and expenses, including, without limitation, reasonable attorneys' fees, incurred by UNE should I breach this Agreement and UNE is required to enforce any provision of this Agreement.

**ACCESS AND USE:** My Submission, or portions thereof, will be maintained in an open access online digital environment via DUNE: DigitalUNE. The Submission, irrespective of its access

level, is intended for educational purposes only. Signing this document neither endorses nor authorizes the commercial use of my Submission in DUNE: DigitalUNE by UNE or any other person or organization, but I acknowledge that UNE will not and cannot control the use of my Submission by others. Liability for any copyright infringement of my Submission, downloaded from DUNE: DigitalUNE, will fall solely upon the infringing user, and responsibility for enforcing my copyright and other rights in and to my Submission falls solely on me. I agree that UNE may, without changing the content, convert my Submission to any medium or format necessary for the purpose of long-term preservation, and may also keep more than one copy of my Submission for preservation purposes.

**FERPA WAIVER:** If I am a student making this Submission to DUNE: DigitalUNE, I agree to waive any privacy rights granted by FERPA or any other law, policy or regulation, for the purpose of making this Submission available on DUNE: DigitalUNE.

**WITHDRAWING WORKS:** I understand that I may request the removal of an individual Submission that I have contributed to DUNE: DigitalUNE, for any reason, and that UNE Library Services will remove my work on my request received in writing. Such removal will not alter other terms of this Agreement.

**TERM:** This agreement will remain in effect unless permission is withdrawn by Contributor via written request to UNE Library Services. UNE may terminate this Agreement and/or withdraw my Submission from DUNE: DigitalUNE as UNE deems appropriate or necessary.

**MISCELLANEOUS:** A waiver of any breach of this Agreement must be in writing and signed by me and an officer or other authorized representative of UNE. No such waiver shall be construed to affect or imply a subsequent waiver of the same provision or a subsequent breach of this Agreement. In the event that any provision of this Agreement is determined by a court to be invalid or unenforceable, such provision shall be modified by the court so as to be enforceable to the full extent of the law, and the remaining provisions of this Agreement shall remain in full force and effect. This Agreement contains the entire understanding of the parties with respect to my Submission and supersedes all prior agreements and understandings between the parties with respect to my Submission. This Agreement shall be governed by and construed in accordance with the laws of the State of Maine and the exclusive jurisdiction and venue for any disputes arising hereunder shall be resolved in the state or federal courts located in Cumberland County, Maine.

Reviewed and agreed to via email as indicated above.