Journal of Hunger & Environmental Nutrition

ISSN: 1932-0248 (Print) 1932-0256 (Online) Journal homepage: https://www.tandfonline.com/loi/when20

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To cite this article: Josiah Taylor, Bernice Garnett, M. Anore Horton & Ginger Farineau (2020): Universal Free School Meal Programs in Vermont Show Multi-domain Benefits, Journal of Hunger & Environmental Nutrition, DOI: 10.1080/19320248.2020.1727807

To link to this article: https://doi.org/10.1080/19320248.2020.1727807

JOURNAL OF HUNGER & ENVIRONMENTAL NUTRITION
https://doi.org/10.1080/19320248.2020.1727807

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Universal Free School Meal Programs in Vermont Show Multi-domain Benefits

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ABSTRACT

Background: School meals help combat consequences of poverty for child development. Universal school meal programs provide all children free meals regardless of income; outcomes are under-studied.

Methods: This paper analyzes the impacts of universal school meals on multiple domains of child development, including schools' social climates, student academics and behavior, family–school relationships, and school finances. In total, 240 staff at 57 K-12 universal meal schools in Vermont were surveyed in 2017.

Results: Universal meals yield positive results for Vermont children and schools. Policymakers and researchers will find this data relevant, as it represents an early statewide study of K-12 universal meal programs.

KEYWORDS

Nutrition policy; universal (free) meals; school meals; food security; childhood nutrition; community eligibility provision

Introduction

This research article is informed by work collaborating with Hunger Free Vermont to study the recent and ongoing implementation of universal school meal programs in Vermont schools. The lack of state-wide studies on the Community Eligibility Program's (CEP) effectiveness and also Vermont specific information provided impetus for the research. Additionally, our research team hopes to better inform policymakers, school administrators and staff, and the general public, through this original, state-wide study of CEP and universal school meals in Vermont.

The goals of our research are to gather information through survey research, questioning staff about changes in students' physical and emotional health, nutrition, academic performance, and school meal finances. Educationalist Weaver-Hightower calls for this type of research that considers academic and school performance within larger contexts of nutrition, social climate, and student and staff well-being, identifying that educational research too seldom takes this systems approach.[1] As of the beginning of the 2016/2017 academic year, 57 schools throughout Vermont (18.5% of 308

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schools statewide, 2017) were participating in universal meals, funded mostly through CEP, but also through Provision 2.[2–4]

Fifteen percent of Vermont children live in a household that is food insecure, meaning that children in these homes experience hunger or reduced food consumption due to a lack of family financial resources.[5] School meals for children from low-income backgrounds provide an avenue to combat the impact of poverty and food insecurity on child development. According to the Vermont Agency of Education, roughly 41% of Vermont youth receive free or reduced price meals in school.[3] A provision in the federal Child Nutrition Programs since 2014 makes it financially feasible for eligible schools to implement universal free school meal programs that provide all children with school breakfast and lunch at no charge regardless of family income. The following paper draws on analysis from 2017 research that surveyed various school-based stakeholders at 57 K-12 schools in Vermont that have implemented universal free meal programs; the number of schools surveyed is 18.5% of all schools in Vermont.[3,4] This project partners closely with Hunger Free Vermont to examine the influence of universal free school meals on multiple domains of child development. The goal is to use the data to further strengthen Vermont school food and policy initiatives aimed at reducing hunger and improving childhood development, especially for Vermont's most vulnerable children.

The specific research questions guiding this project include: In what ways has the implementation of universal free school meals influenced school climates, student academics and behavior? How have universal school meals changed the relationship between families and schools? and What are the implications of universal free school meals on school finances and school food programs? The data is derived from an online survey sent to 240 school principals, assistant principals, school nurses, food service workers, business managers, and special and para-educators.

Background

Adequate nutrition is a crucial part of human development and health. Being well-nourished enables students to be prepared to learn. The following literature review situates the political, economic, and historical contexts of U.S. school meal programs, particularly the recent addition of the Community Eligibility Provision (CEP), which can support the implementation of universal free meals for all students in schools, clusters of schools, or whole districts.

Within the federal school meal program, students with families living within 130–185% of the federal poverty rate qualify for reduced price meals, and those living at or below 130% of the poverty rate qualify for free meals. Schools are reimbursed by the USDA for meals served to

freeeligible students at $1.79 for breakfast and $3.37 for lunch, while they reimburse for meals served to reduced price eligible students at $1.49 for breakfast and $2.97 for lunch, and they reimburse for "full-price" students at $0.31 for breakfast and $0.37 for lunch.

With the CEP all students in qualifying schools receive breakfast and lunch, and in some cases afterschool and summer meals, all at no charge. At least 40% of students attending a school or group of schools must be directly certified (identified) as low income because they are homeless, orphan, migrant, in foster care, participating in a Head Start kindergarten, part of a household receiving SNAP benefits, part of the Food Distribution Program on Indian Reservations, or part of a household receiving Temporary Assistance for Needy Families.[6,7] The USDA reimburses CEP schools based on a formula, which depends on the number of identified students in a school. The students in both of these groups are categorized as "low-income" for purposes of Title I funding. The formula multiplies the percentage of students that are identified to receive free meals times 1.6. The resulting total represents the percentage of meals served to students in the CEP school that USDA will reimburse at the free rate. The USDA will reimburse the remaining meals served to students at the paid rate, ultimately roughly covering the schools' food program costs to provide meals to *all* students for free.[6,7] Additionally, participating in CEP automatically makes schools eligible for after school meals and summer meal programs, though they are separate federal Child Nutrition Programs, and are funded separately from CEP. Once a school is certified to start the CEP, these free and paid rate percentages remain in place for four consecutive years, after which the school is required to recertify its eligibility to continue CEP. If a school increases its percent of students who are direct certified the USDA will correspondingly increase the school's funding following the above formula; however, if it decreases in the percentage of direct-certified students in the funding cycle the school's funding will not decrease.[7]

Because of the recent federal implementation of CEP, currently information on CEP is mostly limited to national results from the CEP pilot, and a state-wide study in Kansas, and also Georgia.[6,8-10] Poblacion et al.[11] and Ralston et al.[12] study the effects of CEP and food insecurity, while Altindag et al.[13] inquire around changes in student misbehavior correlating with implementing CEP. Information about the efficacy of CEP within Vermont is much more limited, primarily available in the form of reports and fact sheets from Hunger Free Vermont, and raw data from schools and the Vermont Agency of Education. Little has been researched about the effects of implementing CEP and relations to changes in overall social climate, students' readiness to learn, or whether schools using the CEP would recommend it to others.

History of School Meals

Before presenting literature analyzing CEP and present school meal program contexts, first, we provide an overview of the history of U.S. school meal programs. The earliest school lunch programs began just prior to the beginning of the 20th century with pilot programs in cities like New York, Philadelphia, and Cleveland.[14,15] United States federal government sponsored meals in public schools have a history dating back to at least 1946 and the start of the National School Lunch Program. The National School Lunch Program developed out of post World War II agricultural surpluses that became heightened at the end of the war. Rather than decrease production, or end agricultural subsidies for unnecessarily high yields, it was determined that schools could be a major outlet to use the surplus commodities. This was meant to continue incentives for agri-businesses and keep American agricultural production levels high while maintaining stable levels of employment for farmers and processors.[16]

In addition to the political and economic incentives for the federal government to support the American agricultural economy, the National School Lunch Program also developed in the wake of nutrition reformers spreading ideas and knowledge about how to best balance calories, vitamins, and other nutrients. Also, in the 1930s during the Great Depression childhood malnutrition and related diseases were identified as serious threats to America's development and stability. The National School Lunch Act was also a response to the high number of young men disqualified from military service in WWII due to nutritional deficiencies and malnutrition. It was in part passed as a national security measure.[16] Though many decades have passed since the beginning of the school meals program, once again today, nationally we have serious health epidemics, now from nutrition-related diseases such as diabetes and obesity.

School Meals and Contemporary Contexts

Understanding the origins of United States school meal programs helps to explain the complexities of the present state of school meals in America. Prior to the newer universal school meal provision, the National School Lunch Program subsidized some or all of the cost of lunch and eventually breakfast for students depending primarily on the income of each student's family. Eligibility for school meal programs depends on families knowing of the program and then correctly submitting an application annually for their child to receive benefits. An option in the federal law, Provision 2, has funded universal meals in some high poverty school districts for a longer period of time.[17] However, Provision 2 can be complicated to use and does not work financially for many schools, even when they do have high

percentages of low-income students. To further expand the availability of universal meals the Community Eligibility Provision (CEP) was developed and then initially funded by Public Law 111–296, section 104(a) of the Healthy, Hunger-Free Kids Act, passed December 13, 2010.[18,19] More recently, after a pilot of the CEP in 10 states, in 2014 the CEP was rolled-out nationally to provide an additional pathway to universal meals for individual schools or whole districts.[6] Universal (free) school meals mean that all students within a school or school district have breakfast and lunch provided in school at no additional cost to the student, regardless of family income. CEP is a federal government legislated and funded program to provide meal service for children in high poverty school districts – without requiring household applications. As discussed earlier, qualifying districts need to have at least 40% of students directly certified as low income or as having membership in a specified vulnerable group. By universalizing school meals as free to all without application forms, or identifiers of who is low income, CEP and Provision 2 increase rates of meal consumption within schools, reduce stigma (by not labeling any students as low income), and can help increase school meal budgets, increasing the potential to serve higher quality and more nutritious food.[7]

Stigma is a significant barrier to eligible students and families participating in school meal programs. In 1970 Congress added a provision to the NSLP stating that participating children should not be identified as being part of free or reduced price meal program, so as not to stigmatize the children.[20] Stein writes that stigmatization of students because of poverty has continued to be a problem in accessing meals and that universal meals could be the answer – but that more study is needed.[20]

Although CEP universal school meal programs are quite new, having been piloted in 2010 and available to all states only in 2014, studies by researchers with expertise in health sciences, biostatistics, and nutrition already show positive effects, showing that students in CEP schools are eating more of what they are served.[9,21,22] Cohen et al. conducted original research using plate analysis (measuring individual students' food remains) at a sample of elementary and middle schools in urban parts of Massachusetts to understand how students' food choices have changed since the implementation of CEP, and also to reveal what students are actually eating through examining plate waste.[21] The authors' findings argue against common media reports that claim recent changes to the nutrition requirements and structures of school meal programs have increased waste without increasing the amount of healthy foods students eat, that more students getting meals does not mean they are eating significant portions of them.[21] Cohen et al. confirm that on average implementing universal meal programs has not significantly increased students' food waste overall, even though more students are eating the meal, suggesting that programs are successful in that more students are

being served, and eating more of what they are served.[21] While CEP has increased accessibility of universal meals for eligible school districts, many more schools could apply and have yet to realize the benefits of the program.[22]

Although there have been few studies to date on CEP, initial research suggests that CEP brings benefits to schools that use it. Drawing on research based in Kansas, Henry's 2015 findings from the first known statewide study on the effects of CEP confirm the results of Segal et al. as well as Cohen et al. – that implementing universal meals through CEP has positive effects.[9,21,22] Furthermore, Henry reports that CEP is successful at increasing student participation in both breakfast and lunch programs, as well as effectively increasing reimbursements participating schools receive per meal, boosting program budgets.[9] In terms of students' well-being, school meal programs correlate with positive impacts on children's mental health, including reductions in behavioral and emotional problems, bullying, aggression, anxiety, and depression.[23] There is no literature currently available measuring whether CEP and universal meals affect the social climate of schools, and Gruber's 2017 study was inconclusive about changes in stigma in school climate.[6] Davis and Musaddiq suggest that stigma and broader social implications of universal meals need to be studied in greater depth.[10] While the above studies have shown that CEP correlates with increases in student participation in meal programs and a corresponding improvement in student nutrition, the authors here have not located research that inquires about changes in students' readiness to learn. Also, while numerous studies find a variety of benefits from universal meals and CEP, none focus on the experiences and perceptions of school staff and administrators with CEP, and whether they would recommend it.

Many researchers express concern for the possibility of losing national public and political support and funding for quality, accessible school meal programs. Cohen et al., Gurley, and Pew ask lawmakers to not weaken the nutritional standards for school meal programs as is being discussed by lawmakers and some lobbyists.[21,24,25] Pew argues that the currently ongoing legislative review and changes being made to school meal funding and administration will severely reduce the efficacy of CEP and school meal programs.[25] The apparent success of CEP but also a lack of data combined with cuts to these programs shows the need for further research, and the high relevancy of the study reported in this article.

Methods

This research was guided by action research principles, in which the goal is to implement a study that is motivated by needs identified by the community being studied, and that shares results in ways that are useful and meaningful

to community partners.[26] The research proposal completed an Institutional Review Board process at the University of Vermont to ensure ethical practices. Research design and questions were developed in partnership with Hunger Free Vermont and Vermont school administrators, to conduct research that would hopefully be informative and useful for Hunger Free Vermont, Vermont schools, other organizations, and policymakers at the local, state, and national levels. The original, guiding research questions were:

(1) How has the implementation of universal free school meals influenced the school climate?
(2) How has the implementation of universal free school meals influenced student academics and student behavior within each school?
(3) What are the implications of implementation of universal free school meals on school finances and school food programs?

Primary Data Collection

In order to answer the research questions, this study utilized a mixed methods nested case study, in which multiple staff in all 57 schools participating in the universal school meal program in Vermont were contacted and invited to fill out a short survey via e-mail with questions pertaining to the school climate, attitudes and norms surrounding participation in the universal school meal program and perceived benefits of participation. Of 240 staff from 57 schools invited to the survey 116 participated, for a total participation rate of 48.3%. Participants responded to the survey from February 24 – May 15, 2017. The survey used an online platform, with 26 questions including basic demographics, utilizing both a 5-point likert scale and an open-ended response option for each question, as well as one question which was only open-ended. Five of the 26 questions uniquely targeted respondents who identified as nurses, to hear their experiences in observing students' health and behavior issues. For the distribution of survey participants by school role, see Table 1.

Table 1. Demographics from the survey of schools in Vermont which participate in universal school meals.

School Role	Percent
Assistant principal	8.74
Business manager	4.85
Food Service staff	8.74
Nurse	22.33
Para-educator	7.77
Principal	28.16
Other	17.48
No Answer	1.94

Note: survey participants N = 118 staff from 57 different schools statewide.

Recruitment

For this study, the only inclusion criterion is that a school has to be implementing universal school meals. According to Hunger Free Vermont, at the onset of research in 2016, 57 Vermont middle and elementary schools were implementing universal school meals. The PI and research assistant contacted staff at each school via e-mail and/or telephone. For the case study schools, the PI and research assistant contacted the school principal and other administrators via telephone calls and e-mails to assess their interest in participating in the nested case study. Preliminary sampling criteria include recruiting schools in both rural and urban towns, and also schools that have been implementing a universal meal program for longer and shorter periods of time.

Analysis

The following charts and quotations were produced from survey responses from staff at 57 elementary, middle, and high schools in Vermont which operated universal (free) school meal programs in 2016/17. The data is derived from an online survey sent to 240 school principals, assistant principals, school nurses, food service workers, business managers, and special and para-educators. Teachers were not included in the survey after initial inquiries with multiple schools' administrators did not support their teachers partaking in the survey, which would be another demand on top of teachers existing heavy workload. Of those invited to the survey, 116 took part in the survey for a total response rate of 48.3%. From the 116 responses, 90 responses were complete enough to contain useable data. The survey responses were recoded using SPSS (v. 23) to collapse "strongly agree" and "somewhat agree" into a single "agree" group, and similarly, to collapse "strongly disagree" and "somewhat disagree" into "disagree." The below charts use some of this recoded data, and in the narrative we include selected corresponding open-ended responses to contextualize the data in staffs' lived experiences. Open-ended responses represented here were selected using purposive sampling to find comments that were clearly written, corresponded closely the results in general, and are evocative of how universal school meals can be empowering for individuals and communities.

Results and Discussion

This survey inquires to what degree universal school meals benefit multiple domains of childhood development and school efficacy. The data comes from the survey respondents who were distributed across different staff roles as seen in the demographic breakdown shown in Table 1.

Aside from demographics, the complete survey results are shown (recoded to a 3-point scale) below in Table 2. For more in-depth analysis we return to

Table 2. All survey questions in shorthand except for demographics. In Vermont schools surveyed which participate in Universal school meals.

Question	Agree	Disagree	Neutral
Nurses give less food to students	61.9	9.5	28.6
Nurses: Hunger related health complaints reduced	47.6	33.3	19.0
Nurses: students' behavior issues declined	33.0	55.0	10.0
Nurses: students' stress levels reduced	52.4	42.9	4.8
Nurses: more time for students' non-hunger health needs	47.6	38.1	14.3
Student behavior improved	59.1	37.5	3.4
Student academic performance Improved	64.4	34.5	1.1
Students more ready to learn	83.0	14.8	2.3
School climate improved	72.4	25.3	2.3
Staff recommend univ. meals to other schools	92.0	5.7	2.3
Financial stress on students & families reduced	97.7	2.3	0.0
Stress on admin related to family financing reduced	82.8	14.9	2.3
School meal finances improved	52.4	40.5	7.1
School meal program deficit reduced	44.0	48.8	7.1
Students go hungry	31.8	7.1	61.2
Differences in family income less visible	80.5	10.3	9.2
Students get along better at lunch	44.2	51.2	4.7
School community is more inclusive	60.5	37.2	2.3
Family & student feedback occurs re: univ. meals	41.9	50.0	8.1
Meals are more nutritious	60.5	27.9	11.6
School now more able to purchase local foods	63.9	27.7	8.4
More time to cook from scratch	48.8	35.7	15.5
Para-educators have more time for other school work	23.8	54.8	21.4

our focus on three topics that developed as priorities with our community research partners as novel areas of inquiry regarding universal school meal correlation with students' readiness to learn, changes in school climate, and if school staff recommend universal school meals. Figure 1 shows the results of

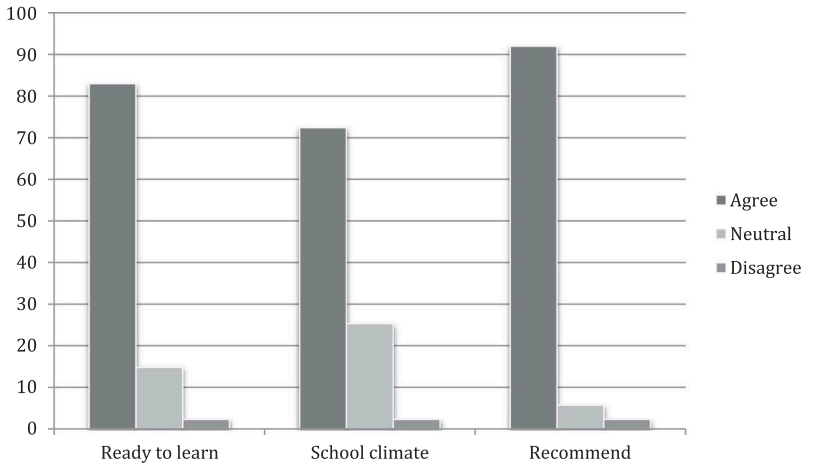

Figure 1. Percent of respondents who agree, are neutral, or disagree that implementing universal school meals have made students more ready to learn, improved school climate, and would recommend universal school meals. N = 118. Nb. Responses have been recorded from a 5-point to a 3-point scale.

questions targeting the aforementioned three themes, while the narrative below complements Figure 1 with open-ended qualitative responses corresponding the three themes of readiness to learn, school climate, and whether school staff recommend universal meals.

This research found overwhelmingly that the implementation of universal free school meal programs in Vermont correlates with increased readiness to learn for students. Eighty-three percent of school staff surveyed agreed or strongly agreed that universal school meals make students more ready to learn. One Vermont principal commented that "we have numerous students without food security in their home, and hunger has interfered with their readiness in the past. This program has absolutely improved student readiness to learn." Another principal agreed, stating the logic that "they can't be attentive if they are hungry." Voicing further connections between universal school meals and readiness to learn, an additional principal shares that "all of our students have access to at least two healthy meals a day. With such a high level of poverty in our school, this ensures equal access for all students without the social stigma of being one of the 'poor' kids. These meals ensure that our students have full bellies and therefore the energy to focus on learning." Related to readiness to learn, 64.4% of respondents agreed that students' academic performance has improved with universal meals, while 34.5% disagreed with this statement, indicating that respondents see increased readiness to learn affecting academic performance.

Regarding the perceived influence of universal school meals on school climate, over 72% of school staff surveyed report that serving universal school meals has improved social climate, while only 2.3% of respondents disagreed with this statement. A school lunch coordinator in Vermont experienced the improved climate from beginning universal meals, "since there is no payment and all children can go through and get meals without the stigma attached to whether they are paying for meals children feel more relaxed and therefore the atmosphere and participation at lunch is much better." An assistant principal echoes the lunch coordinator above in terms of seeing greater equality and reduced stigma, "the cafeteria is a level playing field and not one child feels embarrassed about their family's income level." Other survey questions about factors relating to school climate also found strong confirmation of the social benefits of universal meals, including questions asking about student stress, family financial stress, administrator stress, income difference being less visible, and the school community feeling more inclusive. These results show a broad range of benefits that contribute to an improved social climate.

The survey question with the second highest level of respondents in agreement regards staff recommending universal meals to other schools. Ninety-two percent of school staff surveyed would recommend implementing universal school meals to other schools. This result is not unexpected, viewed in light of

the other survey results that show staff consistently view universal meals as benefiting their schools and students across multiple domains. An assistant principal strongly recommends universal school meals, commenting that "providing students with a meal and other healthy choices during the day is a positive thing for many students and I recommend universal school meals to all schools." A principal in the survey states unequivocally that "[universal meals] is one of the best things we have ever done for a high poverty school." Remarking on the benefits of universal meals, a school food service staff person appreciates that "it really does allow for a better forecasting model in terms of staffing, purchasing, and production. Our lunch lines also move more quickly in the schools that do not require payment for meals." Poignantly, a principal shares that "we used to have multiple students per year whose parents would not pay their lunch balances. The families did not qualify for the Free and Reduced Lunch program. Eventually, we would have to stop serving these students food. It was always difficult for students and staff when this occurred. Further, we now have the ability to ensure that every child eats breakfast and lunch. This has allowed for a smoother morning and mid day transition as every child can eat."

Overall, in 74% of the survey questions, at least a majority (often many more) of respondents agreed that universal meals are beneficial. While all but one of the 26 survey questions were answered primarily on a 5-point likert scale, the one open-ended question, "how have you seen universal school meals impact students and the school?" generated many responses which were strongly and passionately identifying the benefits of universal school meals and recommending the program to all schools. For example, a school nurse states they "have seen that there is less hunger, missed meals, and stress on parents about affording meals at school. All of these have a positive impact on child, learning, families and health." A Vermont school principal further confirmed the multi-domain benefits of universal meals, saying "food security is a big deal for those students who don't feel secure. If we can provide this as a school, it impacts all aspects of a student's experience."

Conclusion

The results of this research consistently confirm that universal school meals are beneficial across multiple domains of childhood development and for school efficacy. These outcomes provide a deeper understanding of the perceived effects of the community eligibility provision option supported by federal legislation to increase access to school meals for all students, including students from low-income households. Showcasing the impact of universal school meals and the community eligibility provision is critically important in the current socio-political environment as many federal social support and educational programs are at risk of reductions in spending. It is crucial to recognize that

childhood nutrition is foundational to a nation of healthy adults and that it is much cheaper and economically efficient to budget for nutrition programs for children than to pay for a lifetime of much higher medical and other costs due to malnutrition-related chronic disease. Supporting CEP and universal school meal programs reduces the financial burden on our health-care system by reducing the risk of diet-related chronic disease and mental illness, which are some of the most expensive and long-term health problems to treat. If we reduce spending on federal, universal school meal programs, we should expect to have greater costs later in time as students become adults with far greater lifetime health-care costs and less economic productivity.

These factors make it all the more imperative to understand potential problems as well as what are clear benefits from CEP and universal meal programs. Hopefully, this can forward open dialogue, further research, and improved knowledge of utilization and impact of the implementation of CEP on student health and academic success. Future research in this field is needed, such as a longer-term study that explicitly includes teachers and that not only conducts surveys, but also directly documents data related to attendance, nurse visits, behavior referrals, etc. Also a study that interviews parents, and measures their interactions with the school when there is no longer a financial transaction to pay for school meals could be helpful. Additionally, it would be valuable to inquire how universal meals could be expanded and made available to all schools given the strong benefits. A final important question that demands inquiry is to what degree does participation in universal school meal programs change the financial sustainability of school meal program budgets, which could be analyzed through quantitative research methods by doing a comparative study of school meal budgets. With ongoing legislation changes regarding these issues, it is important that we can provide information that promotes decisions that are supportive of healthy childhood development as well as fiscally responsible and efficient.

Acknowledgments

The authors give thanks to the schools and staff participants who made this research possible, and also the Vermont Department of Health, the Vermont Child Health Improvement Program and UVM's Food Systems Graduate Program.

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