Universal Free Meals Pilot Project
Evaluation Report

West Virginia Department of EDUCATION
Office of Research

Universal Free Meals Pilot Project

Evaluation Report

Anduamlak Meharie

Andy Whisman

Nate Hixson

Patricia Cahape Hammer

Yetty A. Shobo

Amber Stohr

West Virginia Department of EDUCATION
Office of Research

West Virginia Department of Education
Division of Teaching and Learning
Office of Research
Building 6-Room 722 State Capitol Complex
1900 Kanawha Boulevard East
Charleston, WV 25305
http://wvde.state.wv.us/

February 2013

James B. Phares
State Superintendent of Schools
West Virginia Department of Education

Robert Hull
Associate Superintendent
West Virginia Department of Education

Juan D'Brot
Executive Director
Office of Research

Keywords
Child nutrition, community economic option, free and reduced-price meals, child poverty, student achievement, student behavior, student attendance, elementary education, secondary education

Suggested Citation
Meharie A., Whisman A., Hixson N., Hammer, P.C., Shobo, Y. A., & Stohr A. (2013). *Universal Free Meals Pilot project evaluation report*. Charleston, WV: West Virginia Department of Education, Division of Teaching and Learning, Office of Research.

Content Contacts

Anduamlak Meharie, Ph.D.
Coordinator, Research and Evaluation
Office of Research
ameharie@access.k12.wv.us

Andy Whisman, Ph.D.
Coordinator, Research and Evaluation
Office of Research
swhisman@access.k12.wv.us

Executive Summary

The West Virginia Universal Free Meals Pilot project provided a nutritious breakfast and lunch to all students regardless of financial need in 72 schools in seven counties during the 2011–2012 school year. This report examines the implementation and impacts of this pilot project.

The rationale for the pilot project was supported by research on several fronts. Recently released data from the U.S. Department of Agriculture (USDA, 2011b) showed high levels of food insecurity and hunger across the country. These conditions were especially severe in West Virginia, where 14.1% of residents live in food insecure households. Other recent research has shown that 90,633 children live below the poverty line in the state (West Virginia Kids Count Fund, 2010).

With this level of economic distress, academic outcomes could well be affected. Research consistently shows that hungry students do not learn as well as children who have been adequately fed (Abalkhail & Shawky, 2002; Chandler, Walker, Connolly, & Grantham-McGregor, 1995; Edward & Evers, 2001; Grantham-McGregor, Chang, & Walker, 1998; Jacoby, Cueto, & Pollitt, 1998; Kleinman, et al., 2002; Meyers, et al., 1989; Murphy, et al., 1998; Powell, Grantham-McGregor, & Elston, 1983; Richter, Rose, & Griesel, 1997; in Taras, 2005).

Yet, providing free meals to economically disadvantaged students can pose social barriers for them, causing them to feel humiliated by accepting free or reduced-price meals, while other students can afford to pay for them. Economic barriers also exist for families whose earnings fall just above the cutoff, making their children ineligible for free or reduced-price meals. Bills for school meals can be too much for some families to afford, especially for families with more than one child in school.

Social, as well as economic barriers can be overcome, however, as shown in a small number of studies. For example, one study showed that by offering a universal free breakfast, participation in a school breakfast program was destigmatized for economically disadvantaged students (Pertschuk, 2002). Additionally, economic challenges for schools and districts in offering free meals to all of their students may not be as daunting as previously thought. According to Murphy and colleagues (1998), schools where 70% or more of students receive free or reduced-price meals can provide breakfast for all students with minimal extra funding.

In light of these and other studies, the West Virginia Department of Education (WVDE) launched the Universal Free Meals Pilot project beginning in the 2011–2012 school year, as a way to improve outcomes for children living in impoverished communities. In all, 72 schools located in seven county school districts (i.e., Clay, Fayette, Gilmer, Lincoln, Mason, Mingo, and McDowell) elected to participate in the project. Approximately 26,000 students attended schools in these counties. An average of 70% of those students who attended elementary schools were eligible for free or reduced-price meals; for middle schools, the average was 71%; and for high schools, 59%.

In July 2011, district superintendents in participating counties met with the state superintendent to discuss the Universal Free Meals Pilot project. Participating counties in the pilot project agreed to eliminate processed foods, increase school-made meals, and expand food choices to students. Six of the seven participating counties decided to offer free meals at breakfast and lunchtime during the pilot year. The remaining county made the decision to participate in a free breakfast program only, due to budgetary concerns.

In August 2011, cafeteria managers (head cooks) from participating schools attended a 1-day training in Cabell County. The training, conducted by 16 cooks from Cabell County, focused on cooking from scratch.[1] Trained cafeteria managers then provided a similar training to cooks in their respective schools and counties. After the initial training, cafeteria managers in participating counties periodically attended additional training sessions, facilitated by food service directors, to try out new recipes and exchange ideas. It is important to point out that although all participating counties had to agree to increase the level of school-made meals during the pilot project, some counties had already been making a gradual shift away from heat-and-serve (prepackaged processed foods) to school-made meals (cooking from scratch) for a few years prior to the pilot project.

While the Office of Child Nutrition provided conceptual guidance and technical assistance with regard to providing meals to all students, participating districts and schools were at liberty to implement and adapt the project in ways that best suited their particular circumstances.

Breakfast was offered through one of three strategies recommended by the U.S. Department of Agriculture (USDA, 2011a):

1. *Breakfast after first period*—sometimes called a *nutrition break* or *second-chance breakfast*, students eat breakfast during a break in the morning, often between 9:00 a.m. and 10:00 a.m.
2. *Grab 'n' go breakfast*—breakfasts are packaged in paper bags, boxes, or trays. Students pick up their breakfast and eat it when and where they want, within school guidelines.
3. *Breakfast in the classroom*—students eat breakfast in the classroom at the beginning of the day or during morning break time. Breakfasts can be either hot or cold, depending on a school's facilities.

Changes in the lunch program were limited primarily to menu offerings and levels of participation, but not in the mode of delivery.

Evaluation Questions

[1] Cabell County cooks had been trained as part of their participation in Jamie Oliver's Food Revolution, during the 2009–2010 school year. The project, which was videotaped and televised in a six-part, primetime series on ABC, promoted meals made from scratch by school cooks using recipes and menus created by Jamie Oliver, a well-known British chef.

We investigated (a) the implementation of the Universal Free Meals Pilot project to inform the department about any adjustments they may wish to make in its operation, and (b) the extent to which impacts such as those reported in the research cited above were evident at the end of the first year of implementation. Our evaluation addressed the following questions:

EQ1. How do various stakeholder groups perceive the implementation and outcomes of the pilot project?

EQ2. To what extent is participation in the Universal Free Meals Pilot associated with positive student achievement outcomes as measured by the state summative assessment (i.e., WESTEST 2) and academic grades?

EQ3. To what extent have attendance rates changed over time among students who are enrolled in pilot schools?

EQ4. To what extent has disciplinary behavior changed among students who are enrolled in pilot schools?

Methods

To study Evaluation Question 1 (EQ1), the *implementation and perceived outcomes* of the pilot project, we gathered data through surveys and interviews (individual and focus group) about stakeholders' experiences with the pilot project. An attempt was made to survey all school staff from the 72 pilot schools twice during the course of the year, using an online questionnaire developed in collaboration with the Office of Child Nutrition. A total of 489 useable responses were submitted from six of the participating county school districts in the end-of-year survey, conducted in mid May 2012. Additionally, between early March and early June 2012, a total of 142 individuals, representing eight stakeholder groups, participated in this study. Three researchers conducted eight individual and 18 focus group interview sessions, averaging seven individuals per focus group.

To study the *impacts* of the pilot project (EQ2–EQ4), we examined the academic performance, attendance, and disciplinary behavior of 2,591 students in the pilot schools (879 elementary, 837 middle, and 875 high school) and in a matched comparison group of 2,591 non-pilot-school students, by employing statistical analyses of extant data sources. More specifically, to study relationships that may exist between project participation and student achievement outcomes (EQ2), we tested the following hypotheses:

H1. WESTEST 2 scores for reading/language arts and mathematics for students in pilot sites will increase significantly over the course of the pilot (TIME).

H2. WESTEST 2 score changes for these students will differ significantly when compared to students from a matched set of comparison schools (GROUP * TIME).

We tested these two hypotheses by compiling and analyzing longitudinal data sets containing WESTEST 2 assessment data for each student in both groups.

To study the extent to which attendance rates changed among students enrolled in pilot schools (EQ3), the following hypothesis was tested:

H3. Average attendance rates will increase significantly among students in pilot sites (TIME).

We compiled and analyzed a longitudinal data set from the West Virginia Education Information System (WVEIS) containing attendance data (membership and absences) for each student in both groups.

To study the extent to which disciplinary behavior changed among students enrolled in pilot schools (EQ4), the following hypothesis was tested:

H4. The rate and severity of behavioral disciplinary incidents will decrease significantly over the course of the pilot.

We compiled and analyzed a longitudinal data set from the WVEIS Discipline Module containing behavioral offenses and corresponding disciplinary dispositions for each student in both groups.

Results

EQ1. Project Implementation

To examine the perceptions of various stakeholder groups regarding the implementation and outcomes of the pilot project, we developed and deployed surveys, and conducted individual and focus group interviews.

Survey results

There were few differences in responses to the midyear and end-of-year surveys. Consequently, the following results are based on the end-of-year survey. It should also be noted that, generally, only minor differences of opinion existed among role groups and programmatic levels. The most consistent discrepancies were between administrators and other stakeholder groups, with administrators tending to hold more favorable views about issues such as student traits and disciplinary behaviors. The following are major findings from the survey:

- Most respondents to the end-of-year survey indicated that various negative student behaviors—including disruptive student behavior, physical fighting between students, lack of respect for staff by students, harassment or bullying among students, and cutting classes or skipping school—were not a problem or were only a minor problem in their schools.
- The preponderance of opinion was that things had either stayed the same (about half to two thirds of respondents, depending on the behavior) or gotten better compared to the previous school year (a quarter to more than a third), with only a quarter, or far less than a quarter, reporting things had *gotten worse*.
- The three problem areas that showed the highest percentages of *gotten better* responses were students' difficulty concentrating on instruction an hour or two before lunch, physical fighting between students, and disruptive student behavior.
- The vast majority of respondents (88%–97%) reported that the student health and behavioral traits had gotten better or stayed the same. Of those staff who had responded

that the presence of the traits had gotten better, the vast majority thought the improvements *probably* or *definitely* were attributable to their participation in the program.

- The three traits that showed the highest percentages of *gotten better* responses were students are happy to be at school, are actively engaged in learning, and are motivated to learn.
- About three quarters of respondents indicated that potential issues—including integrating nutritional and instructional programming, organizing the distribution of food, time for food service staff to prepare and distribute food, problems with cleanup, food being wasted, food safety, and parent dissatisfaction with the project—were *not a concern* or a *minor concern*.
- The one exception to this pattern was *food being wasted*, which nearly half of respondents saw as a *moderate* or *major concern*.
- Overall, a large majority of staff reported that the project had been successful at their school to a moderate or major extent, and about 80% said the Universal Free Meals Pilot project had been worth the investment in time, staff, materials, money, and other resources their school or county had made. Over 90% said they would like to see their school continue in the program next year.

Individual and focus group interviews

Overall, feedback from stakeholders regarding the intent and impact of the pilot project was overwhelmingly positive. Respondents emphasized the importance of every student having the opportunity to eat adequate and nutritious meals daily. Participants frequently pointed to the timeliness of the pilot in light of current regional and national economic conditions, including historically high levels of poverty, unemployment, and underemployment in their counties. Comments indicated that, as a result of the pilot project, all students were provided the opportunity to eat school meals and schools witnessed large increases in student participation.

Generally, stakeholders found school meals to be healthier, offering more variety compared to previous years. According to most teachers, students also appeared to be more actively engaged in the classroom and exhibited better concentration and higher levels of energy. Comments indicated that in some schools, the program positively impacted student-teacher relationships, which may have long-term benefits for individual students (social, emotional, and academic), as well as for overall school climate.

There are, however, considerable differences among schools regarding the proportion of meals that are cooked from scratch and the type and quality of food choices made available to students in individual schools.

Six major themes emerged during the individual and focus group interviews: (a) financial supports for the pilot project, (b) practical considerations regarding various breakfast strategies; (c) quality of the school meals and students' adaption to the new menus; (d) student participation; (e) impacts on classroom instructional time; and (f) food waste.

Financing the pilot project

The primary concern for counties was finding ways to finance the pilot project. High return rates on parental financial forms for federal reimbursement helped offset some of the expenses involved in providing free school-made meals to all students. Counties that had more success with collecting financial forms tended to be those with a high percentage of free and reduced-price lunch eligibility. In these counties, most parents already had experience completing financial forms to allow their children to receive free or reduced-price meals at school. Additionally, in successful districts, county and school personnel spent considerable time and effort contacting parents—often multiple times, using various means—as well as making the form available online to offer convenience and confidentiality.

Such efforts were necessary, because all counties incurred additional costs during the implementation of the pilot project, although costs were considerably lower for counties with high percentages of students eligible for free and reduced-price meals. Additional costs were related to (a) fresh food commodities, which are generally more expensive compared to processed/prepackaged foods; (b) the additional time needed to prepare and cook food, which often required additional staffing and training; (c) furnishing enough kitchen space with suitable equipment to accommodate an increase in food production and storage; and (d) depending on the type of breakfast strategies a school adopted, other supplies (e.g., larger trash cans and cleaning supplies for classrooms, specialized trays and bags to carry food, and carts to transport food to classrooms).

The level of funding available for the pilot project varied greatly among counties and played a prominent role in determining both the level and quality of implementation. Each county had to decide within the broader context of local priorities and funding limitations how much of the costs associated with implementing the project it could finance during the pilot year.

While funding opportunities from the WVDE have been tremendously helpful to counties, they fell short of adequately addressing the issue and did not provide sustainable solutions for all participating schools. Some school kitchens were very old and equipped with small-volume, outdated, and at times inoperable equipment, making it a challenge to prepare the type and volume of food schools were expected to serve.

It was also evident that many school cafeterias were understaffed. Participating schools employed various strategies to handle the increased volume of food production required by the pilot project, including (a) hiring new cooks, (b) transitioning part-time cooks into full-time employees, (c) extending overtime opportunities for their cooks, and (d) allowing their cooks to come in an hour or so early to accomplish the extra work to be done. Even so, stakeholders who participated in focus group interviews indicated that kitchens in most schools were understaffed. Counties were, however, constrained from adequately staffing school cafeterias due to a state-recommended meal-to-cook ratio formula which had been in use prior to the pilot project, when the use of prepackaged foods (heat-and-serve) was very high, especially during breakfast. The calculation had not been adjusted to reflect changes in the types of meals served in participating counties.

Breakfast strategies

Participating counties had discretion to implement the pilot project according to local circumstances. The majority of participating counties extended the discretion to implement the pilot project to each school and allowed school administrators to identify a strategy or combination of strategies that best suited circumstances at the building level. It is very apparent that flexibility is crucial to the degree to which each school adopts the universal free meals program and successfully implements it.

A great many factors affected the selection of strategies that best suited each participating school. Variations among schools included, for example, programmatic level, size of student population, configuration of building structure, location and size of cafeteria, characteristics of classrooms, and bus schedules. Each of these variables by itself, or in combination with others, influenced which breakfast strategy was the best fit.

Quality of school meals

Stakeholder feedback indicated that, overall, there was a definite shift from processed foods to foods cooked from scratch. Furthermore, the number of options available to students appears to have generally expanded compared to previous years. Additionally, schools to a large extent offered healthier meals made from whole wheat and whole grains, and monitored the amount of sodium, calories, saturated fat, and other ingredients in school meals, to stay within the federal nutrition regulations. In this regard, cooks indicate that the training they received before the beginning of the school year was instrumental. Despite initial complaints from some students, overall, stakeholders indicated that students in most schools have begun to get used to a healthier menu, try food items for the first time, and appreciate the options that were made available to them.

There were, however, concerns among stakeholders in some schools regarding (a) the continuing use of large proportions of processed foods, (b) quality of food choices made available to students, (c) lack of variety in school menus, and (d) portion size of meals, which some believed to be disproportionate to students' age and size in middle and high schools. There were various causes that contributed to these concerns and stakeholders have suggested the following as underlying factors: (a) the financial ability of each county to provide resources necessary to produce school-made meals and increase student participation; (b) the lack of lead time for counties and schools to make necessary preparations prior to the implementation of the pilot project; (c) the particular selection of breakfast strategies, which affected food options that could be made available to students; and (d) federal nutritional requirements and standards that limit the amount of meat and grains served to students.

Student participation

Stakeholder feedback strongly indicated that there was a significant overall increase in student participation in school meals during the pilot year compared to previous years—primarily driven by breakfast programs.

The most obvious reason for the increase was that schools made meals available for free to all students regardless of socioeconomic status. Students who previously ate breakfast

at home or brought lunch to school (packers) were able to eat school-made meals without placing an additional financial burden on their parents.

Survey data and comments from individual and focus group interviews with various stakeholder groups also clearly indicated that the universality of free school meals removed the social stigma previously attached to students who qualified for free and reduced-price meals. According to these comments, the removal of stigma not only encouraged these students to participate more freely, but encouraged other students, as well, who previously did not qualify.

Another factor that may have played a significant role in increasing participation rates was the selection of various breakfast strategies according to local contexts. For example, the availability of grab 'n' go in some schools for students whose buses arrived shortly before the beginning of the instructional day, allowed them the opportunity to take their food to the classroom. Students who may not be hungry and preferred to socialize with their peers before classes, instead of eating breakfast, were also more likely to participate when breakfast was served in the classroom as part of the instructional day or during a break after first period.

There were, however, some factors that played a role in discouraging students from participating in greater numbers in school meals. Long lines in the cafeteria, for example, affected the rate of student participation during breakfast and lunch. Such delays reportedly resulted from the process used to document student meal participation and a lack of adequate kitchen staff to serve food to students in a timely fashion. An additional reason for the low increase in lunch participation may have been due to the short time interval between breakfast and lunch. Even though some schools during the pilot year had begun serving breakfast at the beginning of the instructional day or after first period, they had yet to readjust their lunch period schedule accordingly.

Classroom impacts

Contrary to their initial concern about lost instructional time, some teachers indicated the opposite occurred because breakfast was served in their classrooms to all students at the same time, often at least 30 minutes to an hour later than in previous years. The announcement by the WV Office of Education Performance Audits that participating schools could use the time during breakfast in the classroom as instructional time also helped to ease their concern. Other things that allayed their concerns, according to teachers and administrators, were the positive changes in students they observed, which they attributed to the pilot project. Due to breakfast programs, stakeholders reported a reduction in hunger resulting in better concentration and focus, higher levels of energy, and more active engagement of their students compared with previous years. According to teachers, in previous years, the hour or two prior to lunch was one of the most challenging blocks of time for classroom instruction, as some students were distracted by empty stomachs and frequently asked how much longer they had to wait before they could have lunch.

Stakeholders' comments also indicated that, as a result of breakfast-in-the-classroom strategies in elementary schools, a sense of family was created. Some educators believe that the smaller student-to-teacher ratio in the classroom compared to the cafeteria provided

more opportunity to build relationships with their students on a personal level under structured conditions. Some teachers used the opportunity to act as role models and discuss table manners and eating etiquette with younger students, which they believed will have long-term benefits. Stakeholder comments also indicated that an added benefit of eating breakfast in the classroom was that younger students learned responsibility, as each student was expected to clean up after him- or herself.

Some teachers, however, were still worried about the potential loss of time for classroom instruction. In both the midyear and end-of-year surveys, approximately a quarter of survey participants indicated that integrating nutritional and instructional programing was a moderate or major concern, and some focus group participants also expressed similar concerns. This issue was less of a concern among elementary teachers. Based on feedback from participants in focus group interviews, the vast majority of teachers and principals who voiced concerns about loss of instructional time were from schools where the breakfast-in-the-classroom strategy was employed, requiring students to leave their classrooms to get their food. Comments indicated that students were losing a significant amount of instructional time after school starts due to various combinations of the following reasons: (a) walking to the cafeteria, (b) standing in line to get food, (c) walking back to classrooms, (d) eating breakfast, and (e) cleaning up after meals. Most respondents with these concerns considered the scheduling of breakfast to be very disruptive and suggested serving breakfast before the start of the school day. According to some stakeholders, serving breakfast before the start of the school day would also alleviate a concern over students who arrive at school very early, having eaten little or no breakfast, and have to wait after until first period to eat their first meal of the day.

In addition to contributing to loss of instructional time due to time spent cleaning up after students eat breakfast in the classroom, some stakeholders, particularly teachers and principals, raised concerns about sanitation in their classrooms. The risk of damaging valuable instructional materials and possible insect infestation, due to spillage and less than adequate clean-up, were raised as concerns. It is also apparent that some classrooms were not equipped with the necessary cleaning supplies. According to some stakeholders, cleaning items such as paper towels and Clorox wipes often were not available in classrooms and some schools depended on donations from parents for these items. As a last resort, some teachers purchased these items at their own expense.

Food waste

Approximately 45% of survey participants indicated that food waste was a moderate or major concern. Individual and focus group interviews with various stakeholders provided additional evidence about this concern, but also provided indications that during the course of the year, some schools were able to take measures to curb the amount of food being wasted.

Some food waste resulted from the introduction of menu items that were new to students. Based on stakeholder feedback, it is clear that it took students some time to adjust to healthier alternatives and develop a taste for items on the revised menus. During this initial process, students often took food items, decided that they did not like them, and then disposed of them.

The pressure to increase participation rates also contributed to food waste. There are indications that in some instances, school staff may have put too much pressure on students to participate in school breakfast or lunch. A related factor that contributed to food waste was the requirement for reimbursable meals. For a meal to be considered reimbursable, it had to consist of at least three items. Consequently students who had already eaten at home or were not very hungry had to take three items, consume what they wanted, and throw the rest away.

During the course of the pilot year, most schools continued to experiment with strategies to control food waste. Some schools, for example, did a morning count, which enabled them to prepare meals sufficient to feed the exact number of students present each day. Others periodically sought student feedback in order to prepare foods that were both nutritious and appealing. Such strategies seem to make a positive impact on food waste; however, they cannot by themselves completely eliminate food waste. Other solutions are needed to address this issue sufficiently and sustainably.

Overall

It was clearly evident that stakeholders had highly favorable views of the pilot project. While some areas of concerns were identified by some stakeholders, overall, the vast majority indicated that the positive impacts of the program far outweighed any challenges they encountered as they implemented the program during the pilot year. Almost all stakeholders who participated in individual and group interviews expressed the desire to continue with the program for the foreseeable future. Comparatively fewer stakeholders identified issues they wanted to see addressed before their county or school committed to implementing the program for a second year.

Impacts

Student performance (Evaluation Question 2)

In analyses involving WESTEST 2 mathematics and reading/language arts data for students in pilot project schools and a matched group of non-pilot-school students, we found the following.

- For elementary school students, neither group differed significantly over time in terms of mathematics test performance, but both groups improved their proficiency rates by a negligible margin. In reading/language arts, students in the treatment group scored statistically significantly lower in 2011–2012 than in 2010–2011. However, it should be noted that this was also true for the comparison group, and the decline in test performance was not large enough to negatively impact proficiency rates.
- In middle school mathematics, both the treatment and comparison groups scored lower in 2011–2012 than in 2010–2011. However, the treatment group's decline was almost static and not statistically significant while the comparison group's decline was statistically significant. In reading/language arts, students in the treatment group scored higher in 2011–2012 than in 2010–2011. Again, however, this difference was not statistically significant.

- In both high school mathematics and reading/language arts, the treatment group increased their average scores while the comparison group's scores declined. However, these differences were not statistically significant.

Student attendance (Evaluation Question 3)

Based on West Virginia Education Information System (WVEIS) data, we made the following findings:

- At the elementary school level, marginal differences in both total and unexcused absence rates for treatment group students across time were not statistically significant, indicating the attendance trends had not yet changed significantly.
- With respect to middle school students, we observed a marginal increase in the average total absence rate for the treatment group and a static performance for the comparison group over time. Both groups increased in their respective average unexcused absence rates over time. The difference in total absence rates for the treatment group over time was not statistically significant. However, the difference in unexcused absence rates was statistically significant. The latter finding provides some evidence that the unexcused absence rate in middle schools increased over the course of the pilot project's first year.
- At the high school level, we observed increases in total absence rates for both the treatment and comparison groups. Interestingly, with regard to unexcused absence rates, the treatment group declined marginally over the same period, while the comparison group increased—but the differences for treatment schools were statistically insignificant. However, the increases we observed for comparison schools were both statistically significant. This is an important finding because it would appear that high school students in the comparison group experienced different attendance outcomes when compared with treatment schools. The total absence rates appear to have increased more sharply in comparison schools than in treatment schools. The average unexcused absence rate in the treatment group remained more or less static while the same rate for the comparison group increased by a statistically significant margin. While this finding does not fully confirm our study hypothesis, it lends some support to the potential of this intervention to begin impacting attendance outcomes.

Student disciplinary behaviors (Evaluation Question 4)

Based on WVEIS student disciplinary data, we made the following findings:

- A sharp increase was observed in 2012 at the elementary program level in the number of students and the number of discipline referrals in both comparison and treatment groups. That it involved both groups similarly suggests systemic change in discipline reporting between the 2 years.
- Treatment group students at the middle and high school levels consistently had more referrals per student than comparison group students, yet this was true in both 2011 and 2012 and as a result it is not possible to discern any effect of participation in the pilot at program levels.

- While there were some fluctuations in the distribution of discipline referrals by severity at the elementary school level, none was sufficiently large to indicate statistically significant differences between treatment and comparison students from 2011 and 2012.
- Among middle school students, we observed what could be interpreted as a positive finding for treatment students. A significant increase in referrals for minimally disruptive behaviors occurred in 2012 compared to the previous year, yet this was offset by a corresponding decrease in more severe disruptive and potentially harmful behaviors. The opposite was true among comparison students.
- At the high school level, in 2012 the proportion of discipline referrals for minimally disruptive behaviors increased substantially among treatment group students; however, this was not offset by a corresponding decrease in referrals for more severe behaviors. For comparison group students, both minimally disruptive and disruptive and potentially dangerous behaviors decreased, while the incidents of more serious behaviors increased.

Discussion

Feedback from stakeholders regarding the intent and impact of the pilot project was overwhelmingly positive. They indicated the importance of every student having the opportunity to eat adequate and nutritious meals daily and they reported that all students were provided that opportunity. As a result, schools witnessed large increases in student participation in school meals. Generally, school meals were reported to be healthier, offering more variety than in previous years.

Stakeholders noted clear school climate benefits derived from their participation. Many stakeholder comments indicated that the pilot was having substantial impacts on the conditions for learning within their respective schools. For example, the breakfast-in-the-classroom strategy offered teachers and students greater opportunity to build relationships, according to elementary school teachers. Additionally, access to free meals improved student engagement by reducing distractions caused by hunger, headaches, and stomachaches, according to teachers and other school staff.

These findings add to a substantial and growing evidence base suggesting that a safe and supportive learning environment—in other words a positive school climate—improves outcomes for students both academically and in their social and emotional development (Cohen & Geier, 2010; Sparks, 2013). According to a model put forth by the U.S. Department of Education, school climate consists of three primary domains including *engagement* (relationships, respect for diversity, and school participation), s*afety* (emotional/physical safety and substance use), and *environment* (physical/academic/disciplinary environment and student/staff wellbeing). In West Virginia, a recent study involving 42 high schools provided additional evidence that relationships among students and staff, school engagement, emotional safety, and the overall school environment contributed substantially to higher academic outcomes (Whisman, 2012). Although there was little evidence in the present study that participation in the pilot positively affected student performance among intervention schools, we believe we are at too early a stage to draw conclusions from WESTEST 2 scores or data from attendance and disciplinary behavior records. The pilot

project lasted only one academic year, during which schools were mobilizing to provide both breakfast and lunch meals to all students and making adjustments along the way.

There could well be long-term academic benefits for students in this study as a result of relationship building during the pilot and from knowledge and skills gained as a result of being less distracted by hunger and more fully engaged in the learning process. There also could be long-term benefits for students' social and emotional development resulting from breakfast-in-the-classroom strategies, which afforded teachers the opportunity to act as role models and students the opportunity to learn responsibility by participating in food distribution and clean-up activities.

Even though the pilot project ended in May 2012, we may well have the opportunity to track the progress of students in participating schools. In August 2012, the WVDE Office of Child Nutrition announced that 35 counties initiated the U.S. Department of Agriculture's Community Eligibility Option (CEO) for their school nutrition programs, in some or all of their schools during the 2012-2013 school year—only a few months after the pilot ended. CEO is a federal universal free meal service option, allowing schools to qualify as free feeding sites. All students at those schools receive both breakfast and lunch at no charge. While ensuring that all children receive nutritious meals during the school day, this option also eliminates the need for districts and schools to collect, approve, and verify household applications for free and reduced-price eligible students in high poverty areas of West Virginia. With all students categorized as eligible for free meals, the county is relieved of the burden of billing and collecting money from parents. Additionally, several county boards extended the universal free meal program by grouping schools within the county so that all elementary students receive free meals. As a result, in the 2012-13 school year, 283 West Virginia schools are offering free meals to approximately 90,000 students across the state.[2] As noted the pilot project was of short duration, yet if students enrolled in the pilot schools continue to attend schools with universal free meals, say as part of the CEO expansion, time will tell if they may realize long-term academic and developmental benefits.

Our study revealed information about implementation of the program that could be useful to schools and districts newer to universal free meal programs. For one thing, it was critical to the acceptance and success of the pilot project that most participating schools had the discretion to decide on an approach suitable for their student populations and their particular local context. Characteristics of individual schools within each county influenced the selection of breakfast strategies best suited for each school. Many schools used a combination of strategies based on multiple factors, such as grade level, student population size, building structure, and bus schedules. The selection of breakfast strategies, in turn, affected food options that could be offered to students, as well as the risk that instructional time might be lost as a result. Teachers in some schools expressed great concern about the impact of the school breakfast strategy adopted at their school on instructional time.

[2] For more information about West Virginia's participation in CEO, see the WVDE Office of Child Nutrition website: https://wvde.state.wv.us/nutrition/news.html?news_id=51.

Although this concern abated for most teachers over the course of the year, some believed it continued to be an issue that had yet to be adequately addressed.

Food waste was a big concern for many stakeholders. While schools have taken some steps to reduce the amount of food wasted, districts and schools must continue to identify contributing factors and find solutions to minimize food waste. Soliciting student feedback about school-made meals, allowing students to choose what they want to eat and giving them the option to participate, may enable schools to reduce food waste to some extent. For additional ideas about how to reduce food waste, the Northeast Recycling Council (a nonprofit consortium of 10 states in northeastern United States) has many helpful recommendations and resources.[3]

Participant feedback strongly suggests that the initiative is more likely to be embraced and successful, not only when county and school administrators are strong advocates of the initiative and set expectations prior to the school year, but also when they seek input from other stakeholders regarding decisions on breakfast strategies, scheduling, and type and quality of meals. It is imperative, therefore, that as additional counties and schools plan to implement this or a similar initiative by the WVDE, they be notified enough in advance to allow adequate time for making necessary preparations and for involving relevant stakeholders in some of the decision making.

Recommendations

Recommendations for the West Virginia Department of Education

- Expand the program. Encourage counties to find ways for their schools to participate in universal free meals programs, either through the U.S. Department of Agriculture (USDA) Community Eligibility Option (CEO) or more traditional USDA mechanisms and supplemental funding.
- Help districts and schools identify potential funding sources for renovating kitchens, buying equipment, and procuring other resources to improve both efficiency and quality in their food production.
- Facilitate the exchange of information among schools and counties about successful strategies to explore as they implement their programs.
- Continue to allow districts to adapt universal free meals initiatives to their local circumstances.
- Continue to monitor impacts on student performance, attendance, and disciplinary behavior. Conclusive summative data will take 3 to 5 years of implementation to obtain.

Recommendations for counties

- Be sure administrators are strong advocates of the initiative, set expectations prior to the school year, and involve all relevant stakeholders in planning.

[3] For example, see their 2011 paper, "Food Service/Cafeteria Waste Reduction Suggestions & Guidance," available at the following URL: http://www.nerc.org/documents/schools/FoodServiceWasteReductionInSchools.pdf.

- Do not restrict schools' discretion in developing the breakfast strategy—or combination of strategies—that will maximize student participation and the variety in food choices available to them, while minimizing the loss of instructional time.
- Revisit the meal-to-cook ratio. This formula needs updating to account for the increased time and labor required to cook menu items made from scratch.
- Provide ongoing training for food service personnel to improve their capacity to plan for and prepare nutritious school-made meals.
- Allow adequate time for schools to plan an implementation strategy that includes staffing, equipment, and funding prior to the beginning of the school year.
- Strongly consider exercising the U.S. Department of Agriculture (USDA) Community Eligibility Option (CEO), which will eliminate the need to collect financial forms from families for individual students.
- Investigate local codes regulating the disposal of unopened food packages and uneaten fruit that has been discarded by students, but remains wholesome for consumption at local food banks or other facilities that provide food for those in need.
- For counties that choose to offer universal free meals through traditional USDA funding mechanisms—as did the schools in the pilot project, which predated CEO—employ multiple strategies for raising return rates on parental financial forms. Successful counties in the pilot project worked with parent groups to telephone parents individually, and posted online applications to make the process more convenient for parents and provide additional confidentiality.

Recommendations for schools

- Be strong advocates of the initiative and set expectations prior to the school year.
- Involve all relevant stakeholders in planning, especially regarding breakfast strategies, scheduling, and the type and quality of meals.
- Pay particular attention to the tradeoffs involved with each breakfast strategy. The choice of a particular breakfast strategy in combination with other variables at each school can affect the potential for lost instructional time and the extent to which schools can offer food choices to their students.
- Obtain feedback from students about menus—especially when introducing new food items. Doing so will go a long way in helping cooks to provide nutritious school-made meals that students will eat, and reducing both student hunger and food waste.
- Communicate more effectively to students and staff that students may have as many fruits and vegetables as they choose. Doing so may assuage some of the complaints about students not getting enough to eat at school meals.
- Pay careful attention to the scheduling of meals, and make sure there is sufficient time between breakfast and lunch for students to work up an appetite. Appropriate scheduling could increase their participation in the free meals program and avoid students getting hungry at various points during the school day.
- Optimize the flow of students through lines to receive their meals. Standing too long in line limits the time students have to eat their meals, which can affect the nourishment they receive and lead to food waste.
- When employing the breakfast-in-the-classroom strategy, equip classrooms with necessary cleaning supplies.

- Communicate to all stakeholders, explicitly, that participation in school meals is voluntary.

Contents

List of Figures

List of Tables

List of Appendix Tables

Introduction

The West Virginia Universal Free Meals Pilot project provided a nutritious breakfast and lunch to all students regardless of financial need in 72 schools in seven counties during the 2011–2012 school year. This report examines the implementation and impacts of this pilot project.

The rationale for the pilot project was supported by research on several fronts. Recently released data from the U.S. Department of Agriculture (USDA, 2011b) showed high levels of food insecurity and hunger across the country. These conditions were especially severe in West Virginia, where 14.1% of residents live in food insecure households. Other recent research has shown that 90,633 children live below the poverty line in the state (West Virginia Kids Count Fund, 2010).

With this level of economic distress in the state, academic outcomes could well be affected, as research consistently shows that hungry students do not learn as well as children who have been adequately fed. In a recent literature review on nutrition and student performance, Taras (2005) featured studies that reported the following:

- A significant relationship was found between skipping breakfast and poor student performance (Abalkhail & Shawky, 2002).
- After receiving school breakfast, previously undernourished students significantly improved verbal fluency (Chandler, Walker, Connolly, & Grantham-McGregor, 1995).
- Teachers reported that students who had eaten breakfast were better able to study, listen, and concentrate; parents reported fewer absences (Edward & Evers, 2001).
- Undernourished children performed better on cognitive function tests and were more on task after they began receiving breakfast at school, whereas adequately nourished children showed no change in scores. (Grantham-McGregor, Chang, & Walker, 1998).
- Nutritionally at-risk children who received breakfast at school had improved attendance and scored better on vocabulary testing (Jacoby, Cueto, & Pollitt, 1998).
- Participation in a school breakfast program contributed significantly to higher Comprehensive Test of Basic Skills (CTBS) scores (5 points on the total score) and to lower tardiness and absence rates (Meyers, et al., 1989).
- Students who increased their participation in the school breakfast program had significantly greater increases in their math grades, decreases in rates of school absences, and decreases in tardiness (Murphy, et al., 1998).
- Six months after a free school breakfast program, students previously nutritionally at risk showed significant improvements in attendance and improvements in math grades (Kleinman, et al., 2002).
- Students who received a school meal performed better on an arithmetic test and had better attendance (Powell, Grantham-McGregor, & Elston, 1983).

- School breakfast improved cognitive performance of socially disadvantaged, undernourished children (Richter, Rose, & Griesel, 1997).

Yet, providing free meals to economically disadvantaged students can pose social barriers for them, causing them to feel humiliated by accepting free or reduced-price meals, while other students can afford to pay for them. Economic barriers also exist for families whose earnings fall just above the cutoff, making their children ineligible for free or reduced-price meals. Bills for school meals can be too much for some families to afford, especially for families with more than one child in school.

Social, as well as economic barriers can be overcome, however, as shown in a small number of studies. For example, one study showed that by offering a universal free breakfast, participation in a school breakfast program was destigmatized for economically disadvantaged students (Pertschuk, 2002). Additionally, economic challenges for schools and districts in offering free meals to all of their students may not be as daunting as previously thought. According to Murphy and colleagues (1998), schools where 70% or more of students receive free or reduced-price meals can provide breakfast for all students with minimal extra funding.

In light of these and other studies, the West Virginia Department of Education (WVDE) launched the Universal Free Meals Pilot project beginning in the 2011–2012 school year, as a way to improve outcomes for children living in impoverished communities. In all, 72 schools located in seven county school districts (i.e., Clay, Fayette, Gilmer, Lincoln, Mason, Mingo, and McDowell) elected to participate in the project. Approximately 26,000 students attended schools in these counties. An average of 70% of those students who attended elementary schools were eligible for free or reduced-price meals; for middle schools, the average was 71%; and for high schools, 59%.

In July 2011, district superintendents in participating counties met with the state superintendent to discuss the Universal Free Meals Pilot project. Participating counties in the pilot project agreed to eliminate processed foods, increase school-made meals, and expand food choices to students. Six of the seven participating counties decided to offer free meals at breakfast and lunchtime during the pilot year. The remaining county made the decision to participate in a free breakfast program only, due to budgetary concerns.

In August 2011, cafeteria managers (head cooks) from participating schools attended a 1-day training in Cabell County. The training, conducted by 16 cooks from Cabell County, focused on cooking from scratch.[4] Trained cafeteria managers then provided a similar training to cooks in their respective schools and counties. After the initial training, cafeteria managers in participating counties periodically attended additional training sessions, facilitated by food service directors, to try out new recipes and exchange ideas. It is important to point out that although all participating counties had to agree to increase the

[4] Cabell County cooks had been trained as part of their participation in Jamie Oliver's Food Revolution, during the 2009–2010 school year. The project, which was videotaped and televised in a six-part, primetime series on ABC, promoted meals made from scratch by school cooks using recipes and menus created by Jamie Oliver, a well-known British chef.

level of school-made meals during the pilot project, some counties had already been making a gradual shift away from heat-and-serve (prepackaged processed foods) to school-made meals (cooking from scratch) for a few years prior to the pilot project.

While the Office of Child Nutrition provided conceptual guidance and technical assistance with regard to providing meals to all students, participating districts and schools were at liberty to implement and adapt the project in ways that best suited their particular circumstances. By volunteering to participate in the Universal Free Meals Pilot project, counties agreed to reduce processed foods, increase school-made meals, and offer more choices to students.

Breakfast was offered through one of three strategies recommended by the U.S. Department of Agriculture (USDA, 2011a):

1. *Breakfast after first period*—sometimes called a *nutrition break* or *second-chance breakfast*, students eat breakfast during a break in the morning, often between 9:00 a.m. and 10:00 a.m.
2. *Grab 'n' go breakfast*—breakfasts are packaged in paper bags, boxes, or trays. Students pick up their breakfast and eat it when and where they want, within school guidelines.
3. *Breakfast in the classroom*—students eat breakfast in the classroom at the beginning of the day or during morning break time. Breakfasts can be either hot or cold, depending on a school's facilities.

Changes in the lunch program were limited primarily to menu offerings and levels of participation, but not in the mode of delivery.

Evaluation Questions

We investigated (a) the implementation of the Universal Free Meals Pilot project to inform the department about any adjustments they may wish to make in its operation, and (b) the extent to which impacts such as those reported in the research cited above were evident at the end of the first year of implementation. Our evaluation addressed the following questions:

EQ1. How do various stakeholder groups perceive the implementation and outcomes of the pilot project?

EQ2. To what extent is participation in the Universal Free Meals Pilot associated with positive student achievement outcomes as measured by the state summative assessment (i.e., WESTEST 2) and academic grades?

EQ3. To what extent have attendance rates changed over time among students who are enrolled in pilot schools?

EQ4. To what extent has disciplinary behavior changed among students who are enrolled in pilot schools?

Methods

To study Evaluation Question 1 (EQ1), the *implementation and perceived outcomes* of the pilot project, we gathered data through surveys and interviews (individual and focus group) about stakeholders' experiences with the pilot project. To study the *impacts* of the pilot project (EQ2–EQ4), we examined the academic performance, attendance, and disciplinary behavior of students in the pilot schools and in a matched comparison group, by employing statistical analyses of extant data sources. More detailed descriptions of our methods follow.

Pilot Project Participant Characteristics

In all, 72 schools located in seven county school districts (i.e., Clay, Fayette, Gilmer, Lincoln, Mason, Mingo, and McDowell) elected to participate in the project, beginning in the 2011–2012 school year. Approximately 26,000 students attended schools in these counties. An average of 70% of those students who attended elementary schools were eligible for free or reduced-price meals; for middle schools, the average was 71%; and for high schools, 59%. Table A 1 (Appendix A, page 73) shows the counties and schools involved, as well as each school's grade-span configuration, enrollment, and percent of students eligible for free or reduced-price meals.

In addition to students, stakeholder groups that participated in or were affected by the implementation of the pilot project included district and school staff in various roles (i.e., administrators, teachers, cooks, custodians, aides, or other service or support personnel), and parents.

Description of Intervention

While the Office of Child Nutrition provided conceptual guidance and technical assistance with regard to providing meals to all students, participating districts and schools were at liberty to implement and adapt the project in ways that best suited their particular circumstances. By volunteering to participate in the Universal Free Meals Pilot project, counties agreed to reduce processed foods, increase school-made meals, and offer more choices to students.

Breakfast was offered through one of three strategies recommended by the U.S. Department of Agriculture (USDA, 2011a):

1. *Breakfast after first period*—sometimes called a *nutrition break* or *second-chance breakfast*, students eat breakfast during a break in the morning, often between 9:00 a.m. and 10:00 a.m.
2. *Grab 'n' go breakfast*—breakfasts are packaged in paper bags, boxes, or trays. Students pick up their breakfast and eat it when and where they want, within school guidelines.

3. *Breakfast in the classroom*—students eat breakfast in the classroom at the beginning of the day or during morning break time. Breakfasts can be either hot or cold, depending on a school's facilities.

Changes in the lunch program were limited primarily to menu offerings and levels of participation, but not in the mode of delivery.

Methods for Studying Project Implementation (EQ1)

To study the perceptions of various stakeholder groups about the implementation and outcomes of the pilot project (Evaluation Question 1 [EQ1]), we developed and deployed two surveys (midyear and end-of-year) and other qualitative methods to test the following hypotheses:

H1. Stakeholders will perceive the project to be well implemented.

H2. Stakeholders will be satisfied with the outcomes of the pilot project.

Sampling for surveys

An attempt was made to survey all school staff from the 72 pilot schools. To engage the respective stakeholder groups in the surveys, invitation emails were sent to principals of each school in the participating districts, who then were asked to complete the online survey and also to distribute the link to the survey to teachers and other staff in their respective schools so they could participate as well. Additionally, for the first round of surveys, a letter of invitation from the state superintendent of schools accompanied the email invitation. The invitation emails and letter, and questionnaires for both surveys are provided in Appendix B, page 75.

Sampling for individual and focus group interviews

The evaluation plan called for purposive sampling of participants for interviews to ensure the opportunity for all stakeholder groups that played a significant role in the implementation of the pilot project to contribute to the study (Table 1). This proposed sampling procedure represented an ideal and broad approach to ensure adequate representation of all stakeholders, while also being feasible within time constraints for data collection.

For stakeholder groups with only one member per county—for example, superintendents and food service directors—the research design allowed for semistructured individual interviews with potentially all individuals in the study. In the case of principals, we proposed seven separate focus group interviews for groups of five to eight administrators from each county. This meant that, at minimum, we would include approximately half (48.6%) of the principals from the 72 participating schools in the study. We also proposed conducting a semistructured interview with one head cook from each of the seven participating counties.

Having identified programmatic level as a key variable, we planned to include teachers and student-parent pairs from all three levels. Since elementary schools made up over half (56.9%) of the participating schools, we targeted teachers and student-parent pairs

from elementary schools in greater numbers than middle schools (22.2%) and high schools (20.8%). We proposed to conduct seven focus groups with a group of five to eight elementary school teachers from each county and a total of four focus groups with a similar number of teachers selected from two middle schools and two high schools. We also proposed to interview a minimum of two student-parent pairs from the elementary school level and one additional pair each from the middle- and high-school levels. These plans are summarized in Table 1 (below).

Table 1. Proposed Interview Technique and Sampling for Qualitative Data Collection in Pilot Project Schools and Counties by Stakeholder Group

Stakeholder	Technique	Time	Sampling source	Number
Superintendents	Semistructured interview	30 minutes each (3½ hours maximum)	Volunteers from all seven counties	Maximum seven
Principals	Focus group	1 hour each (7 hours total)	Volunteers from all seven counties	Seven (five to eight participants), one per county
Teachers	Focus group	1 hour each (11 hours total)	Volunteers in chosen schools	11 (five to eight participants each), one elementary per county, two middle and two high schools across counties
Food service directors	Semistructured interview	30 minutes each (3½ hours maximum)	Volunteers in all seven counties	Maximum seven
School head cooks	Semistructured interview	30 minutes each (3½ hours maximum)	Volunteers in chosen schools	Maximum seven
Student/parent pairs	In-depth interview	1-2 hours each	Volunteers in chosen schools	Four to seven, including a minimum of two elementary, one middle, and one high school
School	Observation	Maximum 30 (5½ hours total maximum)	Chosen schools	Maximum 11

What is presented above is what researchers proposed and hoped to achieve in terms of stakeholder participation and representation in this component of the study. However, as will be described later in this report (see page 21, "Recruitment of individual and focus group interview participants"), once the data collection stage of the research began we encountered various obstacles and opportunities that resulted in some deviation from the proposed design. In some cases, these deviations led to a less-than-ideal representation of certain stakeholder groups or programmatic levels; but in other cases, we ended up including stakeholder groups who were not part of the original design, but who provided insights that resulted in a more dynamic and nuanced research study.

Instrument development

Surveys

The survey questions were developed in collaboration with Office of Child Nutrition staff for the purpose of obtaining stakeholder perceptions of the project. The questionnaire was, for the most part, the same between rounds, however it was modified and a few

questions were added/deleted for the second round based on findings from the individual and focus group interviews.

To assure respondents that their anonymity would be preserved and their responses would be held in confidence, they were asked to specify the program level that best described their school, but were not asked to identify the specific school at which they worked. The response options provided were *elementary school*, *middle or junior high school*, and *high school*. Finally, to assess representation in responses from participating school districts we asked respondents to identify the county location of their school. Beyond reporting the number and percentage of responses by district, however, no further analyses were undertaken on a county-by-county basis.

Individual and focus group interviews

We developed an interview protocol to provide a structure for the administration of interviews that would ensure consistency among interviewers and protect participants' rights. The protocol included instructions for (a) properly introducing the interviewer; (b) explaining the role of the Office of Research within the WVDE; (c) describing the purpose of the interview and how data would be used; (d) ensuring confidentiality; (e) obtaining informed consent; (f) setting basic guidelines for interview participation, including participants' rights and responsibilities; and (g) recording the interview.

Based on a review of similar evaluation studies and data from open-ended comments in the midyear (Round 1) survey, we drafted semistructured interview and focus group questions for all stakeholder groups. While questions were generally similar across most stakeholder groups, some questions were necessarily modified, added, or omitted to fit each stakeholder's role and associated circumstances.

On average, there were 10 main interview questions for each stakeholder group (see Appendix B, Individual and Focus Group Interview Questions, page 87). These questions also included a number of subquestions (follow-ups) intended to probe further and guide the conversation. The interview protocol was designed to be flexible enough to accommodate interesting and relevant topics that may spontaneously arise during the discussion. When and if this happened, interviewers allowed all participants to fully comment on the topic before moving on to other questions.

At the beginning of each interview and focus group sessions, interviewers introduced themselves (name, title, and office) and described their role in the Office of Research and the West Virginia Department of Education (WVDE). This was followed by a description of the evaluation study including its intended purpose and the way in which information provided by participants would be used and represented in the study. Participants were assured confidentiality and that no information would appear in any report that could be traced back to an individual. Interviewers informed participants that their participation was completely voluntary and they had the right to decline to answer any or all questions, including requests for basic demographic information about themselves such as name, title, and number of years of employment.

After their rights were fully explained to them and prior to starting each individual and focus group interview session, interviewers obtained participants' oral consent to take

part in the session. Interviewers also asked for participants' consent to digitally record each session. After obtaining their consent to participate and record the session, interviewers then switched the recorder on and once again asked for everyone's consent in order to have it on record.

For student participants, we obtained a consent form signed by their parents. We sent an electronic consent form to each principal from participating schools willing and able to arrange a focus group session with volunteering students. Principals then gave the consent forms to the students to be signed by one of their parents. On the day of the focus group, interviewers collected a signed consent form from each student participant before proceeding with the same protocol outlined above for other stakeholder groups to obtain consent from participating students.

Research design

The research team developed a qualitative research design to gather perceptual data from key stakeholders in all participating counties. The design included various data collection approaches, including online surveys and interviews, intended to produce the highest quality data possible. The decision to use individual or focus group interviews was based on consideration of the size of the stakeholder group, practicality of facilitating the interview, and burden on participants. Individual interviews and focus groups were expected to last approximately 30 and 60 minutes each, respectively, while in-depth interviews were allotted as much as 2 hours.

Approach to data analysis

Our data collection included both multiple-choice and open-ended survey questions and individual and focus group interviews.

Quantitative data from surveys

We used the chi square statistic to test the null hypothesis that there were no statistically significant differences among stakeholder groups or programmatic levels in participants' assessments of (a) the impacts of the project on problems observed at the school, (b) the impacts on student well-being, (c) implementation challenges, and (d) the benefits of the project.

Qualitative data from surveys and interviews

Each individual and focus group interview session was digitally recorded except one, which was documented via detailed note taking.[5] All recorded interviews were then transcribed verbatim. Interview transcripts (including notes from the unrecorded focus group session) and open-ended responses from the second survey were imported into qualitative data analysis software (NVivo 9), and organized by stakeholder group, county,

[5] After the completion of two separate focus group interviews in a county in one day, an opportunity became available for a third and unscheduled focus group on the same day. However, there was no space available on the digital recorder for the third interview, so the interviewer took thorough and in-depth notes instead.

and, when applicable, programmatic level and school. Because interview participants often covered multiple topics while responding to a particular question, it was not possible to separate interview data question-by-question. Consequently, whole transcripts were analyzed for common themes and patterns.

Each interview transcript was first read twice to identify emerging themes and patterns. During the first reading of the transcripts tentative coding categories were created. Tentative categories were then refined during the second reading. In some cases this involved creating subcategories for codes that were too broad, and in other cases, codes that were too detailed were collapsed into broader categories. Transcripts were then read for a third and final time to finalize the coding process.

Coding categories were then examined to identify themes or issues that were salient across multiple stakeholder groups and detect those that were isolated to particular groups. Categories were also analyzed to identify relationships among themes or issues. Appropriate quotations that capture the essence of significant themes and relationships were flagged for later inclusion in the summary. Data were then summarized by overarching themes as well as themes that were particular to various stakeholder groups.

Methods for Studying Project Impacts (EQ2–EQ4)

We shift now to describe the methods used to study the remaining evaluation questions, which involved the use of extant data sources for student achievement, attendance, and disciplinary behaviors. We used the same sampling frame for all three investigations.

Sampling procedures

To test the hypotheses related to the remaining evaluation questions (EQ2–EQ4), we compiled a longitudinal data set that included 2011–2012 and 2010–2011 WESTEST 2 assessment data, a variety of critical demographic covariates, and Universal Free Meals Pilot project participation data (i.e., *participant* or *nonparticipant*) for each student in pilot schools and for all remaining students in the state of West Virginia. We intended to use this data set for the selection of a sample of students who were enrolled in schools implementing the Universal Free Meals Pilot project and a matched group of students in schools where the project was not being implemented. We constructed these two sample groups—henceforth referred to as *treatment* and *comparison* group students, respectively—by following several distinct steps, described below.

Data cleaning procedure

We performed a multistage data cleaning process on a data set we received from the WVDE Office of Information Systems to ensure (a) the validity and integrity of the information prior to analysis, and (b) that the records for each student in the resulting sampling frame included all of the preintervention covariates necessary to conduct a rigorous matching process. Table 2 provides an overview of the data cleaning process we used as well as the level of attrition experienced at each step. As is clear from the table, we

experienced only minor attrition as a result of employing these steps (3.2% of the population).

Table 2. Data Cleaning Procedure for Total Population Data Used in EQ2–EQ4

Step		Resulting N
1.	Assemble initial file containing all students tested in 2010–2011 and 2011–2012 on general assessment only (WESTEST 2).	154,556
2.	Remove students enrolled in special school districts* (Institutional Programs, WVSDB).	153,728
3.	Remove students not tested in either Math or RLA for one of the two years necessary for analysis.	150,019
4.	Remove cases where students were missing school level pre-intervention covariates.	150,010
5.	Remove cases where students progressed down the grade span from 2010–2011 to 2011–2012 or where students progressed up the grade span by more than one grade level from 2010–2011 to 2011–2012.	149,636
	FINAL COUNT	149,636
	TOTAL ATTRITION	4,920 (3.2%)

*Some of the preintervention covariates necessary for our analyses were unavailable for students enrolled in these districts.

Sampling students from the treatment group

We decided to work with a sample of treatment group students in our analyses because we thought including the full population of several thousand treatment group students along with an equal size comparison group would likely result in even the smallest mean differences between groups appearing to be statistically significant. We understood that by making this choice, we must also take pains to ensure that our sample was representative of the total population.

We decided that, if the sample was large enough, simple random sampling would be the most appropriate and efficient method available to select a representative sample, given the sheer number of preintervention covariates upon which we sought to exercise control. We used a freely available sample size calculator to determine the sample sizes necessary to ensure 95% confidence +/- 3% that our observations would be representative of the population.[6] The calculator indicated we would need between 837 and 879 students in each programmatic level to reach this goal. We ascertained that this sample was large enough to successfully employ simple random sampling.

Therefore, using the aforementioned data set, we used SPSS to select a simple random sample of the sizes specified for each programmatic level. The resulting samples are presented in Table 3. After selecting our samples, we conducted a series of descriptive analyses, which verified that each random sample was, within a reasonable margin, representative of the population from which it was selected (see Table A 34–Table A 36, page 119).

[6] The sample size calculator, published by MaCorr Research Solutions, is available online at http://www.macorr.com/sample-size-calculator.htm.

Table 3. Random Samples of Treatment Group Students by Programmatic Level

	Students in Universal Free Meals Pilot project schools (treatment group)		
Programmatic level	Number in population	Number in sample	Percent of population
Elementary	4,739	879	18.5
Middle	3,880	837	21.5
Secondary	4,871	875	17.9

Selecting a matched comparison group

We used propensity score matching (PSM) to select an appropriate comparison group of students from the total population of students who *did not* participate in the Universal Free Meals Pilot project. PSM is a methodology that uses a logistic regression model to match two samples based on a single score, referred to as a propensity score. The propensity score is the conditional probability of being assigned to the treatment group given a set of observed covariates. The goal of PSM is to model equivalent selection bias in both groups, thus exercising some degree of control over the impact of the observed covariates on the outcome variable of interest. Basically, PSM is a powerful tool that allows researchers to balance the distribution of important covariates in the treatment and comparison groups to ensure the groups are equally matched before analyzing outcome data.

In this study, we sought primarily to control for prior academic achievement in both reading/language arts and mathematics, but specified 11 total covariates in the propensity score model. The first seven were measured at the student level and included, (a) preintervention mathematics achievement, (b) preintervention reading/language arts achievement, (c) race, (d) English proficiency, (e) special education eligibility, (f) free or reduced-price lunch eligibility, and (g) gender. The last four covariates were measured at the school level and included, (h) school enrollment, (i) school free or reduced-price lunch eligibility, (j) school mathematics performance and (k) school reading/language arts performance. The operationalization of each of these variables is described in Operationalization of Variables Used in Propensity Score Matching, page 127.

We specified a single PSM model but used that model separately within each programmatic level. This guaranteed that all students were comparable in terms of programmatic level. The PSM algorithm was specified to select the nearest neighbor for each treatment student, based on the distance observed between their propensity scores. We did not allow replacement of students. The model specified appears in Table 4, along with final sample sizes for each programmatic level.

Table 4. Final Samples by Programmatic Level

Programmatic level	PSM model	Final sample size*
Elementary	Treatment = math2011 + RLA2011 + race + LEP + SPED +	1,758
Middle	LSES + gender + school enrollment + school LSES + school	1,674
Secondary	math proficiency2011 + school RLA proficiency2011	1,750

*Treatment and comparison groups were the same size.

Assessing the degree of success in matching

The extent to which PSM is successful is commonly assessed by examining pre- and post-matching balance statistics. These statistics illustrate how unbalanced the samples were

before matching and the extent to which that balance improved after matching. We assessed the improvement in balance for each preintervention covariate. Overall, we found that PSM algorithm worked quite well with respect to matching the treatment and comparison groups on the seven student-level covariates. However, the models were somewhat less successful in controlling for the four school-level covariates. This finding underscored the importance of controlling for school-level covariates in subsequent analyses. A full overview of the PSM balance statistics can be found in Table A 37 through Table A 39, page 129.

Research design and approach to data analysis

As mentioned earlier, we used the samples constructed using the procedures just outlined in analyses for EQ2–EQ4. Methods and the hypotheses tested are outlined below, and more fully elaborated in the results sections for each evaluation question.

To study relationships that may exist between project participation and student achievement outcomes (EQ2), we tested the following hypotheses:

H3. WESTEST 2 scores for reading/language arts and mathematics for students in pilot sites will increase significantly over the course of the pilot (TIME).

H4. WESTEST 2 score changes for these students will differ significantly when compared to students from a matched set of comparison schools (GROUP * TIME).

We tested these two hypotheses by compiling and analyzing longitudinal data sets containing WESTEST 2 assessment data for each student in both groups.

To study the extent to which attendance rates changed among students enrolled in pilot schools (EQ3), the following hypothesis was tested:

H5. Average attendance rates will increase significantly among students in pilot sites. (TIME)

We compiled and analyzed a longitudinal data set from the West Virginia Education Information System (WVEIS) containing attendance data (membership and absences) for each student in both groups.

To study the extent to which disciplinary behavior changed among students enrolled in pilot schools (EQ4), the following hypothesis was tested:

H6. The rate and severity of behavioral disciplinary incidents will decrease significantly over the course of the pilot.

We compiled and analyzed a longitudinal data set from the WVEIS Discipline Module containing behavioral offenses and corresponding disciplinary dispositions for each student in both groups.

Results

The results of data collection and additional details about the methods used for data analysis are presented by evaluation question, beginning with EQ1, which focuses on implementation issues and perceptions about impacts. Sections follow that are focused on the three impacts questions, including impacts on student performance (EQ2), student attendance (EQ3), and student disciplinary behaviors (EQ4).

Intervention Fidelity

As mentioned earlier (see Description of Intervention, page 5), school districts were given great latitude in their approach to the implementation of the pilot project in their own schools. In turn, most districts allowed schools within their jurisdictions to implement the pilot project in ways that made the most sense for their programmatic levels and students. Consequently, as the evaluation evolved it became clear that the relevant questions were not so much about whether they implemented with fidelity relative to prescribed guidelines, but rather about issues such as (a) how they implemented within their own settings, (b) the concerns they had as they undertook meal expansion strategies, (c) perceptions about the effects of the initiative on student well-being and engagement, and (d) other selected issues related to school climate and student behavior. Findings about these issues are described in the next section. Impacts on student academic performance, attendance, and disciplinary behaviors are reported in subsequent sections.

EQ1. Project Implementation

To examine the perceptions of various stakeholder groups regarding the implementation and outcomes of the pilot project, we developed and deployed surveys and conducted individual and focus group interviews to test the following hypotheses:

H1. Stakeholders will perceive the project to be well implemented.

H2. Stakeholders will be satisfied with the outcomes of the pilot project.

The timeline proposed in the evaluation design called for administering surveys and conducting focus groups, interviews, and other qualitative approaches beginning in April 2012 to capture end-of-year stakeholder perceptions. However, a need arose to administer surveys to obtain feedback useful to WVDE staff implementing the Universal Free Meals Pilot project earlier than initially planned. As a result, surveys were administered twice—midyear, on January 17 to 23, 2012 (Round 1) for initial feedback, and again for end-of-year perceptions, on May 14–19, 2012 (Round 2)—using online questionnaires posted via SurveyMonkey™. This strategy proved useful because the Round 1 survey informed the development of questions for subsequent focus group and stakeholder interviews, which in turn helped us modify the questionnaire for the end-of-year survey (Round 2).

Survey response rates, baseline data about respondents, and responses to multiple choice questions for the end-of-year survey are reported first, followed by an analysis of the

data collected through survey open-ended questions and interviews. (Complete findings for both rounds of the survey can be found in Appendix B, beginning on page 98.)

Results of survey multiple-choice items

A total of 506 useable responses were submitted from six of the participating county school districts in the midyear survey (Round 1) and 489 were received in the end-of-year (Round 2) survey. No more than three responses were submitted from Clay County staff; thus these responses were excluded from analysis of EQ1 .

Baseline data about survey respondents

Compared to the number of schools and estimated number of staff in each of the participating counties, survey participation was somewhat uneven (Table 5); staff from Mason and McDowell counties responded in numbers proportionate to their respective staff sizes, but Lincoln County was overrepresented in the total response. Responses from Fayette County remained a bit lower than expected relative to their number of staff.

Table 5. Number and Percent of Round 2 Survey Respondents by County

		Staff		Round 2 survey respondents	
County*	Number of schools	Number of staff**	Percent of staff	Number	Percent
Total	67	3,188	100.0	489	100.0
Fayette	20	837	28.4	83	17.0
Gilmer	5	146	5.0	30	6.1
Lincoln	10	402	13.6	116	23.7
Mason	9	462	15.7	90	18.4
McDowell	10	464	15.8	96	19.6
Mingo	13	635	21.6	74	15.1

*Clay County responses were too few to include in the analyses

**Staff numbers are estimates

Participants were asked their current role and the number of years they had worked, in any role, at their school. About 80% of respondents were teachers, 9% to 11% were administrators, and 10% to 11% were other school personnel (Table 6).

Table 6. Number and Percent of Round 2 Survey Respondents by Role Group

	Round 2 survey respondents	
Role	Number	Percent
Total	489	100.0
Administrator (principal or assistant principal)	43	8.8
Teacher	391	80.0
Cook	2	0.4
Custodian	0	0.0
Aide	16	3.3
Other service or support personnel	37	7.6

About half of survey responses were from staff at elementary schools (48%), with the other half divided between middle/junior high school (21%) and high school (31%; Table 7).

Table 7. Number and Percent of Round 2 Respondents by Programmatic Level

	Round 2 survey respondents	
Program level	Number	Percent
Total	489	100.0
Elementary school	235	48.1
Middle or junior high school	102	20.9
High school	152	31.1

The most frequent categories reported for respondent years of service were *over 10 years of service* (29%) and *3 to 5 years of service* (22%), followed by roughly equal proportions in the remaining categories (Table 8).

Table 8. Number and Percent of Round 2 Respondents by Years of Experience in any Position at Their School

	Round 2 survey respondents	
Years of Service	Number	Percent
Total	487	100.0
Less than one year	64	13.1
1 to 2 years	86	17.7
3 to 5 years	107	22.0
6 to 10 years	88	18.1
Over 10 years	142	29.2

There were few differences in responses to the midyear and end-of-year surveys. Consequently, this section focuses on multiple-choice item results from the end-of-year survey (Round 2) only. For a detailed comparison of survey results for the two survey administrations, see Appendix B, page 99. Responses to the open-ended questions are reported in the next section (page 21), along with other qualitative data collected through individual and focus group interviews.

For the analysis of stakeholder perceptions by respondent role the response options were collapsed into three categories by grouping cooks, aides, custodians and other personnel into a single group labeled *all other personnel*. Middle and junior high schools are both referred to as *middle schools*.

Perceived impacts on negative student behaviors

Most respondents to the end-of-year survey indicated that various negative student behaviors—including disruptive student behavior, physical fighting between students, lack of respect for staff by students, harassment or bullying among students, students having headaches or stomachaches, and cutting classes or skipping school—were not a problem or were only a minor problem in their schools (Table A 6, page 102). When disaggregating these findings by role group, administrators tended to report more favorable opinions about all issues; however, statistically significant differences were observed on only four of the seven (Table A 7, page 103). In terms of c*utting classes or skipping school* and *lack of*

respect of staff by students the percentage of administrators rating these as less of a problem differed from both teachers and all other personnel by fairly large margins—20 to 30 percentage points. Administrators rated *harassment or bullying among students* as not a problem or only a minor problem at significantly greater percentages compared to teachers; likewise, their ratings that *students having headaches or stomachaches* were not a problem or only a minor problem differed from all other personnel by a significant higher margin. No other difference among the three role groups was statistically significant for these four items. When we disaggregated the findings by programmatic level, staff from elementary schools tended to report more favorable opinions about all issues. Statistically significant differences were observed, however, on five of the seven: *Disruptive student behavior, physical fighting between students, lack of respect of staff by students,* and h*arassment or bullying among students*. Elementary school staff reported these as much less of a problem as middle or high school staff. Additionally, elementary and middle school staff reported c*utting classes or skipping* to be much less of a problem than high school staff (Table A 8, page 104).

When asked to compare these negative student behaviors to last year, the preponderance of opinion was that things had either stayed the same (about half to two thirds of respondents, depending on the behavior) or gotten better compared to the previous school year (a quarter to more than a third). Only a quarter, or far less than a quarter, reported things had *gotten worse*. The three problem areas that showed the highest percentages of *gotten better* responses were students' difficulty concentrating on instruction an hour or two before lunch (46%), physical fighting between students (41%), and disruptive student behavior (36%) (Table A 9, page 105). It should be noted that teachers differed from administrators by reporting in higher percentages that *lack of respect of staff by students* and *harassment or bullying among students* had gotten worse from the previous year (Table A 10, page 106). No other difference among the three role groups was statistically significant for these four items. When disaggregating by programmatic level, roughly a third or fewer staff from any program level reported any of the behaviors to have gotten worse (Table A 11, page 107). There were a few differences to note among school program levels: (a) larger percentage of high school staff reported *disruptive student behavior* to have gotten better compared to elementary staff; (b) a larger percentage of high school staff reported *physical fighting between students* had gotten better compared to both elementary and middle school staff; and (c) larger percentages of both middle and high school staff reported *cutting classes or skipping* to have gotten worse.

Perceived impacts on student well-being and engagement

Respondents were also asked about various positive student traits, including how many students are healthy and physically fit, are motivated to learn, are well-behaved, show respect for their teachers, show respect for other students, are actively engaged in learning, are happy to be at school, and take active part in school activities. More than half to over three quarters of respondents indicated these traits were present in almost all or most students, depending on the particular trait (Table A 12, page 108). There were larger differences among the respondent role groups than one would expect for seven of the eight traits (Table A 13, page 108). Substantial and statistically significant differences between administrators and teachers were observed on all seven items, with administrators indicating more favorable opinions by roughly 20 to 30 percentage points. Administrators

also differed by similar rates from other personnel on three of the traits—that students *show respect for their teachers*, *show respect for other students*, and *are actively engaged in learning*—again with administrators holding more favorable opinions. Other personnel held more favorable opinions than teachers on the proportion of students who could be described as *motivated to learn*. When viewing the responses by programmatic level, significantly higher percentages of elementary school staff (73% to 86%) reported that "almost all or most" students at the school could be described by seven of the eight health and behavioral traits about which they were asked compared to both middle (44% to 65%) and high school (34% to 66%) respondents (Table A 14, page 109). On the remaining item, i.e., how many students could be described as well behaved, elementary school staff held significantly more favorable opinions than middle school respondents.

When respondents were asked to compare the presence of these health and behavior traits to the previous school year, the vast majority (88%–97%) reported that the student health and behavioral traits had gotten better or stayed the same. The three traits that showed the highest percentages of *gotten better* responses were students *are happy to be at school* (40%), *are actively engaged in learning* (40%), and *are motivated to learn* (38%) (Table A 15, page 110). On only one trait did the role groups differ, and on this trait a far greater percentage of other personnel reported that the proportion of students that *take active part in school activities* had gotten better from the previous year compared to administrators (Table A 16, page 111). A few statistically significant differences among respondents in the three programmatic levels were observed (Table A 17, page 112). In terms of the proportion of students thought to be *healthy and physically fit*, a greater percentage of elementary staff reported this trait to have gotten better compared to high school staff. Larger percentages of both middle and high school staff reported the number of students who are *motivated to learn* to have deteriorated from the previous year. For the number of students who *show respect for teachers and other students*, far more middle school staff reported things had gotten worse compared to elementary school staff. Higher percentages of high school staff compared to elementary staff tended to report the number of students *actively engaged in learning* had gotten worse, and compared to both elementary and middle school, high school staff reported that the number of students *happy to be at school* had gotten worse.

Of those staff who had responded that the presence of the traits had gotten better compared with the previous year, the vast majority (over 90% in most cases) thought the improvements *probably* or *definitely* were attributable to their participation in the program (Table A 18, page 113). Comparison of statistically significant differences among role groups was not possible, because the analysis was limited to those staff who reported things had gotten better compared to the previous school year and the numbers were too small.

An additional question was added in Round 2 of surveys to gauge respondents' opinions about the extent to which the project contributed to overall student well-being, reduced the stigma attached to free- or reduced-price meal eligibility, and the effect on meal participation among eligible students as a result of the removal of stigma (Table A 19, page 114). There was commonality among the three role groups and programmatic levels in their opinion about these questions (i.e., no significant differences were observed). Only one statistically significant difference was observed among school program levels on these

questions. Fewer high school staff than elementary staff (55% vs. 69%) reported that the opportunity for all students to eat free breakfast at school contributes to their overall well-being to a major extent (Table A 20, page 115). Collectively, there were interesting findings. About 60% to 71% of respondents reported that the opportunity for students to have free breakfast or free lunch contributed to a major extent to student well-being, and another 20% to 30% reported the same to a moderate extent. Similar percentages were observed with regard to the extent to which the Universal Free Meals Pilot project removed the stigma attached to free or reduced-price meal eligibility. Conversely, more mixed results were observed with regard to any benefits realized from students having the opportunity to eat breakfast at an alternative time (such as after first period in the school day), contributed to students' well-being. Here more than 30% of respondents reported it contributed to a minor extent or not at all (Table A 19, page 114). More favorable results were seen with regard to the extent to which removal of eligibility (and associated stigma) resulted in any increase in meal participation, yet 19% to 28% reported the contribution to be only to a minor extent or not at all.

Concerns with the Universal Free Meals Pilot project

When asked to indicate their level of concern about seven issues directly related to implementation of the pilot project—including integrating nutritional and instructional programming, organizing the distribution of food, time for food service staff to prepare and distribute food, problems with cleanup, food being wasted, food safety, and parent dissatisfaction with the project—about three quarters of respondents indicated the issues were *not a concern* or a *minor concern*. The one exception to this pattern was *food being wasted*, which nearly half of respondents saw as a *moderate* or *major concern* (Table A 21, page 116). When disaggregating these findings by role group, for the most part a majority of staff across all three respondent role groups indicated most of the issues were *not a concern* or only *a minor concern* (Table A 22, page 117). The exception was the issue of food being wasted, where 30% of administrators, 46% of teachers, and 56% of other staff reported this to be a *moderate* or *major concern*. Notable differences in how the three respondent groups rated their level of concern were observed on four of the issues. With regard to *organizing the distribution of food,* the three groups had similar percentages who said it was *not a concern*; however, significantly fewer administrators indicated this to be a concern at any level (minor, moderate, or major). Understandably, other personnel—a group that includes cooks—rated the issues of *time for food service staff to prepare and distribute food* and *sufficient kitchen staff to handle extra food preparation* to be of more concern. Similarly, both teachers and other personnel differed from administrators on *problems with cleanup*. Nearly 70% of administrators said this was *not a concern*, whereas 46% and 36% of teachers and other personnel, respectively, held the same opinion. When disaggregating by programmatic level, only two notable differences were observed—between high school and middle school staff. First, for *integrating nutritional and instructional programming,* more middle school staff reported this to be a moderate concern than high school staff, whereas more high school staff reported *problems with cleanup* to be a moderate concern (Table A 23, page 118).

Perceived benefits of the Universal Free Meals Pilot project

The final sets of questions concerned the extent to which staff thought the Universal Free Meals Pilot project had been a success at their school; whether they thought the pilot had been worth the investment in resources such as time, staff, materials, and money; concerns about sustainability; and wishes to continue the project in the next academic year. Overall, a large majority of staff reported that the project had been successful at their school to a moderate or major extent (Table A 24 and Table A 25, page 119). This opinion was consistent across the three role groups. Fewer than 15% of respondents in any group indicated the project was successful to only a minor extent, or not at all (Table A 26, page 119). Similarly, a large majority of respondents (78% of teachers to 91% of administrators) reported that the Universal Free Meals Pilot project has been worth the investment in time, staff, materials, money, and other resources their school or county has made (Table A 27, page 119). In terms of the extent to which staff were concerned about the sustainability of the Universal Free Meals Pilot project in their school or county, statistically significant differences were observed among the role groups. As might be expected administrators were more apt to express major concern—51% compared to 27% of teachers and 24% of other staff (Table A 28, page 119). Despite their concern with sustainability, administrators joined with teachers and other personnel in affirming their desire to continue to provide the Universal Free Meals Pilot project to students in the following school year (Table A 29, page 120). No differences were observed among the three program levels on the final sets of questions concerning the extent to which staff thought the Universal Free Meals Pilot project had been a success at their school; whether they thought the pilot had been worth the investment in resources such as time, staff, materials, and money; concerns about sustainability; and wishes to continue the program in the next academic year (Table A 30, page 120 through Table A 33, page 121).

Results of individual and focus group interviews, and survey open-ended questions

As with most social science qualitative research studies, data gathering is highly dependent on potential participants' ability and willingness to sacrifice their valuable time to participate in the research. Compared with surveys, which require considerably less time to complete and offer a greater level of confidentiality, individual and focus group interviews require more time from participants and, due to the personal nature of data collection, tend to discourage stakeholders from volunteering to participate. Additionally, the relatively brief timeframe allotted for qualitative data collection (3 months at the end of the school year) did not allow for adequate time to build rapport with potential research participants, conduct observations, or in some cases, identify times and dates that were convenient for both researchers and stakeholders.

Recruitment of individual and focus group interview participants

As a result of the issues outlined above, with the exception of superintendents and food service directors, participation of other stakeholder groups in this study did not precisely conform to the plan laid out in the evaluation proposal (see Sampling for individual and focus group interviews, page 6). On the other hand, we included other stakeholders during the course of the research that were not part of the original research design. For example, we included wellness coaches, a county treasurer, and a county nurse simply

because the opportunity presented itself and we believed they offered unique viewpoints that would positively contribute to the study.

Between early March and early June 2012, a total of 142 individuals, representing eight stakeholder groups, participated in this study. Three researchers conducted eight individual and 18 focus group interview sessions, averaging seven individuals per focus group. The total number of minutes for all 26 interview sessions was 1,229.3 minutes (20.5 hours) for an average of 49.8 minutes per session. On average, individual interviews took 24.3 minutes to conduct while focus groups lasted 62.4 minutes (Table 9).

Table 9. Description of Interview Approaches Used for Various Stakeholder Groups

Stakeholder	Technique	Number of sessions	Number of counties represented	Total number of participants	Average number of participants per session	Total number of minutes	Average length of sessions (min)
All stakeholders and techniques		26	N/A	142	7.0**	1,229.3	49.8
Superintendents	Individual interview (phone)	6	6	6	1.0	194.3	32.4
Principals	Focus group	4	4	27	6.8	252.1	63.0
Teachers	Focus group	7	4	56	8.0	337.6	48.2
Food service directors	Focus group	1	7	9*	9.0	110.5	110.5
Head cooks	Focus group	2	2	15	7.5	117.1	58.6
Students	Focus group	3	2	23	7.7	125.0	41.7
Parents	Focus group	1	1	4	4.0	52.2	52.2
Parents	Individual interview (Face-to-face)	1	1	1	1.0	13.5	13.5
School nurse	Individual interview (Face-to-face)	1	1	1	1.0	27.1	27.1

*Included Mason County treasurer and Cabell County food service director

**Excludes individual interviews

To schedule interviews and focus groups with the various stakeholders involved in the pilot project, we began by contacting each superintendent via telephone to inform them about the research and to gauge their willingness to participate in a telephone interview. After obtaining their consent, a mutually agreeable date and time was scheduled for the interview. Although all superintendents consented to participate in the research, due to repeated unanticipated schedule conflicts and the limited timeframe for data collection, we were unable to interview one of the superintendents from the seven participating counties.

We also requested permission from superintendents to conduct focus group interviews with willing principals in their counties during one of their monthly meetings with school administrators. We followed up with several phone calls and email exchanges until an appropriate date and time was identified for principal focus groups. Again, due to schedule conflicts and a relatively small window of opportunity for data collection, focus

group interviews were conducted with only 27 principals from four participating counties. Principals represented 13 elementary schools, 9 middle schools, and 5 high schools (Table 9).

Principals, superintendents, and food service directors were consulted to determine the most appropriate time to conduct focus group interviews with teachers. Instructional support and enrichment (ISE) days were suggested as the most, and perhaps only, logical and feasible time when enough teachers would be available in the school building and able to spend an hour participating in a focus group. On April 9, 2012 we sent an email to all 72 principals, requesting their assistance to facilitate access to a group of five to eight teachers from each of their schools.

A total of nine schools volunteered to participate, but only six were included in the study. Two of the schools were not included in the study because we did not succeed in finalizing an interview schedule before their last ISE day. The third school already had their last ISE day by the time the principal was contacted and, although the administrator was willing, a non-ISE day feasible for both teachers and researchers was not available before the end of the school year. Notably, a county food service director facilitated one of the teacher focus groups, which included six teachers from as many county schools, who also served as wellness coaches. In all, we conducted a total of seven focus groups with 56 teachers from four counties. The teachers in the focus groups represented eight elementary and four middle schools (Table 10). No high school teachers participated in the study.

Table 10. Individual and Focus Group Interviews Held, by Stakeholder Group and Programmatic Level

	PreK/elementary	Middle	High
Teachers	8	4	0
Students	2	1	0
Principals	13	9	5
Cooks	6	6	3
School Nurse	1	0	0

We realized during the early stages of data collection that gaining access to student-parent pairs posed many challenges. Accordingly, we once again requested assistance from principals in arranging to meet with focus groups of five to eight willing students in Grades 3 or higher. Three schools from two counties were able to facilitate student focus group interviews; all were included in the study. A total of 23 students took part in three focus groups, including 15 students from elementary school and eight from middle school (Table 10).

We conducted only one parent focus group interview, which included four parents from one county. This focus group was facilitated by the food service director in the county. Another parent, who was also a teacher in the same county, was interviewed individually (Table 9). Although only five individuals participated in a parent interview or focus group, the vast majority of other stakeholders involved in the study were also parents, many of whom still had children in the K-12 school system in their counties. During individual and focus group interviews with these stakeholders, participants often shared their views as parents in addition to their professional perspectives.

To arrange for interviews with food service directors, we presented the intent and purposes of the evaluation research via a conference call with them arranged by WVDE Office of Child Nutrition program staff. During the call, we asked them to participate in individual interviews; they consented, allowing us to contact them individually for scheduling. However, an opportunity arose later to bring all food service directors together to conduct a single focus group interview, in which all seven participated (Table 9).

Very early in the data collection stage of the study, it became apparent that cooks played a significant role in the implementation of the pilot project, which called for greater representation in the study than proposed in the original research design. An email request was sent to food service directors to facilitate focus group interviews with 5 to 8 head cooks in their counties. Two focus group interviews were ultimately conducted with 15 head cooks from two counties. Head cooks represented six elementary, six middle, and three high schools (Table 10).

Findings

Findings reported below are based on an analysis of data collected in the individual and focus group interviews, and in the open-ended questions from the end-of-year survey (cited below as *survey*).

Participants' overall view of the project

Overall, feedback from stakeholders regarding the intent and impact of the pilot project was overwhelmingly positive. Respondents indicated the importance of every student having the opportunity to eat adequate and nutritious meals daily. Comments indicated that, as a result of the pilot project, all students were provided the opportunity to eat meals and schools witnessed large increases in student participation. Generally, stakeholders found school meals to be healthier, offering more variety compared to previous years.

According to most teachers, compared to previous years, students also appeared to be more actively engaged in the classroom and exhibiting better concentration and higher levels of energy. Comments also indicated that the program positively impacted student-teacher relationships in some schools, which may have positive long-term benefits for individual students (social, emotional, and academic), as well as for overall school climate.

Participants frequently pointed to the timeliness of the pilot in light of current regional and national economic conditions, including historically high levels of poverty, unemployment, and underemployment in their counties. Many respondents believed that, for many students, the meals they receive at school are quite possibly the only nutritious meals they will eat.

> I hope that the program continues. I know that it has helped with students who only receive their meals at school. We are in a very poor county and parents genuinely appreciate the nutritional meals provided for their children (Teacher, survey).

> This has been one of the best pilot programs introduced to our schools. I have often worried as an administrator if some of our school children go hungry. Thanks to this program I no longer have to worry. I would highly recommend the program next year (Principal, survey).

> I'll tell you the challenges far are outweighed . . . by providing the food to the students (Superintendent, interview).

> I had a kid get sick the other day because he hadn't had anything since lunch the day before. So yeah, we're doing something about that now at the school individually, but I'm sure he's not the only one who didn't have supper the night before (Teacher, focus group).

Furthermore, stakeholders indicated that one of the main beneficiaries of the pilot were working parents whose income levels were just above the threshold to qualify their children for free meals in previous years, but not high enough to comfortably afford to pay for school meals.

> As a parent in [this] County who doesn't qualify for reduced or free meals, I can't express what a burden the school lunch bill puts on family budgets even when both parents are employed. We have 3 children in school and when they all eat breakfast and lunch every day at school it is a huge bill to pay. Next year the price is even higher! Before the free breakfast program, my kids wouldn't eat school breakfast because we couldn't afford it. So when we're running late, there were times when my kids didn't eat breakfast. It would be a shame to discontinue the program (Teacher, survey).

> I think everybody's happy with it [the pilot project]. At one point I had three kids in school and I had three lunch bills, and it was…bigger than the power bill (Parent, focus group).

It is very evident that stakeholders had very favorable views of the pilot project. While some areas of concern were identified by some stakeholders (discussed below), overall, the vast majority indicated that the positive impacts of the program far outweighed any challenges they encountered as they implemented the program during the pilot year. Almost all stakeholders who participated in individual and group interviews expressed the desire to continue with the program for the foreseeable future. Comparatively fewer stakeholders identified issues they want to see addressed before their county or school commits to implementing the program for a second year.

What we present below is structured along six major themes that emerged during the analysis of individual and focus group interview data. These are (a) financial supports for the pilot project, (b) practical considerations regarding various breakfast strategies; (c) quality of the school meals and students' adaption to the new menus; (d) student participation; (e) impacts on classroom instructional time; and (f) food waste. It is our hope that data provided below illustrates the many great benefits of the pilot project while at the same time documenting challenges faced and overcome by participating counties and schools. Perhaps more importantly, we hope our study will be useful to schools and counties in West Virginia and other states, as they plan to initiate similar universal free meals programs.

Financing the pilot project

The primary concern for counties was finding a way to finance every aspect of the pilot project. Although pilot project counties no longer had to worry about uncollected debt from parents who fail to pay the lunch bill for their children, they now had to be concerned about, among other things, the return of financial forms from all parents, since the forms determined the amount of reimbursement each county received.

> I think that children should eat and I think they should have the opportunity. And I think that this has obviously created an enhanced or greater opportunity, and it's increased our production and participation, and I think all that's good. I just think that for a larger county our exposure may be greater than $400,000 in terms of

> deficit, in terms of revenue and expenditure, you know the cost of doing this. A lot of it hinges on getting those applications back…we don't have ultimate control of that. The parents that can still do nothing, you know, the apathy and just the failure to respond impacts our financial capability because we've got a number of lunches that are being prepared and consumed that we're not getting reimbursement and therein lies a big part of the problem. If we could get 80%, 75-80% of our applications back we wouldn't have a problem (Superintendent, interview).

One of the consequences of free universal meals is that parents had little incentive to turn in their financial forms. Also, according to stakeholders, some parents whose incomes were above the threshold to qualify for free and reduced-price lunches were very reluctant to disclose their financial status.

> And one of the things that we were talking about at the beginning of the year, too, was collecting the free and reduced lunch forms that every person was asked to fill one out. And the higher income level parents, it wasn't that they didn't want to cooperate, they just didn't want to reveal their income, regardless of how many times you approached asking that they do that (Superintendent, interview).

Stakeholder feedback also indicated that larger school systems had a considerably harder time obtaining financial forms compared to smaller school systems, where school personnel could personally approach each parent. Overall, secondary schools also had difficulty with financial form return rates and, according to stakeholders, getting forms back from parents was not particular to this pilot project but is generally symptomatic of those programmatic levels.

However, a few counties were extremely successful in this regard and had return rates of 100 percent or very close to it. To some extent, these counties tended to be those with a high percentage of free and reduced-price lunch eligibility, where most parents already had experience completing financial forms to allow their children to receive free or reduced-price meals at school. Additionally, county and school personnel in successful counties spent a considerable amount of time and effort contacting parents multiple times, using various means. Two counties used parent groups to contact those parents—in person and over the phone—who had not returned their financial forms, which reportedly contributed greatly to their success. Most counties also made an online financial form available to parents to make the process more convenient and offer additional confidentiality.

> We sent multiple, double, triple notices in the mail, [with] self-addressed envelopes. We pushed an electronic version. We really communicated hard as far as the PR, how positive this pilot would be and that it was contingent on our ability to get applications processed and you know people were more than happy to help (Superintendent, interview).

High return rates on parental financial forms for federal reimbursement offset some of the expenses involved in providing free school-made meals to all students. There were, however, additional costs incurred by each county during the implementation of the pilot project. Free universal meal programs incorporating school-made meals require, among other things, (a) food commodities that are generally more expensive compared to processed/prepackaged foods; (b) more time to prepare and cook food, which in turn may require additional labor and training; (c) a large enough kitchen, furnished with suitable equipment to accommodate an increase in food production and storage; and (d) other

supplies that, in part, depend on the type of breakfast strategies a school adopts—such as larger trash cans and cleaning supplies for classrooms, specialized trays and bags to carry food, and carts to transport food to classrooms.

To be sure, counties took advantage of grant opportunities provided by the WVDE to purchase some kitchen equipment. The provision of fresh fruits and vegetables in some counties was made possible by a Fresh Fruit and Vegetable Program (FFVP), which piloted in the 2008-2009 school year. The program awards funding to selected schools—primarily targeting elementary schools after the pilot year—based on the percentage of students eligible for free and reduced-price lunche. These types of funding opportunities were tremendously helpful to counties. Yet, they fell short of adequately addressing the issue and did not provide sustainable solutions for all participating schools. Some school kitchens were very old and equipped with small-volume, outdated, and at times inoperable equipment, making it a challenge to prepare the type and volume of food schools were expected to serve. The shortage of proper storage space also affected the shelf life of food commodities and ultimately may have contributed to food waste.

> And I think where some of us are running into problems is we don't have enough equipment. Like we've just got one oven and you've just got one holding cabinet and sometimes you don't have room to put all this stuff. We've got a steamer that will hold what four inch pans, that's all it will hold at a time (Cook, focus group).
>
> I have a very old building, too, and I only have two refrigerators. So when you do the fresh fruit and vegetables, and the more you order, sorry, you have to sit [the produce] on milk crates (Cook, focus group).
>
> I don't have a lot of freezer space (Cook, focus group).
>
> I have two ovens, but half the time only one works (Cook, focus group).

As to the labor involved, participating schools employed various strategies to handle the increased volume of food production required by the pilot project, including (a) hiring new cooks, (b) transitioning part-time cooks into full-time employees, (c) extending overtime opportunities for their cooks, and (d) allowing their cooks to come in an hour or so early to accomplish the extra work to be done. Even so, stakeholders who participated in focus group interviews indicated that kitchens in most schools were grossly understaffed.

> Cooks constantly complain that they don't have enough employees in the kitchen to prepare all this food [for breakfast] and be able to prepare enough for four lunch periods. They say it is VERY hard (Teacher, survey).
>
> The county hasn't hired additional cooks at my school, even though the number of meals served each day has increased significantly (Teacher, survey).
>
> More consideration [needs to be] given to the cooking staff. This has required a lot of time for preparation and serving. We have the best cooks in the county so they complain very little but it is apparent that they are pushed for time to prepare from scratch most of the meals by the time serving time arrives (Principal, survey).
>
> We need more kitchen staff because some in some schools their kitchen staff never get to even take a lunch much less a break! (Service personnel, survey).

It is very apparent from stakeholder feedback that most were aware of the shortage of kitchen staff. Counties were, however, constrained from adequately staffing school cafeterias due to a state recommended meal-to-cook ratio formula that varies in financial forms from county to county. The number of cooks a school is allowed to hire is based on the meal-to-

cook ratio, which directs, for example, that a single cook must handle a certain number of meals (e.g. 115). Furthermore, while lunch is counted as a full meal (1.0), breakfast is only counted as half a meal (0.5), and afternoon snacks as a quarter meal (0.25). By totaling the number of meals credited in this fashion, and then dividing it by the county-recommended meal-to-cook ratio, the number of kitchen staff a school is allowed to have is determined.

The meal-to-cook ratio formula originated prior to the pilot project, when the use of prepackaged foods (heat-and-serve) was very high, especially during breakfast. The calculation has not been adjusted to reflect changes in the type of meals that are currently being served in participating counties. In other words, the formula doesn't take into account the increased labor required to cook some menu items from scratch (e.g., biscuits, pancakes, lasagna, pepperoni roles, etc…), using mostly fresh ingredients.

> We had "X" number of cooks and a similar formula for four cooks back before we added breakfast and we had the same formula or a similar one before we had salads or before we dealt with vegetables or the fresh fruits and such…before we got into more scratch cooking. I mean somebody somewhere along the line needs to say let's quantify that just a little bit. Let's quantify that and how can we support them in this because it's more work, period (Superintendent, interview).

> But you know when we do our breakfast [and] we do biscuits, people don't realize that… we bake those biscuits, we cut them open, we put the sausage in it and then we wrap it. That's a lot of work for one morning. We do not do it ahead of time. We do it that morning (Cook, focus group).

> The cook-to-meal ratio needs to be changed. It needs to be a smaller amount because we're doing more work (Cook, focus group).

> …and breakfast, it needs to be counted as much as a lunch. Right now they're, what, counting it to 1/3 or ½ of a meal, instead of a whole meal. And we're working just as hard on getting that breakfast ready. So that needs to be changed (Cook, focus group).

There are, of course, broader considerations that have an impact on whether or not a particular county is able to adequately fund an initiative like this one. The level of financial resources available to each county varies greatly. The level of funding a county can invest plays a prominent role in determining the level and quality of implementation, affecting necessary inputs such as equipment, labor, food commodities, and other supplies. Each county, therefore, had to decide how much of the cost associated with implementing the project it could finance during the pilot year.

> The school aide formula…how that works is you get so many service personnel and so many professionals per so many students. There's a ratio and we're currently operating over the formula [for both service personnel and professionals]. So that takes a significant chunk of our money, county level, to support that many people…we're in the process of closing some campuses and soon as those campuses are closed and we get a little bit more in line with our resources then we'll be able to upgrade those kitchens (Superintendent, interview).

The level of deficit each county is likely to accrue as a result of its participation in the pilot project also influences the extent to which they are likely to continue to offer universal free meals to students in their county moving forward. In this regard, stakeholders from two of the seven participating counties expressed great concern about the financial capacity of their counties to continue to offer free universal school-made meals beyond the pilot year.

Breakfast strategies

Although the Office of Child Nutrition provided some guidance with regard to breakfast strategies, participating counties had discretion to implement the pilot project according to local circumstances. Based on participants' feedback, it is very apparent that flexibility is crucial to the degree to which schools adopt the universal free meals program and successfully implement it at the building level. It is worth reporting on this issue in some detail, as it may assist counties and schools planning to implement this or a similar initiative in the future.

Counties vary greatly—for example, fiscally—and schools within counties also vary. Variations among schools include, for example, programmatic levels, size of student population, configurations of building structure, location and size of cafeterias, characteristics of classrooms, and bus schedules. Each of these variables by itself, or in combination with others, influences which breakfast strategy is best suited for each school. Generally, the majority of participating counties extended the discretion to implement the pilot project to each school, and allowed school administrators to identify a strategy or a combination of strategies that best suited circumstances at the building level.

A multilevel school structure, for instance, makes it very difficult for schools to deliver breakfast meals to every classroom. A school with a very large student population that implements a breakfast-after-first strategy may arrange for its students to get their meals from the cafeteria and bring them back to class. It will do so, however, at a significant loss of instructional time due to congestion in hallways and long lines in the cafeteria. Classrooms equipped with desks that have inclined tops present particular challenges to students trying to eat breakfast. Schools with kindergarten students are less likely to adopt a strategy that would require these students to pick up their own food on trays from the cafeteria and bring it back to their classroom. This is particularly true if there are long distances and stairs they have to navigate and meals are not packaged to eliminate, or at least minimize, accidental spills. A number of schools discovered by trial and error that a breakfast-after-first strategy was best suited for high school and middle school students, simply because the majority of them were less likely to participate in a breakfast program before or at the beginning of the school day.

> I think the middle school really likes the breakfast-after-first idea. Because in the morning, like when the bus gets there or when the parents drop them off, the middle school would go in the gym and it would be more of a social thing and they'd go in there visiting, they don't want to give up that social time. But after first, now they're all eating (Principal, focus group).

> I've had thanks from lots of parents. Thanks for feeding my child breakfast. As a matter of fact what they say is they're very happy with the timeframe. They say my child isn't hungry when they first get up and they said, you know, they won't eat at home and I'm so appreciative that there's food at school for them now. And you know, that's especially true with teenagers (Superintendent, interview).

> We're doing breakfast-after-first in the high schools and the participation is a lot greater than it was prior to that. High school kids…when they get to school they want to socialize and hang out and do that kind of thing. But after first, then they realize they're hungry and they're eating (Food Service Director, focus group).

The scenarios presented above are examples based on discussions with various stakeholder groups. These are real circumstances that schools had to accommodate and they did so mostly by adopting various strategies in the beginning of the pilot year until they identified those that worked well for each of them. It is therefore not surprising that many schools adopted a combination of breakfast strategies. For example, a school with a kindergarten through Grade 6 configuration and with a relatively small cafeteria may choose to employ a breakfast-in-the-classroom strategy for kindergarten through Grade 3, and serve the higher grade levels in the cafeteria, staggering each grade level in 10- to 15-minute intervals.

> Well we've tried a number of things. We've tried, you know, breakfast-after-first period. We've tried grab-'n'-go. We've tried a number of things. I think our people are warming up to the flexibility and resiliency that may need to be there in order to enable us to more fully serve… [It] may be a little more of a problem if you're into a school with three floors and a limited capability of getting the food to the classroom or something of that nature. Not all situations you know are uniform… (Superintendent, interview).

> We do a combination actually. We're still using the cafeteria for breakfast because we're a school that has multiple buildings and…we have a cafeteria in a separate building and so it was problematic for younger students…But we do grab-'n'-go as well because we have a late bus that comes in at five, ten after eight and so, because of …those students, typically we want to get them to class as soon as possible so we allow them to grab-'n'-go (Principal, focus group).

> I think that our school and administration has been able to iron out all of the major kinks within our Universal Free Meal Pilot program. We started with feeding children in first period but decided to move breakfast to a grab and go in between first and second periods. My children for second period eat breakfast every day. They are excited to see what is for breakfast and will often go in a large group to gather their breakfast. I am very fond of this program because I know that I have several students who are only eating at school and cannot wait until their meals are served (Teacher, Survey).

Participant feedback also strongly suggests that the initiative is more likely to be embraced and successful when county and school administrators are strong advocates of the initiative, set expectations prior to the school year, and involve other stakeholders, for example, food service directors, teachers, cooks, and students in the decision-making process regarding breakfast strategies and scheduling for meals.

> You know I think part of it is how it it's approached. There's some things that are nonnegotiable you know that's one of our goals. You know implementation of this is critical. But…some things we can negotiate on. And we tried a number of different schedules and we would meet you know at the end of the day, after we tried a particular schedule and I got feedback and they said we like [or] we don't like this. And so probably by the end of the first week teachers found that they arrived at a schedule that they like that they could work with and you know I can negotiate all of that…There are some things that are not negotiable but arriving at a schedule that the teachers felt that they had ownership in and how they were going to manage that, I think was a huge difference (Principal, focus group)

> …If something wasn't working then you'd go back and say ok how can we change this? So you're getting not only input from top down, but you're getting input from everyone involved in it. So…we're all looking for solutions to how can we make it better? (Principal, focus group)

> …the food service director came and talked to our kids in a couple of different classes and got the teenage perspective on things (Principal, focus group)

It is therefore imperative that, if additional counties and schools plan to implement this or a similar initiative by the WVDE, they be notified in advance with adequate time to make necessary preparations and involve relevant stakeholders in some of the decision making process. It is also crucial the WVDE continue to allow districts to adopt the initiative at their discretion. Perhaps equally important, counties should be encouraged to continue to be flexible so that each school has the option to identify a strategy or a combination of strategies that is best suited to the student population they serve and the conditions in their local context.

Quality of school meals

Stakeholder feedback indicates that, overall, there was a definite shift from processed foods to foods cooked from scratch in participating schools. Furthermore, the number of options available to students appears to have generally expanded compared to previous years. Additionally, schools to a large extent offered healthier meals made from whole wheat and whole grains, and monitored the amount of sodium, calories, saturated fat, and other ingredients in school meals, to stay within the federal nutrition regulations. In this regard, cooks indicated that the training they received before the beginning of the school year was instrumental.

Based on comments from elementary and middle school students who participated in the three focus groups, it is evident that the transition to healthier menus was not initially a welcomed change by all students as they no longer received what they had come to expect from school meals.

> They used to give us french fries and cheese to dip it in and now they took away the fries and the cheese (Student, focus group).

> We used to have nachos and cheese, too, and we can't have the cheese anymore (Student, focus group).

> One thing I think we all miss is we used to have, it was like prepackaged and they were like waffles and they had chocolate chips mixed in with them. They were like really, really good, the mini pancake best thing ever (Student, focus group).

Despite initial complaints from some students, overall, stakeholders indicated that students in most schools have begun to get used to a healthier menu, try food items for the first time, and appreciate the options that were made available to them.

> Our children, I don't know if everybody else thinks this or not, the processed diet, the hamburgers, the hotdogs, the pizza, the chicken nuggets, that's what they expect, I think because they get it at home, not very many families unfortunately cook from scratch at home anymore. So I think that that's perceived as the norm. Some of our new menu items, we've kind of had to win kids over and I think when they give it a chance we are slowly winning them over (Food service director, focus group).

> I've even had parents come back and say, gosh you know, my child said that they ate such and such and they've never wanted that before (Principal, focus group).

> Last year we had oatmeal like every other day and now I like this year because we have [different] food to eat every day (Student, focus group).

In addition to the quality and appeal of the improved menu in most schools, and school staff's efforts to encourage students to participate in school meals, peer influence and the availability of free meals to all students seem to have provided motivation for students to try various types of food items.

> Well I think…they're not being charged, they're willing to try because they don't feel like well I'm paying this and all I am going to eat is that one item…So I think they're trying new foods because of that, whereas before they wouldn't have spent that money (Principal, focus group).

> [My daughter] asked me to get green beans. I was like "you want green beans?" and she was like "I'd like to have some green beans." "Where'd you eat green beans?" I said. I could never get her to eat this stuff at home. She said "I eat it at school. It was good" (Parent, focus group).

> She sees other people eating because she's even said "[my friend] was sitting there eating her carrots and I thought well maybe carrots aren't that bad so I ate the carrots." I couldn't ever get her to eat a carrot at home she'd stick it to her tongue and go ugh. But then she [has] seen other kids eating it and she's like I want to try it too. So she does it all the time now (Parent, focus group).

As mentioned previously, schools offered a greater variety of food items to students, some of which had previously not been part of their diet. There were, however, considerable differences among schools regarding the proportion of meals that were cooked from scratch and the type and quality of food choices made available to students. Stakeholders in some schools raised concerns regarding the continuing use of large proportions of processed foods and lack of variety in school menus.

> More variety in meals. Pre-packaged waffles and pancakes were served too frequently (Teacher, survey).

> I really thought everything was going to be homemade at the beginning, but it's not homemade (Teacher, focus group).

> It started out homemade in the beginning but then it stopped (Teacher, focus group).

> There needs to be a larger variation of breakfast meals (Teacher, survey).

This was due to a number of factors, including the financial ability of each county to provide resources necessary to produce school-made meals and, at the same time, increase student participation. Another contributing factor, according to participants, was the late notification about the program that counties and schools received, which did not allow them adequate time to prepare for the implementation of the project. Most counties and schools had to learn as they went along, instead of developing an implementation strategy and lining up necessary resources and funding prior to the beginning of the school year.

> Because you know what happens is, if you're going to increase your production by 50 to 75 students you may feel more compelled to use convenience. How are you going to deal with breakfast if you've got to fix a bunch of pancakes and waffles…, do you understand what I'm trying to say? I think when we put a responsibility and put a standard or expectation on people we need to deal with [the] ability to do it, the readiness, the preparation, all of that. I think we need to respect that and provide for that one way or another (Superintendent, interview).

Here, it is important to briefly point out the ways in which factors other than financial and time considerations may limit, or at the very least affect, schools' ability to offer food choices to the same degree. As discussed previously, the selection of breakfast

strategies best suited for each school is dependent on various factors. Counties and schools considering implementing a similar initiative should be aware of how the choice of a particular breakfast strategy affects the extent to which schools can offer food choices to their students.

For instance, a school that chooses to serve breakfast in the cafeteria at the beginning of the instruction day may have the luxury of presenting various breakfast items (e.g., cereal, fruits, yogurt, biscuits, sausage, eggs, pancakes, waffles, milk, and a variety of juices) and allow each student to select from the many options that are available to them. On the other hand, schools employing a breakfast-in-the-classroom strategy, which involves delivering meals to each classroom, must by necessity serve a predetermined and selective menu to their students. Similarly, grab-'n'-go meals, regardless of where students eat them, are packaged with predetermined food items and placed in a central location for students to pick up. Additionally, despite their popularity, salad bars are only feasible for schools with cafeterias large enough to accommodate them and the flow of the student population through them.

> I think the program would work better at my school if the students ate breakfast in the lunch room and not in the classroom. I know my students ate better when breakfast was served in the lunchroom instead of the classroom. There is only so much food that can be packed and carried to each classroom, also the variety of foods stay the same when packaged and carried to class. Students ate better I think in the lunchroom or at least my students did (Teacher, survey).

> Since students now eat in the classroom, there is a less variety of food available. When students used to eat in the lunchroom they were able to have two to three choices of milk, juice, cereal, and hot items. Now students are only given one choice (Teacher, survey).

An additional concern that was frequently mentioned by stakeholders relates to the portion size of meals, which some believe to be disproportionate to students' age and size. Nearly all who voiced this concern believed that students in middle and high schools did not receive adequate amounts of food from school meals.

> The amount of food is really not enough for these middle school kids. Most of them complain about not getting enough to eat (Teacher, survey).

> A lot of high school kids are not small kids. We get a lot that come through that want more than just that one breakfast [meal] and with more than just one milk and something else (Principal, focus group).

> I don't feel like I get enough I'm usually hungry again by second period (Student, focus group).

> [The food service director] explained to us that it has to be determined by so much sodium and so many calories and all that per day. We were talking about the bigger guys, you know, they have one [carton of] milk [the] same size as what the little guys have. There needs to be an adjustment there for them because, one swallow and theirs is gone [Teacher, focus group].

The issue of portion size was beyond the control of individual schools or districts and was a direct result of USDA requirements and nutrition standards for school meals, which limited calorie counts, decreased meat and grain portions, and increased vegetable and fruit servings. When food service directors were asked if there was a way to maintain the nutritional standard that they were required to adhere to while at the same time increasing

the amount of food provided to each student, one director said, "We couldn't stay within it [standard], we can't hardly stay within it now."

Recent revisions by USDA allowing more flexibility in meeting standards for meat and grains for the 2012–2013 school year should alleviate some of the concerns regarding inadequate portion sizes for older students. Additionally, counties and schools can do a better job of communicating the fact that students can have as many fruits and vegetables as they choose. This may assuage some of the complaints about students not getting enough to eat.

Student participation

Stakeholder feedback strongly indicated that there was a significant overall increase in student participation in school meals during the pilot year compared to previous years. Participation rate is calculated daily for each meal, breakfast and lunch, by dividing the number of students who receive reimbursable meals by school enrollment numbers. For meals to be considered reimbursable, they have to consist of at least three available food items, including beverages.

The most obvious reason for the increase was that schools made meals available for free to all students regardless of socioeconomic status. Students who previously ate breakfast at home or brought lunch to school (*packers*) were able to eat school-made meals without placing an additional financial burden on their parents.

> I tell you something else I will sometimes … pack [my daughter's] lunch and like last year I would pack her lunch and then she'd get here and they would have something that she'd see she liked but she wouldn't get it because she would say well mommy already packed my lunch [I] don't want [her] to pay for my lunch too. Well this year she will and it's made her try a bunch of new stuff … she didn't know she liked (Parent, focus group).

> I've also found that more students are eating and they do feel more comfortable doing it and our numbers are much higher than they were before and then students who hold back, I think, even some of those are reduced. I'm sure there were times that they felt they were saving money by not eating (Principal, focus group).

Other important factors also contributed to the overall increase in student participation rates. Survey data and comments from individual and focus group interviews with various stakeholder groups clearly indicated that the universality of free school meals removed the social stigma previously attached to students who qualified for free and reduced-price meals. According to these comments, the removal of stigma not only encouraged these students to participate more freely, but encouraged other students, as well, who previously did not qualify.

It is also apparent that the overall increase in participation was primarily driven by breakfast programs. Comments from stakeholders indicated that, in most schools, breakfast participation rates doubled, and in some cases tripled, compared to previous years. This was due in part to comparatively low rates of breakfast participation in most schools in previous years, so large increases were, to some extent, to be expected.

Another factor that may have played a significant role in increasing participation rates was the selection of various breakfast strategies according to local contexts. As previously mentioned, many factors impacted the selection of breakfast strategies best suited

to each school. For example, the availability of grab 'n' go in some schools for students whose buses arrived shortly before the beginning of the instructional day, allowed them the opportunity to take their food to the classroom. Students who may not be hungry and prefer to socialize with their peers before classes, instead of eating breakfast were also more likely to participate when breakfast was served in the classroom as part of the instructional day or during a break after first period.

> The adjustment of a different time of the morning to make it more available instead of just having breakfast when the children get there, no matter what time the bus arrives. You know breakfast must end. Class begins at a certain time and breakfast ends at a certain time. So the adjustment of the availability may have had a great impact on the participation (Superintendent, interview).

Comments from stakeholders indicated that although lunch participation may have increased compared to previous years, the change in most schools was very minimal. This may be attributed in part to the fact that, historically, lunch participation was already much higher than breakfast and therefore the increase was not as dramatic.

There were, however, some factors that played a role in discouraging students from participating in greater numbers in school meals. Long lines in the cafeteria, for example, affected the rate of student participation during breakfast and lunch. Stakeholder feedback indicated this was particularly a factor during lunch periods. Long lines may have been products of the sheer number of students at any given school. Although most schools developed strategies to combat this issue by staggering students into the cafeteria by grade levels and/or opening more than one lane to the lunch counter, comments from students and parents indicated that long lines continued to be an issue in some schools.

> But you know here's the thing, too, in grade school: Everybody goes through the line. I'm not sure how middle schools work and I've not actually seen how they're doing it. But in high school it's up to you to get in line. It's not like they bring down by class like we do in grade school, so you know … I think a lot more of the high school kids are eating. But I think if it's crowded or the lines backed…I think maybe the older kids will just say I'm not waiting because there's a couple of times I'll say [to my son] well what did you have for lunch [and he said], I didn't eat. The line was backed up…I mean he probably only missed a few lunches here or there…but I know several kids who probably haven't eaten (Parent, focus group).

In addition to discouraging students from participating in school-made meals, long lines in the cafeteria also reduced the amount of time students had to eat their meals.

> … The bell will ring five minutes later [after they get their meal] they [teachers] will tell you that you have had enough time to eat… (Student, focus group).

> I mean it's not fair. By the time you sit down you've got five minutes to eat … and like sometimes they'll run you out sometimes they won't (Student, focus group).

A number of factors contribute to long lines during meals including the process of documenting student meal participation, which may have prolonged wait time.

> Like it's usually a long line by the time me and my sister get here. There's usually a big line. Like it just takes the teachers forever to type in the code [student ID number] and like we did have ID cards but we usually lose them (Student, focus group).

In some schools a lack of adequate kitchen staff played a role in decreasing staff's effectiveness in serving food to students in a timely fashion.

> The cafeteria staff should be increased or reorganized in order to deliver the food to children quickly to eliminate standing in line too long and losing sometimes up to half their 30-minute lunch time (Teacher, survey).

An additional reason for the low increase in lunch participation may have been due to the short time interval between breakfast and lunch. Even though some schools during the pilot year had begun serving breakfast at the beginning of the instructional day or after first period, they had yet to readjust their lunch period schedule accordingly. Therefore, in some schools, students were expected to eat lunch only 2 hours after they had eaten breakfast. Students who eat breakfast after first period, at approximately at 9:00 a.m., were less likely to participate in and take full advantage of lunch programs scheduled at 10:30 a.m. or 11:00 a.m. In these instances, delaying lunch periods by an hour or so may contribute to an increase in lunch participation but may also have an added benefit of alleviating stakeholder concern about students being hungry in the afternoon.

> Serve lunch at [a more] appropriate time. Our school serves the first middle school lunch…just 2 hours and 28 minutes after breakfast, and leaving almost four hours left in the day after eating (Teacher, survey).

However, changing the timing of lunch periods likely requires the adjustment of cooks' schedules, who may not be in favor of it. Also, cooks need to be notified of any change in schedule in advance—preferably before the school year starts—unless there is mutual consent to change it during the school year.

Although the overall increase in student participation in school-made meals is very encouraging, schools may need to continue to monitor factors that negatively affect student participation. In addition to providing nutritious school-made meals that are appealing to students, school staff needs to pay careful attention to the length of time between meals to ensure high participation and continue to develop solutions so that students do not have to stand in line too long to get their meals.

Classroom impact

Based on feedback from survey participants and individual and focus group interviews, it is evident that the pilot project was received positively by the vast majority of teachers. However, most teachers who participated in focus group interviews reported their initial concerns about lost instructional time due to breakfast strategies and the potential for spills as a result of students eating meals in classrooms. By the time the interviews were conducted, however, for the majority of teachers these concerns were no longer as prominent.

One reason for the reduced concern about lost instructional time was the announcement by the WVDE Office of Education Performance Audits in midspring of the pilot year, that teachers in participating schools could use the time during breakfast in the classroom as instructional time. The ways in which schools and individual classrooms used this time varied greatly. Some used it to discuss nutrition. Others spent the time working on particular skills, warm-up activities, and the like. Yet others invited counselors to do a 10-minute developmental guidance program during breakfast in classroom.

> Well at the beginning, some of them didn't want the breakfast in the room, but they've got used to that and with instructional time. They do a read aloud or you

> know they do review during that time, so they realize it's not wasted (Principal, focus group).

> The teachers are doing some type of a reteach, or talking about the lesson, or doing some type of a skill while the kids are still eating. So we're doing a review of lesson and different things, maybe something on the Smart Board or some type of activity, doing a read aloud with them. But there's some type [of] instruction going on while the children are eating at the same time (Principal, focus group).

Contrary to their initial concern about lost instructional time, some teachers indicated the opposite occurred because breakfast was served in the classroom to all students at the same time, often at least 30 minutes or an hour later than previous years. Other things that allayed their concerns, according to teachers and administrators, were the positive changes in students they observed, which they attributed to the pilot project.

One frequently mentioned change observed in students, which teachers attributed to the availability of free breakfast meals, was a reduction in hunger during the morning. Some teachers reported observing better concentration and focus, higher levels of energy, and more active engagement of their students this year compared with previous years. According to teachers, in previous years, the hour or two prior to lunch was one of the most challenging blocks of time for classroom instruction, as some students were distracted by empty stomachs and frequently asked how much longer they had to wait before they could have lunch. Some students, for instance, catch the school bus as early as 6:00 a.m. and lunch was generally not served until at least 11:00 or 11:30 a.m. Even if these students ate breakfast before they left their homes, it was a long time for them to wait until their next meal. For various reasons, some of which have been discussed previously, other students do not eat a breakfast adequate to sustain them for 5 hours, or they simply do not eat breakfast at all.

> I think that this program is wonderful. Many of my students have shown vast improvements in their ability to concentrate and not complain about being hungry (Teacher, Survey).

> Our teachers saw the benefit of it probably within the first week, especially our seventh and eighth grade teachers, they really saw, they were very attentive to it. But they saw that in second period, you know between 10:00 and 11:30, that the students' had more focus. They were not focusing on their stomach growling, they were focusing on the content of the lesson. So they felt as though that was definitely a huge benefit (Principal, focus group).

> For first graders even their student performance has improved because many of them did come in in the morning hungry. Compared to last year versus this year they are more focused during our reading block, they stay on task. It seems as if we've been able to accomplish more too because last year when they didn't have this [Universal Free Meals Pilot], many of them, it will be close to lunch and they'd be saying I'm hungry (Teacher, focus group).

> I think the biggest change I've seen is the attentiveness. They're alert; they're not coming in sleepy after they've had that meal, you know, because it's a really nutritious healthy meal. They're alert they're ready (Teacher, focus group).

Teachers also indicated that, in previous years, some students complained about stomachaches or headaches in the hours leading up to lunch and often were sent to the school nurse. During the pilot year, stakeholders observed a decrease in the number of students visiting the nurse's office for such symptoms.

> We've certainly seen benefits; even our school nurse has noted there are less students coming saying that their stomach is hurting (Principal, focus group).

According to an interview with a school nurse, in most cases these complaints turned out to be a result of hunger rather than symptoms of medical conditions. Based on her experience working in two schools, the nurse estimated that, in previous years, she had 20 to 25 such visits per year in each school.

> They were kids that would come in and see me that would complain about their stomachs and I don't see that [any] more…I did have kids that would come in here midday, you know, about 2 hours before lunch and they would complain about their stomach and I would go to the cafeteria and get them crackers and stuff like that and usually they didn't come back…when they came they had no fever, I couldn't see any signs of any other kind of medical problems…I would ask them "did you eat this morning" "no I didn't have time"…So I would give them something, they would sit here, they had no vomiting, no diarrhea, nothing so they went on to class and they were happy (School nurse, interview).

Another theme that emerged from stakeholders' comments was the sense of family that was created as a result of the pilot project. Comments indicated that this applied mostly to elementary schools and was a result of eating breakfast in the classroom. Some educators believed that since the student-to-teacher ratio during breakfast was much smaller in the classroom compared to the cafeteria, teachers and students had more opportunity to build relationships on a personal level under structured conditions. Some teachers used the opportunity to act as role models and discuss table manners and eating etiquette with younger students, which they believe will have long-term benefits.

> You'll have a few [teachers] that will complain about milk spills and things like that, but overall they see the importance of getting every child fed in a nonthreatening, family-type atmosphere. And that really makes a difference because with the younger kids, if you put them in the cafeteria, it's loud, a lot of kids in there and sometimes [it's] intimidating and they don't want to eat. So they'll just go to their classroom to get out of that (Teacher, focus group).

> …it also allows for open discussion…The teachers and the kids can really talk about the food they're eating as well as the nutritional value. So it makes it personal (Teacher, focus group).

> It builds that rapport between the teacher and the students (Teacher, focus group).

Stakeholder comments also indicate that an added benefit of eating breakfast in the classroom was that younger students learned responsibility, as each student was expected to clean up after him- or herself. Additionally in some classrooms, a couple of students were designated each day to be responsible for receiving the food and distributing it to their classmates, and for taking out the trash after breakfast, which they placed outside of the classroom door for the custodial staff.

While initial concerns regarding the impact of breakfast strategies on classroom instruction were assuaged to a great extent, some teachers were still worried about the potential loss of instructional time. In both the midyear and end-of-year surveys, approximately a quarter of survey participants indicated that integrating nutritional and instructional programing was a moderate or major concern, and some focus group participants also expressed similar concerns. To be sure, this issue was less of a concern with elementary teachers.

Based on feedback from participants in focus group interviews, the vast majority of teachers and principals who voiced concerns about loss of instructional time were from schools where the breakfast-in-the-classroom strategy was employed, requiring students to leave their classrooms to get their food. Comments indicated that students were losing a significant amount of instructional time after school started due to various combinations of the following reasons: (a) walking to the cafeteria, (b) standing in line to get food, (c) walking back to classrooms, (d) eating breakfast, and (e) cleaning up after meals.

> The only concern I have is that it tends to take some of our instructional time (Teacher, focus group).
>
> …we are giving up 15 to 20 minutes of instructional time every day to feed kids. You know philosophically I don't have a big problem with feeding kids but I do have a large problem with [my] position and the way that people look at the job that I do based on how I teach kids when you take part of my day away from me and don't allow me to use that time. Then I'm not as effective as I would be otherwise. So you know, that bothers me that we're losing that. My kids come to the class at 10 minutes until eight [and] they go to [cafeteria] at 10 minutes after eight. Well by the time I get roll and the lunch count, because I have to do that before they go to breakfast so the cooks know how many are having lunch today, by the time I get that done and then my kids get back from [the cafeteria] and eat it, it's 8:30 and we switch classes at a quarter till nine. I've lost 20/25 minutes every day of instructional time that I had last year. That's a lot of time when you add it up over 180 days (Teacher, focus group).
>
> Let the schools feed the kids in the cafeteria because valuable instruction time won't be wasted cleaning up spills (Teacher, survey).
>
> Change the time it is offered…we spend approx. 25 minutes each day feeding students breakfast when that time could be spent instructing students. I appreciate the program's intent, but it would be more efficient to offer it before classes begin (Teacher, survey).

Most respondents with these types of concerns considered the scheduling of breakfast to be very disruptive, and suggested serving breakfast before the start of the school day. According to some stakeholders, serving breakfast before the start of the school day would also alleviate a concern over students who arrive at school very early, having eaten little or no breakfast, and have to wait after until first period to eat their first meal of the day.

> Allow students to eat the free breakfast before instructional time. That is our only major concern (Teacher, survey).
>
> All students would still be guaranteed access to a free breakfast but it would be more time efficient if we could begin feeding children upon their arrival. There is approximately 45 minutes of "down time" from when the first buses arrive to the last arriving buses and this would be a great time to serve breakfast (Principal, survey).
>
> …allow the students to eat as soon as they arrive at school or beginning of first period. The students are hungry when they arrive and have to wait 1-1/2 hours to eat (Teacher, survey).
>
> Many students are hungry when they get to school and can't eat until after first period. So they can't concentrate during first period (Teacher, focus group).

In addition to contributing to loss of instructional time due to time spent cleaning up after students eat breakfast in the classroom, some stakeholders, particularly teachers and principals, raised concerns about sanitation in their classrooms. The risk of damaging valuable instructional materials, and possible insect infestation due to spillage and less than adequate clean-up, were raised as concerns.

> Do not like grab and go---the kids make a mess in the classrooms!!!! (Teacher, survey).

> I agree that's a big problem in our classroom. After we eat we don't really have time to wipe down a desk because we're in the middle of a reading block we can't take a lot of time to clean up desks (Teacher, survey).

> …we paid all this money for these new buildings we have [an expensive] cafeteria and we're eating in rooms that are not designed to be eaten in. We're pouring milk and juice down sinks that are designed for water… I have all these kids in the classroom spilling milk on stuff like desk and books and all…What I'm saying is we have a cafeteria that we paid all this money for that's sitting empty (Principal, focus group).

To be sure, stakeholder comments indicated that students and teachers wiped down desks after eating breakfast in the classroom, and for big spills, a custodian was often called in. It is apparent that some classrooms were not equipped with the necessary cleaning supplies. According to some stakeholders, cleaning items such as paper towels and Clorox wipes often were not available in classrooms and some schools depended on donations from parents for these items. As a last resort, some teachers purchased these items at their own expense.

Food waste

Approximately 45% of survey participants indicated that food waste was a moderate or major concern; as such, this issue deserves to be addressed in some detail here. Individual and focus group interviews with various stakeholders provided additional evidence about this concern, but also provided indications that, throughout the year, some schools took measures to curb the amount of food being wasted.

Various, and to some extent interrelated, factors contributed to food waste. Some food waste resulted from the introduction of menu items that were new to students. Based on stakeholder feedback, it is clear that it took students some time to adjust to healthier alternatives and develop a taste for items on the revised menus. The exposure to new varieties of food, by necessity, required students to experiment. During this initial process, students often took food items, decided that they did not like them, and then disposed of them. At this stage it was crucial for schools to monitor waste, then adjust their menus and find ways to make food items more appealing to students.

> [Waste] was [an issue] for a while. Yeah, until, you know you have to adjust, I just kept walking down the hall and seeing who had what and what was left and now we've adjusted until we don't. We have a small waste, not a huge waste (Cafeteria manager, focus group).

The pressure to increase participation rates contributed to food waste as well. Most schools created opportunities for all students to eat school-made meals and encouraged them to try new varieties of food. However, schools were also under tremendous pressure to increase student participation because the participation rate was factored in when determining the level of federal reimbursement each county received. As a result, stakeholder comments indicated that in some instances, school staff may have put too much pressure on students to participate in school breakfast or lunch.

> The teachers try to make us to eat… I mean like you tell them you already ate and then all they want is for us to go through the line so that we can get a free lunch (Student, focus group).

An item was included in the end-of-year survey asking respondents what changes, if any, they would recommend for the following year based on their experience in the pilot program. Finding solutions to curb food waste was one of the most frequently mentioned suggestions, and the majority of these recommendations pointed to waste due to measures taken by some schools that pressured all students to take school-made meals.

> Don't make ALL students take food if they don't want to. This leads to much wasted food (Teacher, survey).
>
> Students who bring their meals from home should not be made to take a tray of food. This is wasteful because they do not eat it (Teacher, survey).
>
> Students are made to go through the line and get the food but a lot of them just throw it away after receiving the food. It should not be mandatory (Teacher, survey).

It should be noted that data presented here are not based on direct observation conducted by researchers but rather perceptual data gathered through surveys as well as individual and group interviews with various stakeholders in participating counties. Furthermore, communication with program staff from the Office of Child Nutrition revealed that the office conducted its own investigation throughout the pilot year regarding this issue as a result of concerns raised by some parents. According to program staff, the investigation revealed no formal policy or practice that required all students to take food and that all schools were instructed to eliminate procedures that may inadvertently suggest that all students must participate in school meals. The conflicting nature of data regarding this issue suggests that continuous monitoring may be warranted by the Office of Nutrition and schools may need to explicitly communicate to students, parents, and school staff that participation in school meals is voluntary.

A related factor that contributed to food waste was the requirement for what constituted a reimbursable meal. As mentioned previously, for a meal to be considered reimbursable, it must consist of at least three items. This meant that, for instance, a student who had breakfast at home and was not very hungry could not receive a free carton of milk or juice during breakfast or lunch. Likewise a student who simply does not have much of an appetite on a particular day cannot receive a single breakfast or lunch item for free without also taking two additional items. In these instances, students are more likely to take three items, consume what they want, and throw the rest away.

> …like say that you come in and you're sick and you don't really want to eat, they make you get three things, and you go in and you get milk, an apple, and something even if you're going to put it in the trash. You're wasting it (Student, focus group).

Food quality and the way in which meals were served also had a bearing on waste management. Meals should not only have nutritional value but also need to be kid friendly—that is, presented in a manner that encourages students to try foods unfamiliar to them. Also, breakfast strategies that allow students to select food items they are likely to eat has a better potential to reduce food waste compared to strategies that present preselected items to students.

> She [respondent's daughter] also doesn't like not being able to choose…everything is placed on her tray and therefore is thrown away because she will not eat it (Parent, focus group).

During the course of the pilot year, most schools continued to experiment with strategies to control food waste. Some schools, for example, did a morning count, which enabled them to prepare meals sufficient to feed the exact number of students present each day. Others periodically sought student feedback in an attempt to make available foods that were nutritious and at the same time appealing to them. According to participants in individual and focus group surveys, through these and other types of strategies, schools managed to reduce food waste toward the end of the pilot year. However, such strategies cannot, by themselves, eliminate food waste altogether. Schools cannot provide meals that are equally appealing to all of their students nor can they force students to eat all of their food. The question, then, is what can be done with untouched or uneaten food remaining on student trays and cafeterias? This was a particularly concerning issue to some stakeholders.

> My biggest concern is the waste of food. Is there something that can be done to lower the amount of food that is thrown away? Could extras be taken to a local soup kitchen? Or donated to a local senior citizen facility? (Teacher, survey).
>
> Allow the food that is not used be donated to a local shelter (Cook, focus group).
>
> Allow others to eat the unopened unused milks, cereals, etc… instead of throwing them away (Teacher, survey).

While these are all good potential solutions, according to some stakeholders, current regulations put in place to protect public health do not allow schools to use the strategies suggested above. Once food leaves the kitchen and is made available or handed out to students, it cannot be reused. In other words, uneaten fruits, unopened milk and juice cartons, and other prepackaged foods cannot be placed back in coolers and served at a later time, nor can they be donated to charity. If these items are not consumed by students, regulation dictates that they be discarded.

The contribution to food waste of public health regulations and criteria set for meal reimbursement are beyond the control of districts. Other factors, however, can be addressed by school personnel with continued monitoring. While staff should continue to expand food choices and expose students to new and healthier alternatives, it is highly recommended that they continue to find solutions to minimize food waste.

EQ2. Impacts on Student Performance

As described in the Methods section, we examined relationships that may exist between project participation and student achievement outcomes by testing the following hypotheses:

H3. WESTEST 2 scores for reading/language arts and mathematics for students in pilot sites will increase significantly over the course of the pilot (TIME).

H4. WESTEST 2 score changes for these students will differ significantly when compared to students from a matched set of comparison schools (GROUP * TIME).

We tested both of our hypotheses within programmatic levels, using paired-samples *t* tests to test H3. For these analyses, we entered students' standardized 2011–2012 and 2010–2011 WESTEST 2 scores as the post- and preintervention measures of academic achievement, respectively. The analysis tested, within each group independently, whether or not the average difference between students' 2011–2012 and 2010–2011 scores was

statistically different from zero. We posited that, a confirmatory result in the predicted direction (i.e., if posttest scores were higher than pretest scores) would allow us to accept our hypothesis that the students' test scores increased significantly during the course of the pilot. A negative difference or no difference would lead us to reject H3. We also employed simple descriptive analyses of proficiency rate trends over time to aid in interpretation of the results for H3. For these analyses, we simply graphed the proficiency rates for both groups over time and used the figures to interpret the practical significance of any changes in test performance.

We used repeated measures analyses of variance (RM ANOVA) with the addition of a single between-subjects factor to test H3. We entered each student's 2010–2011 and 2011–2012 standardized WESTEST 2 scores as a two-level within-subjects factor, which we labeled *time* in the model. We then entered each student's group membership (treatment or comparison) as a between-subjects factor in the model. Our logic was that, if the RM ANOVA revealed a significant interaction effect among these variables, it would provide evidence that one group differed significantly from the other in test performance over time. In the case of statistically significant effects, we planned to conduct post-hoc examinations of test score differences between the two groups to reveal if the difference was in the predicted direction[7]. For each programmatic level, we provide a brief summary of our results before providing detailed statistics and analyses later in each section.

Elementary schools

For elementary school students, our findings revealed evidence that we should reject both H3 and H4. With respect to mathematics, neither group differed significantly over time in terms of test performance, but both groups improved their proficiency rates by a negligible margin. In reading/language arts, we observed that, counter to our hypothesis, students in the treatment group scored statistically significantly lower in 2011–2012 than in 2010–2011. However, it should be noted that this was also true for the comparison group, and the decline in test performance was not large enough to negatively impact proficiency rates. In fact, the treatment group actually exhibited a higher reading/language arts proficiency rate in 2011–2012 than in 2010–2011. This seemingly contradictory outcome illustrates the relative difficulty of using standardized test performance alone as a measure of program impact since these scores have no criterion-reference point. With respect to H4, we found no significant interaction effects among the group and time variables for either content area. This finding indicates that, even where differences in test performance were statistically significant over time, these gains/decline were similar for both the treatment and comparison groups over the course of the pilot. More details follow.

Hypothesis 3 (elementary school)

For both the treatment and comparison groups, there was not a statistically significant change in mathematics performance during the pilot year. Students in the

[7] In these models, the main effects for *group* and *time* had little value to testing our hypothesis. We report the values for these tests, but direct readers to pay closest attention to the results of the *interaction* effects for each content area.

treatment group declined in their performance, but ultimately scored only marginally lower in 2011–2012 (M = -.097, SD = 1.05) than in 2010–2011 (M = -.082, SD = 1.03). This difference was not statistically significant, $t(878) = -.550$, $p = .58$. Meanwhile, students in the comparison group increased in their performance, but scored only marginally higher in 2011–2012 (M = -.063, SD = 1.01) than in 2010–2011 (M = -.059, SD = .98). This difference was not statistically significant, $t(878) = -.170$, $p = .86$. Figure 1 illustrates the mathematics performance trend for both groups over time. It should be noted that, because test scores were standardized for this study, the center point of the graph (i.e., 0) approximates the mean performance of the statewide population of WV students for both years. This convention was utilized to allow aggregation of test scores across grade levels and to facilitate interpretation of test scores. However, one must understand that this measure of performance has no criterion-reference. It is solely normative, describing each student's position within the distribution of her/his grade level peers.

For this reason, we also examined average proficiency rates over time for both groups of students and in both content areas, to help us interpret the practical significance of any changes we observed in test performance over time (Figure 2).

Figure 1. Elementary School Mathematics Achievement by Group

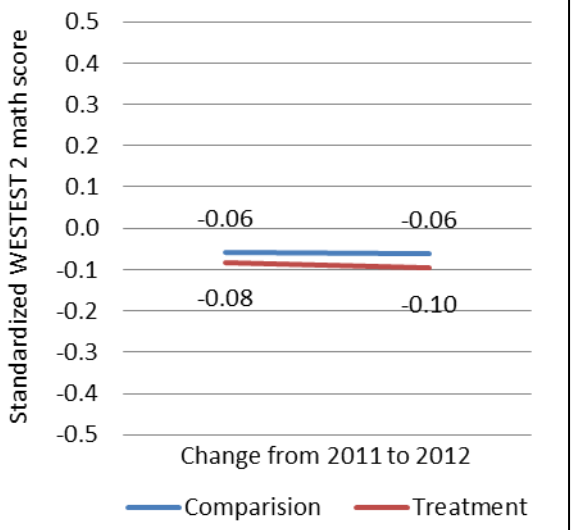
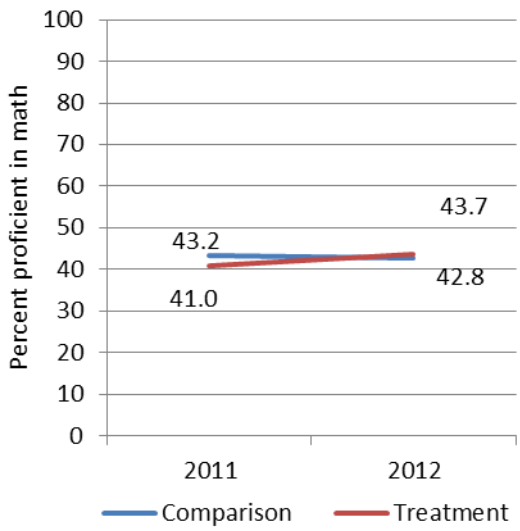


Figure 2. Elementary School Mathematics Proficiency Rate by Group



Despite a marginal but statistically insignificant decline in mathematics performance over time (detailed above), the treatment group actually improved in mathematics proficiency rates over time, going from 41.0% proficient in 2010–2011 to approximately 43.7% proficient in 2011–2012, a gain of 2.7%. Meanwhile the comparison group declined slightly from 43.2% in 2010–2011 to 42.8% in 2011–2012.

With respect to reading/language arts, students in both the treatment and comparison groups scored statistically significantly lower in 2011–2012 than in 2010–2011. The average treatment group score was lower in 2011–2012 (M = -.160, SD = 1.03) than in 2010-2011 (M = -.099, SD = .99). This difference was statistically significant, $t(878) = -2.62$, $p = .009$. Students in the comparison group also scored lower in 2011–2012 (M = -.113, SD =

1.03) than in 2010–2011 (M = -.066, SD = 1.00). This difference was statistically significant $t(878) = -1.98$, $p = .04$. Figure 3 illustrates reading/language arts performance for both groups over time.

With respect to proficiency rates, in reading/language arts, the treatment group declined slightly from 42.5% in 2010–2011 to 41.8% in 2011–2012 (Figure 4). The comparison group increased, but only marginally, going from 44.9% to 45.3% over time. These findings demonstrated that, while we observed statistically significant decreases in reading/language arts performance for both groups, the decreases in test performance were not large enough to have a discernible negative impact upon proficiency rates.

Figure 3. Elementary School Reading/ Language Arts Achievement by Group

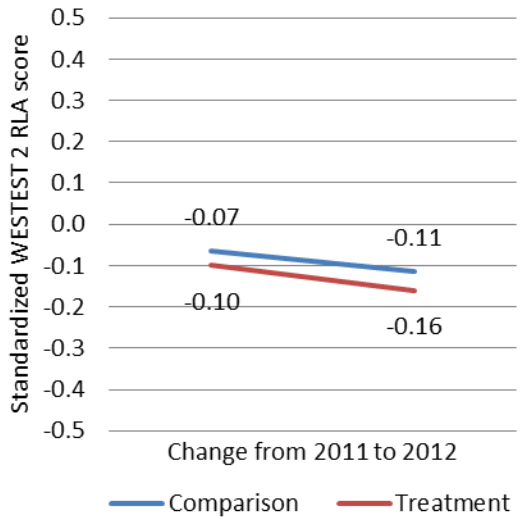
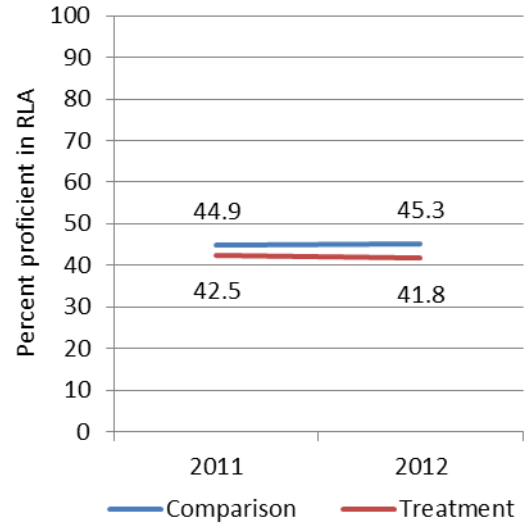


Figure 4. Elementary School Reading/ Language Arts Proficiency Rate by Group



Hypothesis 4 (elementary school)

Results of RM ANOVA to examine mathematics achievement revealed no main effect for time $F(1, 1756) = .265$, $p = .60$. Nor was there a main effect for group, $F(1, 3119.40) = .405$, $p = .52$. Likewise, there was no statistically significant interaction among the group and time variables $F(1, 1756) = .078$, $p = .78$.

With respect to reading/language arts, the main effect for time was statistically significant $F(1, 1756) = 10.589$, $p < .001$, while the main effect for group was not $F(1, 3219.03) = .759$, $p = .38$. There was not a significant interaction between group and time $F(1, 1756) = .194$, $p = .66$. The absence of significant interaction effects for both content areas indicated that the treatment and comparison groups did not differ from each other significantly over time in either mathematics or reading/language arts achievement. Thus, for elementary schools, we rejected H4.

Middle schools

For middle school students, we again found evidence that led us to reject both H3 and H4. With respect to mathematics, both the treatment and comparison groups scored lower in 2011–2012 than in 2010–2011. However, the treatment group's decline was almost static and not statistically significant while the comparison group's decline was statistically significant. Despite these declines, both groups improved their mathematics proficiency rates over time, but only by a very negligible margin (less than 1% in each group). In reading/language arts, we observed that students in the treatment group scored higher in 2011–2012 than in 2010–2011. However, counter to what we posited, this difference was not statistically significant. Here, again we found seemingly contradictory evidence when we examined proficiency rates as the treatment group actually exhibited a marginally lower reading/language arts proficiency rate in 2011–2012 than in 2010–2011. With respect to H4, we found no significant interaction effects among the group and time variables for either content area. Therefore, we concluded that both groups experienced relatively inconsequential changes in test performance over the course of the pilot.

Hypothesis 3 (middle school)

With respect to middle school students, both groups declined in mathematics performance over time. For the treatment group, students ultimately scored only negligibly lower in 2011–2012 (M = -.240, SD = 1.03) than in 2010–2011 (M = -.231, SD = 1.02). This difference was not statistically significant, $t(836) = -.291$, $p = .77$. Students in the comparison group also scored lower in 2011–2012 (M = -.261, SD = 1.02) than in 2010–2011 (M = -.204, SD = 1.00). However, for this group, the difference was statistically significant, $t(836) = -1.971$, $p = .04$. Despite its statistical significance, this difference was quite small. Figure 5 illustrates mathematics performance for both groups over time.

With respect to mathematics proficiency rates, despite a gain in average mathematics performance (as detailed above), the treatment group did not improve considerably in mathematics proficiency rates over time, going from 34.8% in 2010–2011 to approximately 34.9% proficient in 2011–2012 (Figure 6). Meanwhile the comparison group, which exhibited a small, but statistically significant decline in average mathematics performance improved slightly in terms of proficiency rates, going from approximately 35.5% in 2010–2011 to 36.1% in 2011–2012. The latter finding indicates that, although the decline in average mathematics performance was statistically significant for the comparison group, it was too small to have a practical negative impact. In fact, both groups increased their mathematics proficiency rates over the course of the pilot project, but by less than 1%.

Figure 5. Middle School Mathematics Achievement by Group

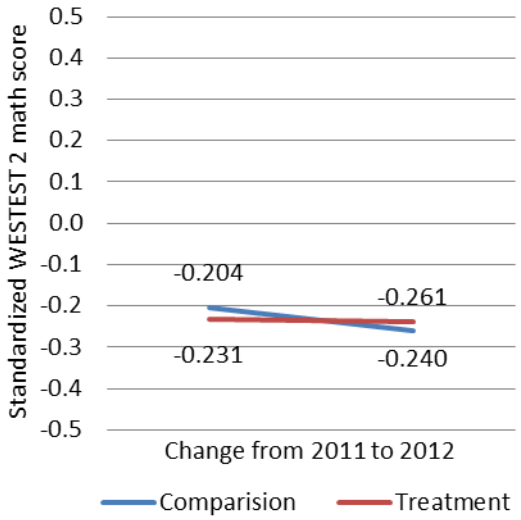
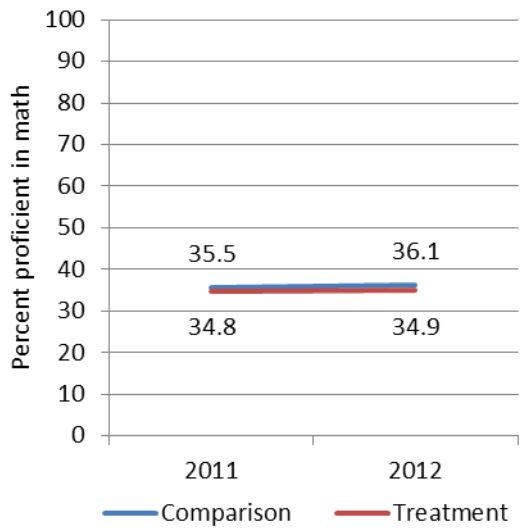
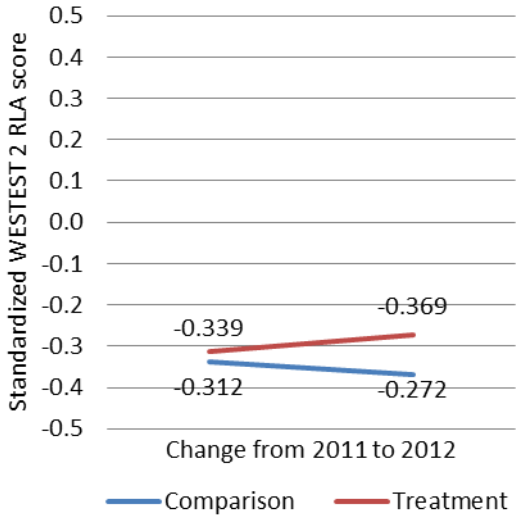


Figure 6. Middle School Mathematics Proficiency Rate by Group

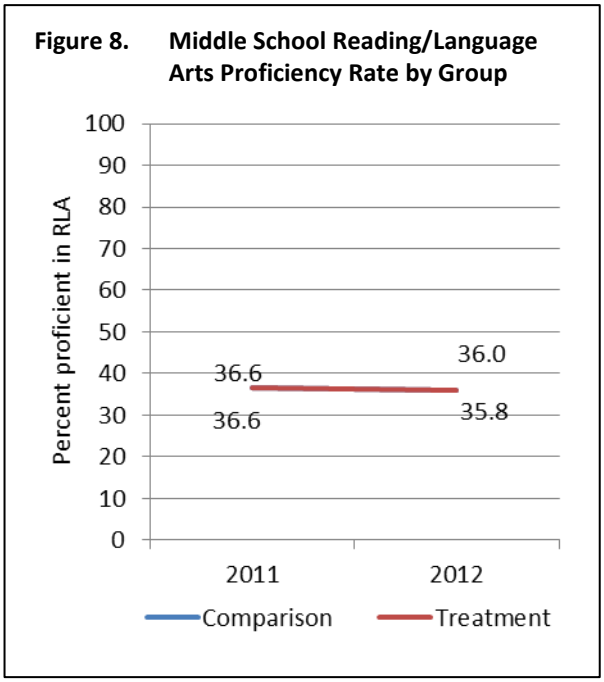


With respect to reading/language arts performance, treatment group students scored marginally higher in 2011–2012 (M = -.272, SD = .97) than in 2010–2011 (M = -.312, SD = 1.04). Conversely, the average comparison group score was lower in 2011–2012 (M = -.369, SD = 1.15) than in 2010-2011 (M = -.339, SD = 1.13). However, neither difference was statistically significant, $t(836) = 1.66$, $p = .09$ and $t(836) = -1.03$, $p = .30$, respectively. Figure 7 illustrates reading/language arts performance for both groups over time.

Figure 7. Middle School Reading/Language Arts Achievement by Group



With respect to reading/language arts proficiency rates, both groups declined slightly over the course of the pilot (Figure 8). The comparison group percentage was 36.6% in 2010–2011 and 35.8% in 2011–2012. The treatment group rate was 36.6% in 2010–2011 and 36.0% in 2011–2012. Therefore, while we observed a marginal gain in average reading/language arts performance for the treatment group, the gain was not large enough to have any measurable impact upon students' proficiency rates in our sample—in fact, proficiency rates actually declined by approximately .6% among the sample of treatment group students. However, we must acknowledge that this decline was comparable to the .8% decline in proficiency rates we observed among comparison group students.



Hypothesis 4 (middle school)

Results of RM ANOVA to examine mathematics achievement revealed no main effect for time $F(1, 1672) = 2.435$, $p = .11$—nor was there a main effect for group, $F(1, 2869.03) = .004$, $p = .94$. Likewise, there was no statistically significant interaction among the group and time variables $F(1, 1672) = 1.291$, $p = .25$.

With respect to reading/language arts, the main effect for time was not statistically significant $F(1, 1672) = 0.60$, $p < .80$. Nor was the main effect for group $F(1, 3417.32) = 1.593$, $p = .20$. There was also no significant interaction between group and time $F(1, 1672) = 3.44$, p = .06. The lack of a significant interaction effect for both content areas indicated that the treatment and comparison groups did not differ from each other significantly over time in either mathematics or reading/language arts achievement. Thus, for middle schools, we rejected H4.

High schools

For high school students, we again found evidence that led us to reject both H3 and H4. With respect to both mathematics and reading/language arts test performance, the treatment group increased their average scores, while the comparison group's scores declined. However, these differences were not statistically significant. The treatment group improved negligibly in mathematics proficiency rates while the comparison group remained static. Both groups declined marginally in reading/language arts proficiency rates over the course of the project. With respect to H4, we found no significant interaction effects among the group and time variables for either content area. Therefore we concluded that both groups experienced relatively inconsequential changes in test performance over the course of the pilot.

Hypothesis 3 (high school)

With respect to high school mathematics, students in the treatment group improved their performance slightly over time, while students in the comparison group declined slightly. For the treatment group, students ultimately scored only negligibly higher in 2011–2012 (M = -.203, SD = 1.01) than in 2010–2011 (M = -.210, SD = 1.02). The difference was not statistically significant, $t(874) = .224$, $p = .82$. Students in the comparison group scored marginally lower in 2011–2012 (M = -.231, SD = .99) than in 2010–2011 (M = -.192, SD = 1.01). The difference was also not statistically significant, $t(874) = -1.147$, $p = .25$. Figure 9 illustrates mathematics performance for both groups over time.

Figure 9. High School Mathematics Achievement by Group

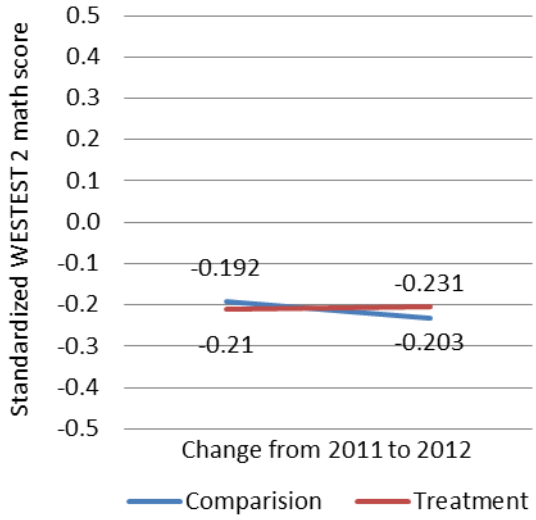
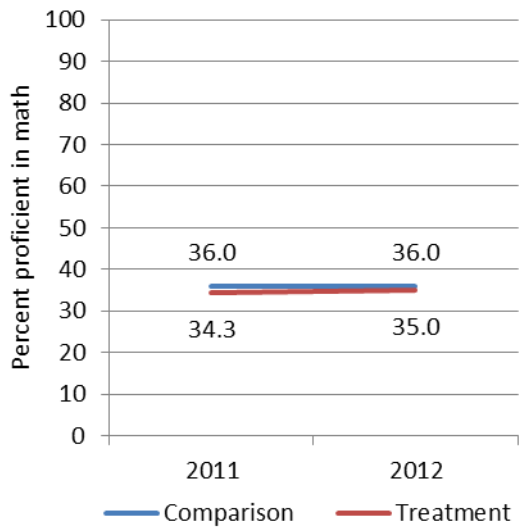


Figure 10. High School Mathematics Proficiency Rate by Group



We also examined average proficiency rates over time for both groups of students and in both content areas. In conjunction with a slight increase in average mathematics performance (see details above), the treatment group improved very slightly in mathematics proficiency rates over time, going from 34.3% proficient in 2010–2011 to approximately 35.0% in 2011–2012 (Figure 10). Meanwhile the comparison group, which exhibited a statistically insignificant decline in mathematics performance over time, remained static in terms of proficiency rate, achieving 36.0% in both years.

With respect to reading/language arts performance, treatment group students again scored marginally higher in 2011–2012 (M = -.248, SD = 1.04) than in 2010–2011 (M = -.275, SD = .99). Conversely, the average comparison group score was lower in 2011–2012 (M = -.315, SD = 1.10) than in 2010-2011 (M = -.271, SD = 1.06). Neither difference was statistically significant, $t(874) = 1.120$, $p = .26$ and $t(874) = -1.57$, $p = .11$, respectively. Figure 11 illustrates reading/language arts performance for both groups over time.

With respect to reading/language arts proficiency rates, both groups' declined slightly over the course of the pilot. The treatment group, despite achieving a statistically insignificant gain in average reading/language arts performance over time, declined from 39.1% proficient in 2010–2011 to 37.8% in 2011–2012, a decrease of 1.3% (Figure 12). The comparison group, which exhibited a slight decline in average reading/language arts performance, also declined in reading/language arts proficiency rates, going from 36.7% in 2010–2011 to 36.0% in 2011–2012. In sum, for high school students, while we observed a small and statistically insignificant gain in average reading/language arts scores for the treatment group, that gain was not associated with an increase in proficiency rates. In fact, proficiency rates for the treatment group sample declined by 1.3% over the course of the pilot. However, we must acknowledge that this decline was comparable to the 1.0% decrease we observed in reading/language arts proficiency rates among the comparison group.

Figure 11. High School Reading/Language Arts Achievement by Group

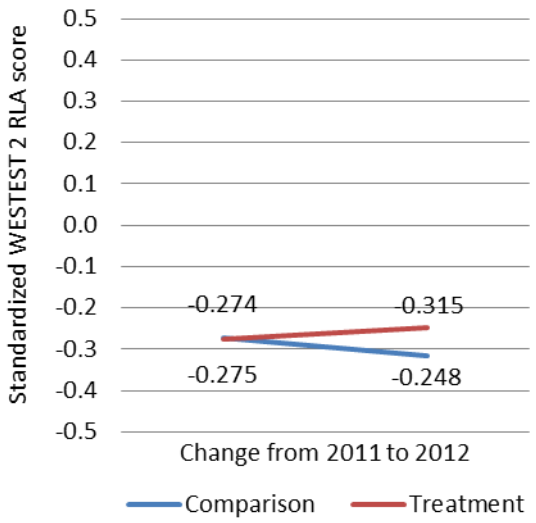
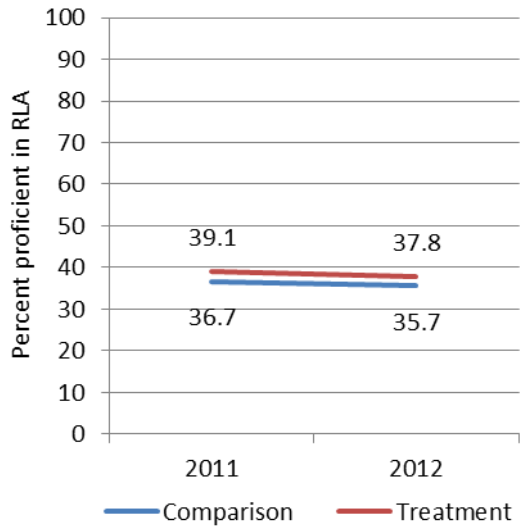


Figure 12. High School Reading/Language Arts Proficiency Rate by Group



Hypothesis 4 (high school)

Results of RM ANOVA to examine mathematics achievement revealed no main effect for time $F(1, 1748) = .457$, $p = .49$. Nor was there a main effect for group, $F(1, 2697.41) = .015$, $p = .90$. Likewise, there was no statistically significant interaction among the group and time variables $F(1, 1748) = .970$, $p = .32$.

With respect to reading/language arts, the main effect for time was not statistically significant $F(1, 1748) = .189$, $p < .66$. Nor was the main effect for group $F(1, 3309.10) = .461$, $p = .49$. There was not a significant interaction between group and time $F(1, 1748) = 3.678$, $p = .055$. The lack of a significant interaction effect for both content areas indicated that the treatment and comparison groups did not differ from each other significantly over time in either mathematics or reading/language arts achievement. Thus, for high schools, we rejected H4.

Ancillary Analyses

It is a common assumption that many students in West Virginia live in relative poverty, but that many of these students are not classified as eligible for free or reduced-price lunch. Some conjecture that this is because these students do not comply with requests to return family income surveys used to determine eligibility each year. Likewise, some students may live in poverty, but their families are slightly above the income cut-off used in determining eligibility. Arguably, the most compelling aspect of the Universal Free Meals Pilot project was the fact that, in pilot schools, these students would have access to free meals and, by extension, experience the potential benefits that accompany better nutrition. The fact that this was not possible in comparison schools that were not using the community eligibility option created the potential for a natural experiment, whereby we could compare academic outcomes for these two groups of students.

We chose to examine this research question by replicating the methods used to test H3 and H4, but for these analyses, we selected only the subset of students who were indicated in the state data system to be ineligible for free/reduced price lunch.

Results

After selecting ineligible students, we first conducted a series of independent samples t-tests to verify that the treatment and comparison group samples did not differ significantly with respect to mathematics or reading/language arts performance at baseline (i.e., when tested at the conclusion of the 2010–2011 school year). For all programmatic levels, we found that the two groups of noneligible students did not differ significantly in baseline academic achievement for either content area. This indicated that subsequent analyses would be free from this potential source of bias.

We next conducted paired-samples *t* tests within each group to retest H3. We found that, contrary to our conjecture, for all programmatic levels and in both content areas, neither the treatment nor the comparison group students exhibited significantly different test performance over time. Thus, we universally rejected H3 within the sample of ineligible students. Finally, we conducted a series of RM ANOVA to retest H4. Here, we found no main effects for time or group for either content area. Likewise, we found no significant interaction effects among these variables in any content area. Therefore, we universally rejected H4 within the sample of ineligible students.

Taken together these results indicated that there were no observable differences over time for this subset of students. Nor did these students perform better over time in the treatment group than the comparison group.

EQ3. Impacts on Student Attendance

We studied the extent to which attendance rates changed among students who were enrolled in pilot schools by testing the following hypothesis:

H5. Average attendance rates will increase significantly among students in pilot sites.

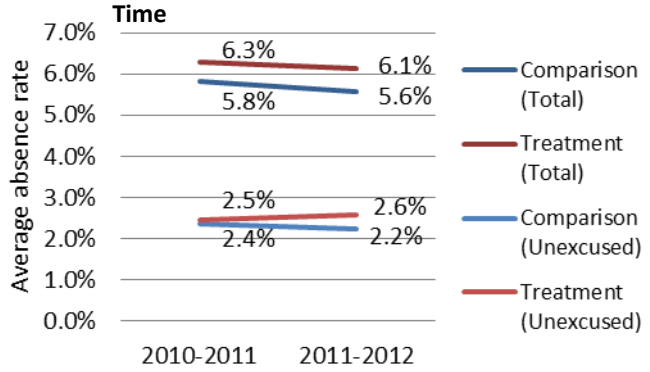
The student samples from both treatment and comparison group schools served as subjects for this analysis (see Sampling procedures, page 10). We first examined average absence rates for each group over time. We calculated two absence rates for each group, total and unexcused. The rates were determined by dividing the number of absences for each student by total membership days.[8] To calculate a total absence rate for each student, both excused and unexcused absences were summed and then divided by membership days. For the unexcused absence rate, the same process was used, only excused absences were omitted from the calculation. We then examined differences in the average attendance rates both within and across groups over time.

Elementary school students

[8] The term, *total membership days*, means the total potential days available for a student to attend school. Usually the number is 180, however, if there were snow days or other school closure days in an individual student's school or county, the number would be lower.

Figure 13 presents the average absence rates for elementary school students by group. Both the treatment and comparison groups declined slightly in average total absence rates over time, a positive outcome. However, with respect to unexcused absence rates, the treatment group actually increased marginally over time while the comparison group declined. As later tests revealed, these marginal differences in both total and unexcused absence rates for treatment group students across time were not statistically significant, indicating the attendance trends had not yet changed significantly for elementary school students at the conclusion of the pilot project's first year. See Appendix D, page 131 for full details on tests of statistical significance.

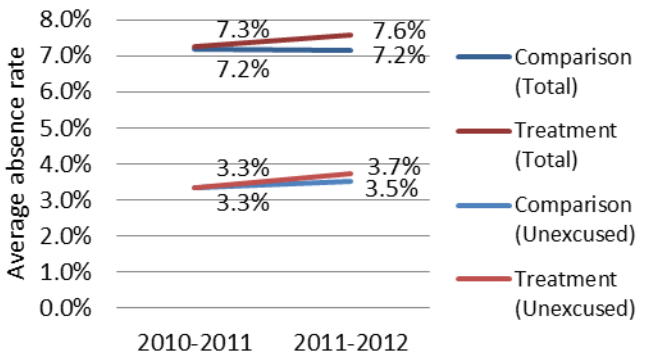
Figure 13. Elementary School Absence Rates by Group and Time



Middle school students

With respect to middle school students, we observed a marginal increase in the average total absence rate for the treatment group, and a static performance for the comparison group over time. Both groups increased in their respective average unexcused absence rates over time. As we indicate later in this section, the difference in total absence rates for the treatment group over time was not statistically significant. However, the difference in unexcused absence rates was statistically significant. The latter finding provides some evidence that, contrary to our hypothesis, the unexcused absence rate in middle schools increased over the course of the pilot project's first year. See Figure 14 for additional details and Appendix D, page 131, for full details on tests of statistical significance.

Figure 14. Middle School Absence Rates by Group and Time

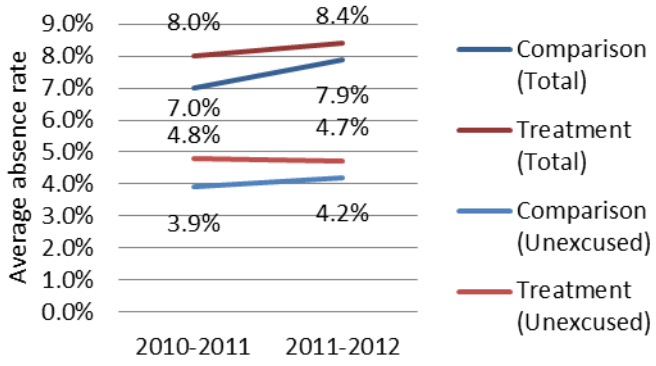


High school students

With respect to high schools, we observed increases in total absence rates for both the treatment and comparison groups. Interestingly, with regard to unexcused absence rates, the treatment group declined marginally over the same period, while the comparison group increased. Later analyses revealed the differences we observed for treatment schools to be statistically insignificant. However, the increases we observed for comparison schools were both statistically significant, as well. This is an important finding because it would appear that high school students in the comparison group experienced different attendance

outcomes when compared with treatment schools. That is, the total absence rates appear to have increased more sharply in these schools than in treatment schools during the same period. The average unexcused absence rate in the treatment group remained more or less static, while the same rate for the comparison group increased by a statistically significant margin. While this finding does not fully confirm our study hypothesis, it lends some support to the potential of this intervention to begin impacting attendance outcomes. It is promising to see evidence that may signal the reversal of a negative trend, but continued monitoring is necessary. Figure 15 contains detailed information for high school students, and Appendix D, page 131, has full details on tests of statistical significance.

Figure 15. High School Absence Rates by Group and Time



Ancillary analyses

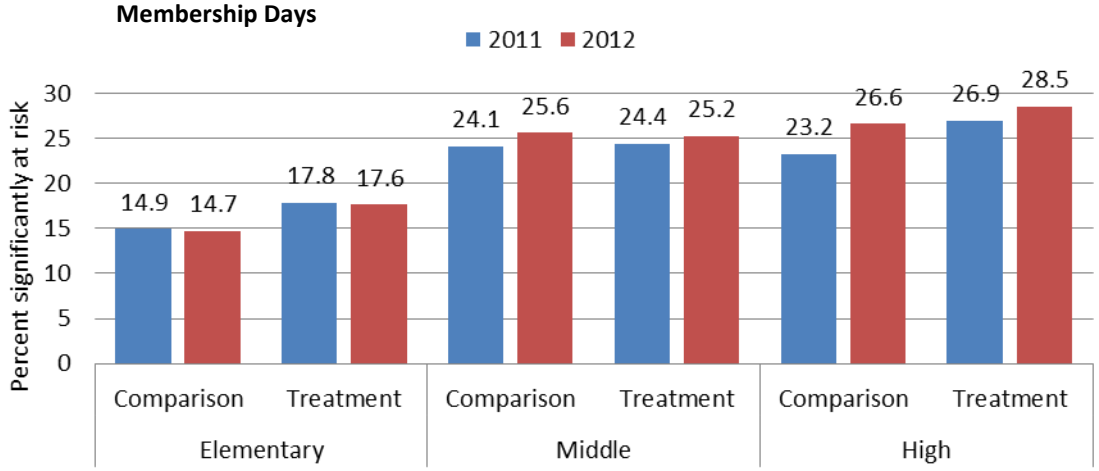
We were also interested in examining the prevalence of chronic absenteeism in pilot and nonpilot schools, because it was our belief that participation in the pilot program could reasonably contribute to a reduction in this outcome. Based upon a brief review of existing research and guidance provided to school districts regarding the identification of students for inclusion in early warning systems, we operationalized chronic absenteeism at two different levels, *significantly at risk* and *at major risk* (Balfanz, 2008; Macheca, 2012; School Loop, Inc., n.d.). Significantly at risk was operationalized as a binary indicator of whether or not each student had a total or unexcused absence rate equal to or greater than 10% of his or her total membership days for a given academic year. At major risk was operationalized the same way, but using a cutoff point of equal or greater than 20%. These calculations were made using both total and unexcused absences as a proportion of total membership days.

Identification of at risk students based upon total absences

We first examined the distribution of students identified as *significantly at risk* based on total absences. Recall that we operationalized this criterion as a student having total absences equal to or in excess of 10% of their total membership days at the conclusion of a given school year. In this case we included both excused and unexcused absences in the calculation. Subsequent analyses examine only unexcused absences. Figure 16 provides an overview of the percentage of students who met this criterion by programmatic level, year, and group. Differences among the groups were most pronounced in elementary and high school, where the treatment group fared somewhat worse than the comparison group. However, in middle and high school, the number of significantly at-risk students was relatively static across groups. The largest within-group changes were observed among high school students, where both the comparison and treatment groups saw increases over time.

Chi square analyses were conducted to test whether or not, within each year, the percentages of students identified as *significantly at risk* were statistically different among

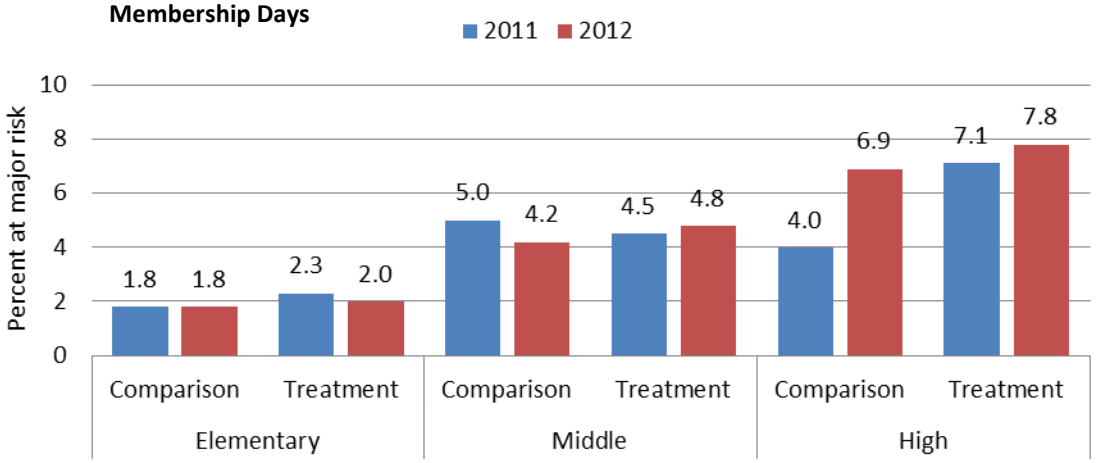
Figure 16. Percentage of Students *Significantly At Risk* Based on Total Absences as a Proportion of Membership Days



the two groups. We posited that the treatment group would potentially differ significantly and negatively when compared with the comparison group at the conclusion of the 2010–2011 school year prior to intervention, but that at the conclusion of the pilot year (2011-2012), the groups may either no longer differ significantly or differ in the opposite direction. Tests revealed that, while the treatment group consistently included more significantly at-risk students than the comparison group (with the exception of middle school), the probability of being identified as significantly at risk based upon total absences was not significantly greater for the treatment group for either year in any programmatic level. See Table A 42 and the accompanying explanation (page 132) for the results of significance tests and the odds ratio for each analysis.

Next, we examined the distribution of students identified as being at major risk at the conclusion of each school year across the two groups. Recall that, for these analyses, we operationalized *at major risk* as having a number of total absences equal to or greater than 20% of available membership days. We found approximately 2% of students in our samples met this criterion in elementary schools, approximately 5% in middle schools, and between about 4% and 8% in high schools. The percentages did not change drastically over time in either group for elementary schools. However, middle school students in the comparison group saw a reduction over time while the treatment group increased slightly. The exception was high school where we saw a marked increase in the percentage of students at major risk identified among the comparison group over time, and only a minor increase among the treatment group. Figure 17 provides a graphical summary of these outcomes.

Figure 17. Percentage of Students *At Major Risk* Based on Total Absences as a Proportion of Membership Days

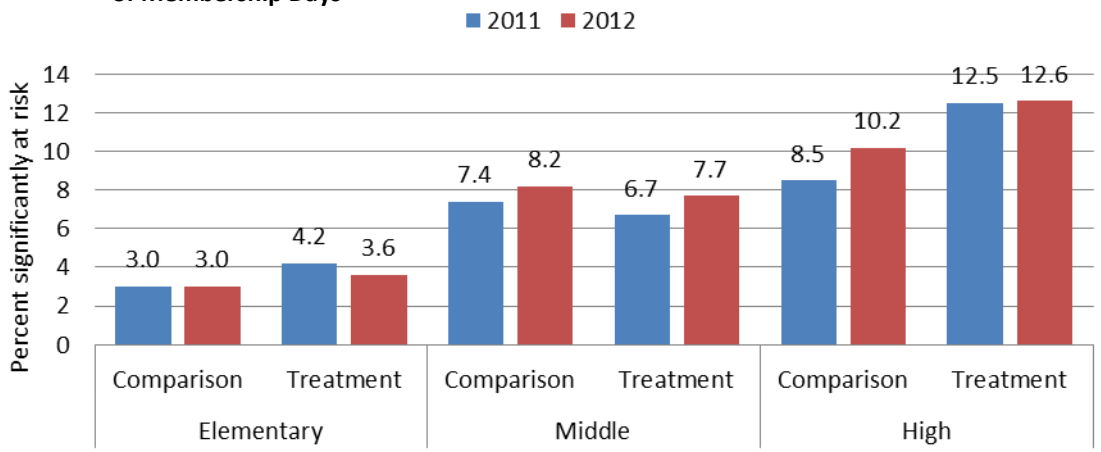


Chi square analyses revealed that the difference among the number of high school students identified as at major risk in the comparison and treatment groups in 2011 was statistically significant. The odds ratio indicated that students in the treatment group were in fact approximately 1.8 times more likely to be identified as at major risk in the year prior to the pilot program. However, possibly owing to an increase in the percentage of students meeting this criterion in the comparison group, the difference among groups was no longer statistically significant at the conclusion of the 2011-2012 school year. The odds ratio reduced to 1.14, indicating that at the conclusion of the pilot program, high school students in the treatment group were no longer differentially likely to be identified as at major risk. This is an important finding that lends some support to our conjecture that the pilot program could be associated with better attendance outcomes. However, additional monitoring is required before making summative conclusions. Table A 43 (page 132) provides a full statistical summary.

Identification of at risk students based upon unexcused absences

We next examined the distribution of students identified as *significantly at risk* based only upon their unexcused absences as a proportion of total membership days. We immediately noticed a large decrease in the percentage of students meeting the significantly-at-risk criterion in both groups due to the exclusion of excused absences in this calculation—only between about 3% and 4% met the criterion in elementary schools, 7% to 8% in middle schools, and 8% to 13% in high schools. The proportion in elementary and middle schools changed only marginally over time for both groups while the comparison group experienced an uncharacteristic increase in high schools alongside an almost static variation for the treatment group. Figure 18 provides a graphical summary of the data.

Figure 18. Percentage of Students *Significantly At Risk* Based on Unexcused Absences as a Proportion of Membership Days

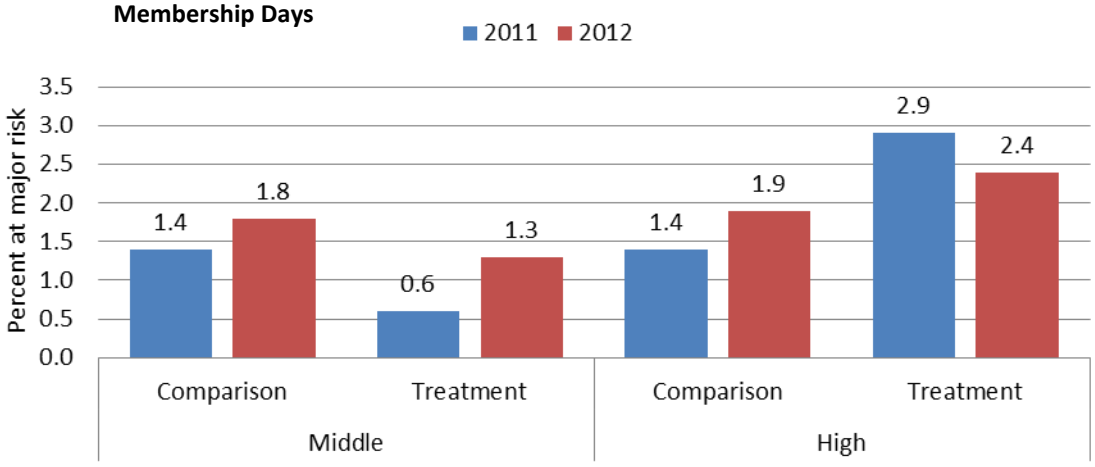


Chi square analyses revealed only one statistically significant difference among the treatment and comparison groups. As noted previously, we found that at the conclusion of the 2010–2011 school year, prior to the pilot program, high school students in the treatment group were more likely to be identified as *significantly at risk* than students in the comparison group. This time, these students were approximately 1.5 times more likely to meet this criterion than their counterparts in the comparison group. However, we again found that this difference was gone when examining the 2011-2012 data. One potential explanation for this finding lies in the changes within both groups over time. The treatment group remained more or less static in the percentage of students meeting this criterion from 2011 to 2012 while the comparison group increased. As a result, the odds ratio reduced from 1.5 to approximately 1.2 at the conclusion of the 2012 year and was no longer statistically significant. This finding provides partial evidence that, despite the fact that there was not a reduction in the number of significantly at risk students over time in the treatment group, it appears as if the intervention may be associated with positive attendance outcomes. The number of significantly-at-risk students has leveled off in the treatment group while the matched comparison group increased. This is a positive finding, but it will certainly require additional monitoring to determine if this trend continues over time. Table A 44 (page 132) provides a full statistical summary.

Finally, we examined the percentage of students identified as being *at major risk* based only upon their unexcused absences as a proportion of total membership days. This designation represents the most severe scenario in which, to meet the criterion, students had to possess a number of unexcused absences in excess or equal to 20% of their total membership days at the conclusion of the academic year. Notably, there were almost no students who met this criterion in elementary schools for either year in either group. Therefore, we do not report elementary school results below. Figure 19 illustrates that we found very few students met this criterion in middle schools, only between 1% and 2% and a similarly small percent in high schools, between 1% and 3%. Notably, both groups increased slightly in the proportion of students identified as at major risk in middle schools over time. However, while this percentage increased marginally among high school students in the

comparison group, the treatment group's proportion decreased. These opposing trends were in the direction we hypothesized. Figure 19 provides a graphical summary of the data.

Figure 19. Percentage of Students *At Major Risk* Based on Unexcused Absences as a Proportion of Membership Days



Chi square analyses revealed no significant differences among middle school students for either year. However, in 2011, high school students in the treatment group were approximately 2.1 times more likely to be identified as at major risk than students in the comparison group. This difference was statistically and practically significant, but again vanished when we examined the postintervention data. At the conclusion of the 2011-2012 school year, the odds ratio reduced to 1.2, and was no longer statistically significant. This is a rather positive outcome given the severity of the at-major-risk designation. While these results do not indicate that the treatment group significantly reduced the proportion of students meeting this criterion over time, they are interesting in that we observed a slight reduction in the treatment group alongside an increase in the comparison group. It is possible that this outcome could signal the reversal of a particularly negative outcome, but again, we must emphasize that continued monitoring is necessary to rule out the possibility of a statistical aberration. Table A 45 (page 133) contains the full statistical summary.

EQ4. Impacts on Student Disciplinary Behaviors

We studied the extent to which disciplinary behavior changed among students who are enrolled in pilot schools by testing the following hypothesis:

H6. The rate and severity of behavioral disciplinary incidents will decrease significantly over the course of the pilot.

In this case, we actually tested the null hypothesis that *no difference* in the rate and severity of discipline referrals would be observed over the course of the pilot. As with the previous two evaluation questions, the approach taken for the analysis of this question followed a pretest/posttest, control group quasi-experimental design. The student samples from both treatment and comparison group schools served as subjects for this analysis (see Sampling procedures, page 10). With this approach it was possible to examine more rigorously the issues—including frequency of discipline referrals overall by school

programmatic level, by types of behavior, and by level of severity—among the treatment group of students and the comparison group. Analysis consisted of descriptive statistics, cross-tabulation procedures, and corresponding inferential statistics testing for treatment vs. comparison group differences.

Of the approximate 26,000 students enrolled in schools located in the seven treatment counties, 6,402 and 6,298 were represented in the WVEIS discipline data for 2011 and 2012, respectively. Correspondingly, these students were associated with 22,108 and 23,482 discipline referrals over the 2 years. This translates to 3.4 and 3.7 discipline referrals per student per year on a pilot-wide basis.

Programmatic level comparisons

The numbers reported above suggest an increase in discipline referrals over the 2-year period within the treatment schools; however, the increase depended on school program level (Table 11). At the elementary school level, a decrease in discipline referrals was observed in 2012 compared to the previous year, whereas at both the middle and high school levels the number of referrals increased.

Table 11. Discipline Referrals by Programmatic Level Among Universal Free Meals Pilot Project Treatment Schools, 2011–2012

	2011		2012				
Program Level	Number	Percent	Number	Percent	χ^2	*df*	*p*
Total	22,086	100.0	23,455	100.0			
Elementary school	4,170	18.9	3,556	15.2	112.9	2	<.00001
Middle school	5,946	26.9	6,712	28.6			
High school	11,970	54.2	13,187	56.2			

To assess whether the changes in discipline referrals patterns observed above were unique to treatment schools, students from both treatment and nontreatment schools were used to examine the occurrence of discipline referrals by school programmatic level, as well as the severity and types of behaviors reported.

Recalling from above the samples of students included 5,182 elementary, middle, and high school students evenly distributed between comparison and treatment groups by program level across 2 years—2011 and 2012. Looking at all three program levels combined, among treatment schools, 781 students (30.1%) were represented in the 2011 WVEIS discipline data, accounting for 2,702 discipline referrals (Table 12). This translated to a rate for the full sample of about one referral per student that year. In 2012, more treatment school students were represented (839, 32.4%), accounting for 3,298 referrals—a rate of 1.27 referrals per students. A similar trend was observed between 2011 and 2012 among comparison group student, however, in slightly larger numbers. In 2011, 830 (32%) were represented in the discipline data for a referral rate of 1.80 per student. This increased to 916 (35.4%) students and 2.04 referrals per student in 2012.

Table 12. Descriptive Statistics on the Distribution of Discipline Referrals by Program Levels Among Comparison and Treatment Group Students, 2011–2012

Program level	Group	Number of students in sample	2011 Number with discipline referrals	2011 Percent with discipline referrals	2011 Number of discipline referrals	2011 Discipline referrals per student	2012 Number with discipline referrals	2012 Percent with discipline referrals	2012 Number of discipline referrals	2012 Discipline referrals per student
Total		5,182	1,611	31.1	7,355	1.42	1,755	33.9	8,588	1.66
All levels	Comparison	2,591	830	32.0	4,653	1.80	916	35.4	5,291	2.04
	Treatment	2,591	781	30.1	2,702	1.04	839	32.4	3,298	1.27
Elem. school	Comparison	879	116	13.2	359	0.41	191	21.7	690	0.78
	Treatment	879	151	17.2	370	0.42	226	25.7	794	0.90
Middle school	Comparison	837	324	38.7	1,791	2.14	338	40.4	2,099	2.51
	Treatment	837	268	32.0	935	1.12	286	34.2	958	1.14
High school	Comparison	875	390	44.6	2,503	2.86	387	44.2	2,501	2.86
	Treatment	875	362	41.4	1,397	1.60	327	37.4	1,546	1.77

Looking at program-level data, a much smaller percentage of elementary students was represented, and a smaller number of referrals was reported compared to their more senior counterparts—less than one referral per student in both years (Table 12). Remarkably however, a sharp increase was observed in 2012 at this program level in the number of students, and the number of discipline referrals in both comparison and treatment groups. It is unclear what may account for this increase, but that it involved both groups similarly suggests some systemic change in discipline reporting between the 2 years. An increase of similar magnitude was not observed at the middle and high school levels between the 2 years, but proportionally more students were represented, accounting for increased numbers and rates of referrals. Notable also is the difference among program levels with regard to treatment and comparison group representation in the discipline data. At the elementary level, treatment group students appear to be more frequently represented, whereas the opposite is true among middle and high school students.

As indicated in the descriptive data above, a vast majority of students across all program levels and in both groups had no discipline referrals whatsoever. A small number of students, however, were represented numerous times for multiple inappropriate behaviors whereas most students were not represented at all. The data suggest differences also between treatment and comparison groups in the number of referrals per student.

To test this more rigorously, a dataset was constructed in which each student was represented by the number of discipline referrals accumulated each year. The data were heavily skewed, however, because of the small number of students with multiple referrals, and on further inspection it was clear no transformation would produce data by which the analysis could be done under an assumption of normally distributed data—i.e., comparing means for statistically significant differences. As such, nonparametric (i.e., distribution free) procedures were needed and in this case we were looking at comparing two independent conditions—students in the Universal Free Meals Pilot project schools vs. nonparticipating students—over 2 years. We used the Mann-Whitney test, a nonparametric procedure that

ranks students[9] from lowest to highest based on the number of discipline referrals accumulated without regard to group membership (treatment or comparison); we then tested differences between groups on the rank scores. In this way, the group with the lowest mean rank is the one that has the greatest number of students with lower rank scores (Field 2009).

The Mann-Whitney test bears out what was suggested by the descriptive data above, yet there is conflicting evidence in the findings. First, at all three program levels, sufficient statistical evidence was found to confirm that treatment and comparison group students differ (Table 13). Treatment group students at the middle and high school levels consistently had lower mean rank scores than comparison group students, yet this was true in both 2011 and 2012. As a result, it is not possible to discern any effect of participation in the pilot among students at these program levels, at least in terms of number of students represented in the discipline data and number of referrals per student.

At the elementary level, treatment group students differed from comparison students in the opposite direction—they had higher mean rank scores in both 2011 and 2012. One might be tempted to point out that in 2011, the difference was statistically significant but in 2012 it was not; nonetheless, the small mean rank variations between the 2 years (about 863 to 896 in each year) rule out any practical dissimilarity between the groups.

Table 13. Mann-Whitney *U* Results Distribution of Discipline Referrals Among Comparison and Treatment Group Students, 2011–2012

Program level	Year	Treatment group	*N*	Mean rank	Mann-Whitney *U*	*Z*	*p*
Elementary school	2011	Comparison	879	862.93	371,756.5	-2.193	.028
		Treatment	879	896.07			
	2012	Comparison	879	863.01	371,826.0	-1.828	.068
		Treatment	879	895.99			
Middle school	2011	Comparison	837	874.55	319,274.0	-3.675	<.001
		Treatment	837	800.45			
	2012	Comparison	837	875.68	318,326.5	-3.731	<.001
		Treatment	837	799.32			
High school	2011	Comparison	875	899.90	361,464.5	-2.243	.025
		Treatment	875	851.10			
	2012	Comparison	875	912.86	350,126.0	-3.480	.001
		Treatment	875	838.14			

In the results described above, the unit of analysis was the student, where questions related to student representation in the discipline data were addressed. The focus now turns to the discipline referral as the unit of analysis, where questions about the seriousness and types of behaviors engaged in can be examined. In the stakeholder surveys described for EQ1 earlier, treatment school staff were asked about certain problem behaviors they may have observed at their respective schools. These behaviors included disruptive student behavior, physical fighting between students, harassment or bullying among students, and cutting

[9] Note that ranking was performed within school program levels.

classes or skipping school[10]. Discipline referral data related to these behaviors were examined for differences between treatment and comparison group students.

Types of behavior comparisons

In the WVEIS discipline dataset, disruptive student behavior is captured under a category of behaviors labeled as *disruptive/disrespectful conduct*. Between 2011 and 2012 there was an increased number of referrals reported for both treatment and comparison group students at the elementary school program level (Table 14). The increase among treatment group students was much smaller such that they accounted for 44% of disruptive/disrespectful conduct referrals in 2012, compared to 53% in 2011—a statistically significant shift. At the middle school level the opposite occurred; there was a statistically significant increase in the proportions of disruptive/disrespectful conduct referrals in 2012 that were attributable to treatment students. A similar trend was observed at the high school level but there was insufficient evidence to conclude the change was significant. Interestingly, 31% to 46% of staff at all three program levels in treatment schools reported in the end-of-year survey that disruptive student behaviors have gotten better in 2012 compared to the previous year—a finding that was contradictory to what was actually reported in the discipline data.

With regard to discipline referrals for *fighting*, no statistically significant differences were found between treatment and comparison students from 2011 to 2012. One notable observation does however deserve mention. At the high school level both treatment and comparison students were reported fewer times for this behavior, and the decrease among treatment students, while not statistically different from the comparison group, was greater. That nearly 60% of treatment high school staff reported in the survey that fighting behaviors had improved (i.e., fewer incidents of fighting among students during the pilot year) may stem from this decrease.

It is not often that elementary school students skip school or cut classes, and that was born out in the WVEIS discipline referral data. In 2011 no referrals for either treatment or comparison students were reported for related behaviors so no comparison could be made—other than to say that discipline referrals for related behaviors increased in 2012 for both groups. At the middle school level, a statistically significant difference was seen between treatment and comparison students with regard to *leaving school without permission*, however, the cell sizes were so small (no more than 12 discipline referrals for either group) that this finding is considered unreliable. At the high school level there was an increase in both groups in referrals for *skipping class*—however the relative increase was greater among treatment school students and may account for the fact that 20% of high school staff reported in the survey that cutting classes or skipping school had gotten worse since 2011.

[10] In the WVEIS discipline dataset referrals for behaviors that correspond to cutting classes or skipping school were captured in three separate reportable codes that include *Skipping Class*, *Tardiness*, and *Leaving School without Permission*. These are treated separately.

Table 14. Discipline Referrals by Type of Behavior and Program Level, 2011–2012

Level	Behavior category	Treatment group	2011		2012		Total		χ^2	df	p
			Number	Percent*	Number	Percent*	Number	Percent			
Elem. School	Disruptive/Disrespectful Conduct	Comparison	98	46.9[a]	220	56.0[b]	318	53.0	4.52	1	0.03
		Treatment	111	53.1[a]	173	44.0[b]	284	47.0			
	Physical Fight	Comparison	17	32.7	33	37.9	50	36.0	0.39	1	0.53
		Treatment	35	67.3	54	62.1	89	64.0			
	Harassment/ Bullying	Comparison	5	20.0	13	33.3	18	28.0	1.34	1	0.25
		Treatment	20	80.0	26	66.7	46	72.0			
	Skipping Class	Comparison	0	0.0	10	42.0	10	42.0	--		--
		Treatment	0	0.0	14	58.0	14	58.0			
	Tardiness	Comparison	0	0.0	21	45.0	21	45.0	--		--
		Treatment	0	0.0	26	55.0	26	55.0			
	Leaving School w/o Permission	Comparison	0	0.0	3	75.0	3	75.0	--		--
		Treatment	0	0.0	1	25.0	1	25.0			
Middle School	Disruptive/Disrespectful Conduct	Comparison	669	76.8[a]	448	65.7[b]	1117	71.9	23.42	1	0.00
		Treatment	202	23.2[a]	234	34.3[b]	436	28.1			
	Physical Fight	Comparison	47	43.5	72	50.7	119	47.6	1.27	1	0.26
		Treatment	61	56.5	70	49.3	131	52.4			
	Harassment/ Bullying	Comparison	39	58.2	38	60.3	77	59.2	0.06	1	0.81
		Treatment	28	41.8	25	39.7	53	40.8			
	Skipping Class	Comparison	17	68.0	63	64.9	80	65.6	0.08	1	0.77
		Treatment	8	32.0	34	35.1	42	34.4			
	Tardiness	Comparison	26	35.6	64	47.8	90	43.5	2.84	1	0.09
		Treatment	47	64.4	70	52.2	117	56.5			
	Leaving School w/o Permission	Comparison	2	22.2[a]	12	85.7[b]	14	60.9	9.27	1	0.00
		Treatment	7	77.8[a]	2	14.3[b]	9	39.1			
High School	Disruptive/Disrespectful Conduct	Comparison	695	64.1	658	60.8	1353	62.4	2.43	1	0.12
		Treatment	390	35.9	424	39.2	814	37.6			
	Physical Fight	Comparison	68	48.9	53	52.0	121	50.2	0.22	1	0.64
		Treatment	71	51.1	49	48.0	120	49.8			
	Harassment/ Bullying	Comparison	11	37.9	13	44.8	24	41.4	0.28	1	0.59
		Treatment	18	62.1	16	55.2	34	58.6			
	Skipping Class	Comparison	114	64.0[a]	135	54.4[b]	249	58.5	3.94	1	0.05
		Treatment	64	36.0[a]	113	45.6[b]	177	41.5			
	Tardiness	Comparison	244	62.9	277	61.6	521	62.2	0.16	1	0.69
		Treatment	144	37.1	173	38.4	317	37.8			
	Leaving School w/o Permission	Comparison	18	90.0	35	74.5	53	79.1	2.05	1	0.15
		Treatment	2	10.0	12	25.5	14	20.9			

*Each superscript letter denotes a subset of Year categories whose column proportions do not differ significantly from each other at the .05 level.

No other differences were observed among treatment and comparison group students with regard to discipline referrals for behaviors related to skipping school or cutting classes. Nor were differences observed among treatment and comparison group students with regard to discipline referrals for harassment/bullying related behaviors.

Level of severity comparisons

In the results described above, the unit of analysis was the *student*, where questions related to student representation in the discipline data were addressed. These questions provide little information with regard to the nature of behaviors of students. The focus now turns to the *discipline referral* as the unit of analysis where questions as to the seriousness and types of behaviors engaged in can be examined. In accordance with *Expected Behaviors in Safe and Supportive Schools* (WVBE Policy 4373), behaviors are classified in four progressively severe levels as follows:

1. *Minimally disruptive behaviors*—Disruptive to the educational process and the orderly operations of the school but do not pose direct danger to self or others. Examples include but are not limited to tardiness, inappropriate appearance, or vehicle parking violation.
2. *Disruptive and potentially harmful behaviors*—Disruptive to the educational process and/or pose potential harm or danger to self and/or others. The behavior is committed willfully but not in a manner that is intended maliciously to cause harm or danger to self and/or others. Examples include but are not limited to insubordination, technology misuse, or profane language/obscene gesture/indecent act.
3. *Imminently dangerous, illegal and/or aggressive behaviors*—Willfully committed behaviors known to be illegal and/or harmful to people and/or property. Examples include but are not limited to harassment/bullying/intimidation, defacing school property/vandalism, or improper or negligent operation of a motor vehicle.
4. *Safe Schools Act violation behaviors*—Violent and/or criminal behaviors consistent with those addressed in West Virginia Code §18A-5-1a(a) and (b). Examples include but are not limited to weapons possession, use, sale, or possession of illegal drugs, or bomb threat.

As would be expected, safe school violations—the most serious and dangerous behaviors—are rare events and, as a result, comparatively few discipline referrals for these behaviors were reported. To ensure adequate cell sizes, any discipline referrals for these behaviors were aggregated with the next less severe behaviors—*imminently dangerous, illegal and/or aggressive behaviors*—in the results reported below.

While there were some fluctuations in the distribution of discipline referrals by severity at the elementary school level, none was sufficiently large to indicate statistically significant differences between treatment and comparison students from 2011 and 2012 (Table 15). At the middle and high school levels, however, we found a few notable exceptions:

- Among middle school students, we observed what could be interpreted as a positive finding for treatment students. A significant increase in referrals for minimally disruptive behaviors occurred in 2012 compared to the previous year, yet this was offset by a corresponding decrease in more severe disruptive and potentially harmful behaviors. The opposite was true among comparison students.

- At the high school level, we observed a more contradictory result. In 2012 the proportion of discipline referrals for minimally disruptive behaviors increased substantially among treatment group students; however, this was not offset by a corresponding decrease in referrals for more severe behaviors (Table 15). For comparison group students, both minimally disruptive and disruptive and potentially dangerous behaviors decreased, while the incidents of more serious behaviors increased.

Table 15. Discipline Referrals by Severity Level, 2011–2012

Program level	4373 Behavior severity level recode	Treatment group	2011 Number	2011 Percent*	2012 Number	2012 Percent*	χ^2	*df*	*p*
Elem. school	Minimally Disruptive	Comparison	105	47.5	273	54.2	2.727	1	.099
		Treatment	116	52.5	231	45.8			
	Disruptive and Potentially Harmful Behaviors	Comparison	116	44.8	215	40.0	1.623	1	0.20
		Treatment	143	55.2	322	60.0			
	Imminently Dangerous, Illegal and/or Aggressive Behaviors, or Safe Schools Act Behaviors	Comparison	53	43.4	71	41.3	0.137	1	.711
		Treatment	69	56.6	101	58.7			
Middle school	Minimally Disruptive	Comparison	791	72.8[a]	677	62.9[b]	24.347	1	.000
		Treatment	296	27.2[a]	400	37.1[b]			
	Disruptive and Potentially Harmful Behaviors	Comparison	443	48.3[a]	719	64.0[b]	50.853	1	.000
		Treatment	474	51.7[a]	404	36.0[b]			
	Imminently Dangerous, Illegal and/or Aggressive Behaviors, or Safe Schools Act Behaviors	Comparison	141	53.8	132	54.3	0.013	1	.910
		Treatment	121	46.2	111	45.7			
High school	Minimally Disruptive	Comparison	1205	62.6[a]	1218	59.1[b]	4.938	1	.026
		Treatment	721	37.4[a]	842	40.9[b]			
	Disruptive and Potentially Harmful Behaviors	Comparison	482	46.5	400	43.7	1.5	1	.221
		Treatment	555	53.5	515	56.3			
	Imminently Dangerous, Illegal and/or Aggressive Behaviors, or Safe Schools Act Behaviors	Comparison	76	43.7	84	46.9	0.376	1	.540
		Treatment	98	56.3	95	53.1			

*Each superscript letter denotes a subset of Year categories whose column proportions do not differ significantly from each other at the .05 level.

Discussion

As reported earlier, feedback from stakeholders regarding the intent and impact of the pilot project was overwhelmingly positive. They indicated the importance of every student having the opportunity to eat adequate and nutritious meals daily, and they reported that all students were provided that opportunity. As a result, schools witnessed large increases in student participation in school meals. Generally, school meals were reported to be healthier, offering more variety than in previous years.

Stakeholders noted clear school climate benefits derived from their participation. Many stakeholder comments indicated that the pilot was having substantial impacts on the conditions for learning within their respective schools. For example, the breakfast-in-the-classroom strategy offered teachers and students greater opportunity to build relationships, according to elementary school teachers. Additionally, access to free meals improved student engagement by reducing distractions caused by hunger, headaches, and stomachaches, according to teachers and other school staff.

These findings add to a substantial and growing evidence base suggesting that a safe and supportive learning environment—in other words a positive school climate—improves outcomes for students both academically and in their social and emotional development (Cohen & Geier, 2010; Sparks, 2013). According to a model put forth by the U.S. Department of Education, school climate consists of three primary domains including *engagement* (relationships, respect for diversity, and school participation), s*afety* (emotional/physical safety and substance use), and *environment* (physical/academic/disciplinary environment and student/staff wellbeing). In West Virginia, a recent study involving 42 high schools provided additional evidence that relationships among students and staff, school engagement, emotional safety, and the overall school environmental contributed substantially to higher academic outcomes (Whisman, 2012). Although there was little evidence in the present study that participation in the pilot positively affected student performance among intervention schools, we believe we are at too early a stage to draw conclusions from WESTEST 2 scores or data from attendance and disciplinary behavior records. The pilot project lasted only one academic year, during which schools were mobilizing to provide both breakfast and lunch meals to all students and making adjustments along the way.

There could well be long-term academic benefits for students in this study as a result of relationship building during the pilot and from knowledge and skills gained as a result of being less distracted by hunger and more fully engaged in the learning process. There also could be long-term benefits for students' social and emotional development resulting from breakfast-in-the-classroom strategies. Teachers in schools using this meal strategy had the opportunity to act as role models and to teach table manners and eating etiquette to younger students. Younger students also learned responsibility by participating in food distribution and clean up activities.

Even though the pilot project ended in May 2012, we may well have the opportunity to track the progress of students in participating schools. In August 2012, the WVDE Office of Child Nutrition announced that 35 counties initiated the U.S. Department of Agriculture's Community Eligibility Option (CEO) for their school nutrition programs, in some or all of their schools during the 2012-2013 school year—only a few months after the pilot ended. CEO is a federal universal free meal service option, allowing schools to qualify as free feeding sites. All students at those schools receive both breakfast and lunch at no charge. While ensuring that all children receive nutritious meals during the school day, this option also eliminates the need for districts and schools to collect, approve, and verify household applications for free and reduced-price eligible students in high poverty areas of West Virginia. With all students categorized as eligible for free meals, the county is relieved of the burden of billing and collecting money from parents. Additionally, several county boards extended the universal free meal program by grouping schools within the county so that all elementary students receive free meals. As a result, in the 2012-13 school year, 283 West Virginia schools are offering free meals to approximately 90,000 students across the state.[11] As noted the pilot project was of short duration, yet if student enrolled in the pilot schools continue to attend schools with universal free meals, say as part of the CEO expansion, time will tell if they may realize long term academic and developmental benefits.

Our study revealed information about implementation of the program that could be useful to schools and districts newer to universal free meal programs. For one thing, it was critical to the acceptance and success of the pilot project that most participating schools had the discretion to decide on an approach suitable for their student populations and their particular local context. Characteristics of individual schools within each county influenced the selection of breakfast strategies best suited for each school. Many schools used a combination of strategies based on multiple factors, such as grade level, student population size, building structure, and bus schedules. The selection of breakfast strategies, in turn, affected food options that could be offered to students, as well as the risk that instructional time might be lost as a result. Teachers in some schools expressed great concern about the impact on instructional time of the school breakfast strategy adopted at their school. Although this concern abated for most teachers over the course of the year, some believed it continued to be an issue that had yet to be adequately addressed.

Food waste was a big concern for many stakeholders. While schools have taken some steps to reduce the amount of food wasted, districts and schools must continue to identify contributing factors and find solutions to minimize food waste. Soliciting student feedback about school-made meals, allowing students to choose what they want to eat, and explicitly communicating to all stakeholders that participation is voluntary may enable schools to reduce food waste to some extent. For additional ideas about how to reduce food waste, the

[11] For more information about West Virginia's participation in CEO, see the WVDE Office of Child Nutrition website: https://wvde.state.wv.us/nutrition/news.html?news_id=51.

Northeast Recycling Council (a nonprofit consortium of 10 states in northeastern United States) has many helpful recommendations and resources.[12]

Participant feedback strongly suggests that the initiative is more likely to be embraced and successful, not only when county and school administrators are strong advocates of the initiative and set expectations prior to the school year, but also when they seek input from other stakeholders regarding decisions on breakfast strategies, scheduling, and type and quality of meals. It is imperative, therefore, that as additional counties and schools plan to implement this or a similar initiative by the WVDE, they be notified enough in advance to allow adequate time for making necessary preparations and for involving relevant stakeholders in some of the decision making.

[12] See for example, their 2011 paper, "Food Service/Cafeteria Waste Reduction Suggestions & Guidance," available at the following URL: http://www.nerc.org/documents/schools/FoodServiceWasteReductionInSchools.pdf.

Recommendations

Recommendations for the West Virginia Department of Education

- Expand the program. Encourage counties to find ways for their schools to participate in universal free meals programs, either through the U.S. Department of Agriculture (USDA) Community Eligibility Option (CEO) or more traditional USDA mechanisms and supplemental funding.
- Help districts and schools identify potential funding sources for renovating kitchens, buying equipment, and procuring other resources to improve both efficiency and quality in their food production.
- Facilitate the exchange of information among schools and counties about successful strategies to explore, as they implement their programs.
- Continue to allow districts to adapt universal free meals initiatives to their local circumstances.
- Continue to monitor impacts on student performance, attendance, and disciplinary behavior. Conclusive summative data will take 3 to 5 years of implementation to obtain.

Recommendations for counties

- Be sure administrators are strong advocates of the initiative, set expectations prior to the school year, and involve all relevant stakeholders in planning.
- Do not restrict schools' discretion in developing the breakfast strategy—or combination of strategies—that will maximize student participation and the variety in food choices available to them, while minimizing the loss of instructional time.
- Revisit the meal-to-cook ratio. This formula needs updating to account for the increased time and labor required to cook menu items made from scratch.
- Provide ongoing training for food service personnel to improve their capacity to plan for and prepare nutritious school-made meals.
- Allow adequate time for schools to plan an implementation strategy that includes staffing, equipment, and funding prior to the beginning of the school year.
- Strongly consider exercising the U.S. Department of Agriculture (USDA) Community Eligibility Option (CEO), which will eliminate the need to collect financial forms from families for individual students.
- Investigate local codes regulating the disposal of unopened food packages and uneaten fruit that has been discarded by students, but remains wholesome for consumption at local food banks or other facilities that provide food for those in need.
- For counties that choose to offer universal free meals through traditional USDA funding mechanisms—as did the schools in the pilot project, which predated CEO—employ multiple strategies for raising return rates on parental financial forms. Successful counties in the pilot project worked with parent groups to telephone parents individually, and posted online applications to make the process more convenient for parents and provide additional confidentiality.

Recommendations for schools

- Be strong advocates of the initiative and set expectations prior to the school year.
- Involve all relevant stakeholders in planning, especially regarding breakfast strategies, scheduling, and the type and quality of meals.
- Pay particular attention to the tradeoffs involved with each breakfast strategy. The choice of a particular breakfast strategy in combination with other variables at each school can affect the amount of instructional time lost and the extent to which schools can offer food choices to their students.
- Obtain feedback from students about menus—especially when introducing new food items. Doing so will go a long way in helping cooks to provide nutritious school-made meals that students will eat, and reducing both student hunger and food waste.
- Communicate more effectively to students and staff that students may have as many fruits and vegetables as they choose. Doing so may assuage some of the complaints about students not getting enough to eat at school meals.
- Pay careful attention to the scheduling of meals, and make sure there is sufficient time between breakfast and lunch for students to work up an appetite. Appropriate scheduling could increase their participation in the free meals program and avoid students getting hungry at various points during the school day.
- Optimize the flow of students through lines to receive their meals. Standing too long in line limits the time students have to eat their meals, which can affect the nourishment they receive and lead to food waste.
- When employing the breakfast-in-the-classroom strategy, equip classrooms with necessary cleaning supplies.
- Communicate explicitly to all stakeholders that participation in school meals is voluntary.

References

Abalkhail, B., & Shawky, S. (2002). Prevalence of daily breakfast intake, iron deficiency anaemia, and awareness of being anaemic among Saudi school students. *International Journal of Food Science and Nutrition, 53*, 519-528.

Balfanz, R. (2008). *Three steps to building an early warning and intervention system for potential dropouts*. PowerPoint presentation. Baltimore, MD: Everyone Graduates Center. Retrieved from http://new.every1graduates.org/three-steps-to-building-an-early-warning-and-intervention-system/.

Chandler, A. K., Walker, S. P., Connolly, K., & Grantham-McGregor, S. M. (1995). School breakfast improves verbal fluency in undernourished Jamaican children. *Journal of Nutrition, 125*, 894-900.

Cohen, J. & Geier, V. K. (2010). *School climate research summary: January 2010. School Climate Brief, 1*(1), New York: Center for Social and Emotional Education. Retrieved from http://www.schoolclimate.org/climate/documents/SCBrief_v1n1_Jan2010.pdf.

Edward, H. G., & Evers, S. (2001). Benefits and barriers associated with participation in food programs in three, low income Ontario communities. *Canadian Journal of Dietetic Practice and Research, 62,* 76-81.

Expected Behaviors in Safe and Supportive Schools, West Virginia Board of Education Policy 4373 (Effective July 1, 2012).
Retrieved from http://wvde.state.wv.us/policies/p4373-new.pdf.

Field, A. (2009). *Discovering statistics using SPSS*, 3rd ed. Thousand Oaks, CA: Sage Publications, Inc.

Grantham-McGregor, S. M., Chang, S., & Walker, S. P. (1998). Evaluation of school feeding programs: some Jamaican examples. *American Journal of Clinical Nutrition, 67*(suppl), 785S-789S.

Jacoby, E. R., Cueto, S., & Pollitt, E. (1998). When science and politics listen to each other: good prospects from a new school breakfast program in Peru. *American Journal of Clinical Nutrition, 67* (suppl), 795S-797S.

Kleinman, R. E., Hall, S., Green, H., et al. (2002). Diet, breakfast, and academic performance in children. *Annals of Nutrition and Metabolism, 46*(suppl 1), 24-30.

Lent, M. (2007). *Preliminary findings from the 2006-2007 universal free breakfast initiative in Milwaukee Public Schools*. Milwaukee, WI: Hunger Task Force. Retrieved at http://www.tnsna.com/Lamar%20Smith.pdf.

Macheca, E. (2012). Chronic absenteeis: A hidden threat. Waltham, MA: Education Development Center, Inc., National Center for Mental Health Promotion and Youth

Violence Prevention. Retrieved from http://www.promoteprevent.org/blog/chronic-absenteeism-hidden-threat.

Meyers, A. F., Sampson, A. E., Weitzman, M., Rogers, B. L., & Kayne, H. (1989). School breakfast program and school performance. *AJDC, 143*: 1234-1239.

Murphy, J. M., Pagano, M. P., Nachmani, J., Sperling, P., Kane, S., & Kleinman, R. E. (1998). The relationship of school breakfast to psychosocial and academic functioning. *Archives of Pediatrics and Adolescent Medicine, 152*(9), 899-907.

Pertschuk, K. (2002). A morning boost for every child. *NEA Today, 21*, 36.

Powell, C., Grantham-McGregor, S., & Elston, M. (1983). An evaluation of giving the Jamaican government school meal to a class of children. *Human Nutrition. Clinical Nutrition, 37C,* 381-388.

Richter, L.M., Rose, C., & Griesel, R.D. (1997). *Cognitive and behavioural effects of a school breakfast. South African Medical Journal, 87*(1 Suppl), 93-100.

School Loop, Inc. (n.d.) Chronic absence tracker: School Loop student information management system guidance on tracking chronic absenteeism. Website. San Francisco, CA: Author. Retrieved from http://help.schoolloop.com/cms/page_view?d=x&piid=&vpid=1310468440597.

Smith, L. (2011). *An examination of third and fourth grade TCAP scores and the universal breakfast program in Unicoi County, Tennessee.* Dissertation. East Tennessee State University. ProQuest No. 3462058.

Sparks, S. D. (2013). Students' social, emotional needs entwined with learning, security. *Education Week, 32*(16), 16-18, 20-21.

Taras, H. (2005). Nutrition and student performance at school. *Journal of School Health, 75*(6), 199-213.

U. S. Department of Agriculture (2011a). *Strategies for school breakfast program expansion*. Washington, DC: Author. Retrieved from http://www.fns.usda.gov/cnd/breakfast/expansion/expansionstrategies.htm#break.

U. S. Department of Agriculture (2011b). *Food security in the United States: Key statistics and graphics*. Washington, DC: Author, Economic Research Service. Retrieved at http://www.ers.usda.gov/Briefing/FoodSecurity/stats_graphs.htm.

West Virginia Kids Count Fund (2010). West Virginia Kids Count data book. Charleston, WV: Author. Retrieved from http://www.wvkidscount.org/documents/2010DataBook-Final.pdf.

Whisman, S.A. (2012). *The West Virginia School Climate Index: Validity and associations with academic outcome measures*. Charleston, WV: West Virginia Department of Education, Division of Curriculum and Instructional Services, Office of Research. Retrieved from http://wvde.state.wv.us/research/reports2012/WVSCIValidityTestReport_2012.pdf.

Appendix A. Background Information

Table A 1. Districts and Schools Participating in the Universal Free Meals Pilot Project Study

County	School	Program level	Grades	Enrollment	Low SES (%)
Clay	Clay Elementary	Elementary	PK through 05	558	76.9
Clay	Lizemore Elementary	Elementary	PK through 05	125	62.4
Clay	H E White Elementary	Elementary	PK through 05	89	61.8
Clay	Big Otter Elementary	Elementary	PK through 05	226	67.7
Clay	Clay Middle	Middle	06 through 08	447	72.7
Clay	Clay County High	High	09 through 12	602	62.1
Fayette	Ansted Elementary	Elementary	PK through 04	250	70
Fayette	Danese Elementary	Elementary	PK through 05	114	70.2
Fayette	Divide Elementary	Elementary	PK through 04	205	62.4
Fayette	Fayetteville Elementary	Elementary	PK through 06	427	54.6
Fayette	Gatewood Elementary	Elementary	K through 04	112	49.1
Fayette	Gauley Bridge Elementary	Elementary	PK through 05	175	66.3
Fayette	Meadow Bridge Elementary	Elementary	K through 06	191	63.4
Fayette	Mount Hope Elementary	Elementary	PK through 05	301	79.7
Fayette	Rosedale Elementary	Elementary	PK through 04	289	62.3
Fayette	Valley Elementary	Elementary	PK through 05	387	68
Fayette	New River Elementary	Elementary	PK through 04	780	65.6
Fayette	Ansted Middle	Middle	05 through 08	184	73.9
Fayette	Collins Middle	Middle	05 through 08	819	62.5
Fayette	Nuttall Middle	Middle	05 through 08	165	65.5
Fayette	Fayetteville High	High	07 through 12	506	45.8
Fayette	Meadow Bridge High	High	07 through 12	221	57
Fayette	Midland Trail High	High	09 through 12	328	62.5
Fayette	Oak Hill High	High	09 through 12	875	51.7
Fayette	Valley High	High	06 through 12	546	58.1
Gilmer	Glenville Elementary	Elementary	PK through 06	181	60.2
Gilmer	Normantown Elementary	Elementary	PK through 06	108	73.1
Gilmer	Sand Fork Elementary	Elementary	PK through 06	126	65.9
Gilmer	Troy Elementary	Elementary	PK through 06	89	70.8
Gilmer	Gilmer County High	High	07 through 12	429	49.4
Lincoln	Duval PK-8	Middle	PK through 08	589	68.1
Lincoln	Hamlin PK-8	Middle	PK through 08	537	69.3
Lincoln	Midway Elementary	Elementary	PK through 06	289	63.7
Lincoln	Ranger Elementary	Elementary	PK through 05	126	77.8
Lincoln	West Hamlin Elementary	Elementary	PK through 05	522	72
Lincoln	Harts Primary	Elementary	PK through 04	278	69.1
Lincoln	Guyan Valley Middle	Middle	06 through 08	278	73
Lincoln	Harts Intermediate	Middle	05 through 08	178	77
Lincoln	Lincoln County High	High	09 through 12	892	57.3
Mason	Beale Elementary	Elementary	PK through 06	308	69.5
Mason	Leon Elementary	Elementary	PK through 06	138	64.5
Mason	New Haven Elementary	Elementary	PK through 06	468	59.8
Mason	Roosevelt Elementary	Elementary	K Ttrough 06	306	52.6
Mason	Ashton Elementary	Elementary	PK through 06	412	62.4
Mason	Point Pleasant Primary	Elementary	PK through 02	454	63.7
Mason	Point Pleasant Intermediate	Elementary	03 through 06	359	52.4

Table A 1. Districts and Schools Participating in the Universal Free Meals Pilot Project Study

County	School	Program level	Grades	Enrollment	Low SES (%)
Mason	Hannan High	High	07 through 12	268	58.2
Mason	Point Pleasant Junior/Senior High	High	07 through 12	1196	48.2
Mason	Wahama High	High	07 through 12	402	51.5
Mingo	Lenore K-8	Middle	PK through 08	585	67.4
Mingo	Burch PK-6	Elementary	PK through 04	378	75.7
Mingo	Dingess Elementary	Elementary	PK through 04	181	84.5
Mingo	Gilbert Elementary	Elementary	PK through 04	347	69.2
Mingo	Riverside Elementary	Elementary	PK through 04	335	77.3
Mingo	Matewan Elementary	Elementary	PK through 04	276	84.4
Mingo	Kermit Area (K-8)	Middle	PK through 08	327	70.6
Mingo	Williamson Middle	Middle	05 through 08	183	75.4
Mingo	Matewan Middle	Middle	05 through 08	224	80.8
Mingo	Burch Middle	Middle	05 through 08	264	64.8
Mingo	Gilbert Middle	Middle	05 through 09	226	65.5
Mingo	Tug Valley High	High	09 through 12	410	61.2
Mingo	Mingo Central Comprehensive High	High	09 through 12	770	60.4
McDowell	Anawalt Elementary	Elementary	PK through 05	115	80.9
McDowell	Bradshaw Elementary	Elementary	PK through 05	229	82.1
McDowell	Fall River Elementary	Elementary	PK through 05	150	82
McDowell	Iaeger Elementary	Elementary	PK through 05	343	80.2
McDowell	Kimball Elementary	Elementary	PK through 05	264	92
McDowell	Welch Elementary	Elementary	PK through 05	334	87.4
McDowell	Southside K-8	Middle	PK through 08	495	73.7
McDowell	Sandy River Middle	Middle	06 through 08	257	77
McDowell	River View High	High	09 through 12	549	77
McDowell	Mount View High	High	06 through 12	799	78.7

Appendix B. Research Question 1: Implementation

Initial Survey Invitation Message to School Principals

Universal Free Meal Pilot Project Participants,

On behalf of Superintendent Jorea Marple the Office of Research is conducting a short survey of the principals, teachers, and other staff to obtain information about the Universal Free Meal Pilot Project. Attached you will find a letter from Superintendent Marple inviting you and your staff to participate. The data you provide will allow us to learn about activities being implemented to increase breakfast and lunch participation, and offers the Office of Child Nutrition the opportunity to use the information to tailor the types of technical assistance provided to your school and county.

The survey is accessible at https://www.surveymonkey.com/s/Universal_Meals. We ask that you complete the survey, and also to distribute the survey link to teachers and other staff in your school so they may participate as well. The survey will be open through January 23, 2012.

Thank you,

End-of-Year Survey Invitation Message to School Principals

Universal Free Meal Pilot Project Participants,

Toward the beginning of this year, principals, teachers, and other staff at schools participating in the Universal Free Meal Pilot Project were asked to complete a short survey about the Project. As the school year draws to a close we are requesting your participation once again. The data you provide will allow us to learn about activities your school has implemented to increase breakfast and lunch participation, the outcomes of the pilot project in terms of school functioning and addressing students' needs, and allows you and your staff to contribute to an understanding of best practice as it relates to providing expanded nutrition opportunities for students.

We ask that you complete the survey, and also to distribute the survey link to teachers and other staff in your school so they may participate as well. The survey will be open through May 18, 2012.

The survey is accessible at https://www.surveymonkey.com/s/Universal_Meals_R2.

Thank you,

West Virginia Department of EDUCATION

Jorea M. Marple, Ed.D.
State Superintendent of Schools
1900 Kanawha Boulevard, East, Building 6
Charleston, WV 25305-0330
Phone: 304.558.2681 Fax: 304.558.0048

http://wvde.state.wv.us

January 12, 2012

Dear Principals and Teachers,

I am very pleased that so many of you and your county leaders have decided to participate in the Universal Free Meals Pilot. I ask that you continue to work hard to ensure each and every child has access to nutritious meals every school day.

At my request the Office of Research has created a brief survey to obtain your opinions about the pilot. The survey should take no more than 10 minutes to complete. Information from the survey will allow me and others to learn about the activities being implemented in your school to increase breakfast and lunch participation. In addition, data collected offers the Office of Child Nutrition the opportunity to tailor the types of technical assistance provided to your school and county. I want to assure you that information obtained from the surveys will be anonymous. Please visit the following link to access and complete the online survey: https://www.surveymonkey.com/s/Universal_Meals

As I travel across the state and country I constantly brag about what a great job we are doing here in West Virginia to meet the needs and support the success of every child. Sharing your achievements is one of my favorite activities as state superintendent of schools. We know that good nutrition can foster better learning and a lifetime of good health. So in closing, I again want to commend you for your efforts to ensure that every child in your schools has the opportunity to benefit from nutritious meals. **I ask that you please complete the survey by Jan. 23.**

Sincerely,

Jorea M. Marple

Jorea M. Marple, Ed. D.
State Superintendent of Schools

JMM:KK/AW:cm

GLOBAL 21
Students deserve it • The world demands it

Survey Round One Questionnaire

Universal Free Meal Pilot Program Survey WVDE-CIS-52

Universal Free Meal Pilot Program School Staff Survey

Welcome to the West Virginia Universal Free Meal Pilot Program survey for school staff. The results of this survey will be used as part of a larger evaluation to assess the impact of the program.

Thank you for agreeing to participate. We value your feedback. Your participation is voluntary. You may choose not to participate; not to answer any questions you do not want to answer; and you may stop participating at any time during the survey without penalty. Your responses will be anonymous and confidential.

To continue, please click the "NEXT" button.

Universal Free Meal Pilot Survey

***1. In which county is your school located?**

***2. Which program level listed below best describes your school?**

- ◯ Elementary School
- ◯ Middle or Jr High School
- ◯ High School

3. What is your role at this school?

- ◯ Administrator (Principal or Assistant Principal)
- ◯ Teacher
- ◯ Cook
- ◯ Custodian
- ◯ Aide
- ◯ Other service or support personnel

4. How many years have you worked, in any position, at this school?

- ◯ Less than one year
- ◯ 1 to 2 years
- ◯ 3 to 5 years
- ◯ 6 to 10 years
- ◯ Over 10 years

Problems at School

5. During the current school year, how much of a problem would you say each of the following are at your school, and how this year compares to last year?

	Extent of the problem	Compared to last year
Disruptive student behavior		
Physical fighting between students		
Lack of respect of staff by students		
Harassment or bullying among students		
Students having headaches or stomachaches		
Cutting classes or skipping school		

Student Well-Being

6. How many students at your school can be described by the following attributes, how does this compare to the previous school year, and how much do you think any changes result from providing free meals to all students?

How many students at your school...

	How many students	Compared to last school year	Attributable to the Universal Free Meal Pilot Program
are healthy and physically fit?			
are motivated to learn?			
are well-behaved?			
show respect for their teachers?			
show respect for other students?			
are actively engaged in learning?			
are happy to be at school?			
take active part in school activities?			

Opinions about the Universal Free Meal Pilot Program

7. Now that your school is implementing the Universal Free Meal Pilot Program, how much of a concern to you are the following?

	Not a concern	Minor concern	Moderate concern	Major concern
Integrating nutritional and instructional programming	◯	◯	◯	◯
Organizing the distribution of food	◯	◯	◯	◯
Time for food service staff to prepare and distribute food	◯	◯	◯	◯
Problems with cleanup	◯	◯	◯	◯
Food being wasted	◯	◯	◯	◯
Food safety	◯	◯	◯	◯
Parent dissatisfaction with the program	◯	◯	◯	◯

8. Which of the following do you think contributes most to students' overall well-being?

◯ Providing the opportunity for all students to eat free meals (i.e., both breakfast and lunch) at school

◯ Providing the opportunity for all students to eat breakfast at an alternate time (e.g., breakfast in the class, grab-n-go, breakfast after first)

9. Overall, do you think the Universal Free Meal Pilot Program has been worth the investment (e.g., resources such as time, staff, materials, or money) your school or county has made?

◯ Yes

◯ No

◯ Don't know

◯ Too early to tell

10. So far, to what extent do you think the Universal Free Meal Pilot Program has been a success at your school?

◯ Not at all

◯ To a minor extent

◯ To a moderate extent

◯ To a major extent

Additional Opinions

11. Please provide any additional comments you may have about the BENEFITS of the Universal Free Meal Pilot Program.

12. Please provide any additional comments you may have about PROBLEMS or CONCERNS with the Universal Free Meal Pilot Program.

Thank you for participating in this survey. Please be sure to click the "Done" button below to make sure your responses are recorded.

End-of-Year Survey Questionnaire

Universal Free Meal Pilot Program Survey WVDE-CIS-85

Universal Free Meal Pilot Program School Staff Survey

Welcome to the West Virginia Universal Free Meal Pilot Program survey for school staff. The results of this survey will be used as part of a larger evaluation to assess the impact of the program.

Thank you for agreeing to participate. We value your feedback. Your participation is voluntary. You may choose not to participate; not to answer any questions you do not want to answer; and you may stop participating at any time during the survey without penalty. Your responses will be anonymous and confidential.

To continue, please click the "NEXT" button.

***1. In which county is your school located?**

***2. Which program level listed below best describes your school?**

- ◯ Elementary School
- ◯ Middle or Jr High School
- ◯ High School

3. How many years have you worked, in any position, at this school?

- ◯ Less than one year
- ◯ 1 to 2 years
- ◯ 3 to 5 years
- ◯ 6 to 10 years
- ◯ Over 10 years

***4. What is your current role at this school?**

- ◯ Administrator (Principal or Assistant Principal)
- ◯ Teacher
- ◯ Cook
- ◯ Custodian
- ◯ Aide
- ◯ Other service or support personnel

5. Does your school offer free breakfast to ALL students?

◯ Yes

◯ No

6. When do you offer breakfast?

◯ Before the beginning of the instructional day

◯ After the beginning of the instructional day

Other (please specify)

7. Where do students eat breakfast?

☐ Classroom

☐ Cafeteria

Other (please specify)

8. Which of the following breakfast strategies is your school currently implementing? (Check all that apply)

☐ Breakfast in the classroom

☐ Grab-n-go

☐ Breakfast after first

Other (please specify)

9. Does your school offer free lunch to ALL students?

◯ Yes

◯ No

Problems at School

10. During the current school year, how much of a problem would you say each of the following are at your school, and how this year compares to last year?

	Extent of the problem	Compared to last year
Disruptive student behavior		
Physical fighting between students		
Lack of respect of staff by students		
Harassment or bullying among students		
Students having headaches or stomachaches		
Students' difficulty concentrating on instruction an hour or two before lunch		
Cutting classes or skipping school		

Student Well-Being

11. How many students at your school can be described by the following attributes, how does this compare to the previous school year, and how much do you think any changes result from providing free meals to all students?

How many students at your school...

	How many students	Compared to last school year	Attributable to the Universal Free Meal Pilot Program
are healthy and physically fit?			
are motivated to learn?			
are well-behaved?			
show respect for their teachers?			
show respect for other students?			
are actively engaged in learning?			
are happy to be at school?			
take active part in school activities?			

Opinions about the Universal Free Meal Pilot Program

12. Now that your school is implementing the Universal Free Meal Pilot Program, how much of a concern to you are the following?

	Not a concern	Minor concern	Moderate concern	Major concern
Integrating nutritional and instructional programming	◯	◯	◯	◯
Organizing the distribution of food	◯	◯	◯	◯
Time for food service staff to prepare and distribute food	◯	◯	◯	◯
Problems with cleanup	◯	◯	◯	◯
Food being wasted	◯	◯	◯	◯
Food safety	◯	◯	◯	◯
Parent dissatisfaction with the program	◯	◯	◯	◯
Student food allergies	◯	◯	◯	◯
Loss of instructional time	◯	◯	◯	◯
Sufficient kitchen staff to handle extra food preparation work	◯	◯	◯	◯
Sufficient custodial staff to handle extra clean-up work	◯	◯	◯	◯

13. To what extent do you think...

	Not at all	To a minor extent	To a moderate extent	To a major extent
the opportunity for all students to eat free LUNCH at school contributes to their overall well-being?	◯	◯	◯	◯
the opportunity for all students to eat free BREAKFAST at school contributes to their overall well-being?	◯	◯	◯	◯
the opportunity for all students to eat BREAKFAST at an ALTERNATE TIME (e.g., breakfast in the class, grab-n-go, breakfast after first) contributes to their overall well-being?	◯	◯	◯	◯
the Universal Free Meal Pilot Program has removed the social stigma attached to students who qualify for reduced and free meals at your school?	◯	◯	◯	◯
the Universal Free Meal Pilot Program has been responsible for an increased participation of students who qualify for reduced and free meals at your school due to the removal of social stigma that was attached to them previously?	◯	◯	◯	◯

14. So far, to what extent do you think the Universal Free Meal Pilot Program has been a success at your school?

◯ Not at all
◯ To a minor extent
◯ To a moderate extent
◯ To a major extent

15. Overall, do you think the Universal Free Meal Pilot Program has been worth the investment (e.g., resources such as time, staff, materials, or money) your school or county has made?

◯ Yes
◯ No
◯ Don't know
◯ Too early to tell

16. To what extent are you concerned about the ability of your school or county to sustain the Universal Free Meal Pilot Program in the future?

◯ Not at all
◯ To a minor extent
◯ To a moderate extent
◯ To a major extent

17. Based on your participation in the Universal Free Meal Pilot Program this year, would you like for your school to continue in the program next year?

◯ Yes
◯ No
◯ Undecided at this time

Additional Opinions

18. Based on your experience in the Universal Free Meal Pilot Program this year, what changes, if any, would you recommend for next year?

Thank you for participating in this survey. Please be sure to click the "Done" button below to make sure your responses are recorded.

Focus Group Interview Protocol

1. Welcome and thank you.
2. Moderator introduction: name, title, and office.

   "The office is restricted to providing objective evaluation and research services for the purposes of policy analysis and for program improvement, and as such is prohibited from direct responsibility for policy decision-making and education program design and implementation."

3. Purpose of focus group interview:

   Focus group interviews are part of several other means of collecting evaluation data about the implementation and outcomes of the Universal Free Meals Pilot project. We want to know how various stakeholders perceive the implementation and outcomes of the pilot program.

4. Duration: 45-60 minutes.
5. Confidentiality:

   Individual participant names will not be used in any report. Feedback from a number of focus group interviews with various stakeholders will be combined to write an evaluation report.

6. Obtain consent to record the discussion:

   We want to capture participants' feedback in its entirety because stakeholder input is very important to the evaluation of the Universal Free Meals Pilot project.

7. Begin recording (if allowed) and obtain participants' consent.
8. Participant introductions: name, title, school, county, and years employment in current position. Note: participants may choose to decline to provide any demographic information.
9. Basic guidelines:
   a. Everyone is encouraged to participate.
   b. Participants may choose to decline to answer any or all questions.
   c. There are no right or wrong answers.
10. Begin focus group interview
    a. Establish rapport.
    b. Be attentive.
    c. Don't rush or interrupt participants.
    d. Avoid leading and close-ended questions.
    e. Guide the flow of the discussion.
    f. Manage group dynamics.
11. End focus group interview.
12. Provide opportunity for participants to ask questions.
13. Thank participants for volunteering to be part of the focus group and their valuable input.

Individual and Focus Group Interview Questions

Focus group interview questions (Cafeteria manager)

1. What does the pilot program in your school involve?
    a. Breakfast and/or lunch?
    b. Type(s) of breakfast strategies (e.g., grab-n-go, breakfast after first, and/or breakfast in classroom)?
        i. Type of meals (hot, cold, prepackaged, brown bag, etc…)?
        ii. When are meals served?

2. What are your general thoughts about the pilot project?
    a. Intent?
    b. Actual implementation?

3. How has your role changed as a result of the implementation of the pilot?
    a. What changes have you made to how you prepare or serve meals?
    b. How has the pilot affected other aspects of your work?

4. What benefits are you seeing as a result of the pilot program (universal, breakfast strategy)?
    a. For your kitchen staff?
    b. For students? (e.g. healthy eating habits, behavior, etc…)
    c. For other school staff? (e.g. cooperation, collaboration, etc…)
    d. For overall school climate?

5. What part of the pilot is having the most positive effect so far in the pilot project?
    a. Universal meals?
    b. Particular breakfast strategies currently implemented (e.g., grab-n-go, breakfast after first, and/or breakfast in classroom)?

6. What challenges are you facing by participating in the pilot program?
    a. Is it specific to a particular strategy or general?
    b. Time constraints?
    c. Adequate number of kitchen staff?
    d. Lack of adequate training?
    e. Food safety?
    f. Equipment?

7. Would you like to continue with the pilot?
    a. Universal free meals?
    b. Particular breakfast strategies currently implemented?

8. What type of additional support do you need to improve the implementation of the pilot project?

9. What would you change about the pilot project?

10. Is there anything else you would like to add?

Focus group interview questions (Teachers)

1. What does the pilot program in your school involve?
    a. Breakfast and/or lunch?
    b. Type(s) of breakfast strategies? (e.g., grab-n-go, breakfast after first, and/or breakfast in classroom)?
        i. Type of meals (hot, cold, prepackaged, brown bag, etc.)?
        ii. When are meals served?

2. What are your general thoughts about the pilot project?
    a. Intent?
    b. Actual implementation?

3. How has your role changed as a result of the implementation of the pilot?
    a. What are the responsibilities for teachers and students during and after meal times? (e.g., distribution of food, cleaning, etc…)
    b. How has the pilot affected other aspects of your work?

4. What benefits are you seeing as a result of the pilot program in your school?
    a. On students? (e.g. concentration, behavior, achievement, attendance, tardiness, etc…)
    b. On kitchen staff?
    c. Other school staff? (e.g. cooperation, collaboration, etc…)
    d. Parents? (e.g. ease of financial burden, improved engagement)
    e. Overall school climate?

5. What part of the pilot is having the most positive effect so far in the pilot project?
    a. Universal meals?
    a. Particular breakfast strategies currently implemented (grab-n-go, breakfast after first, and/or breakfast in classroom)?

6. What challenges are you facing by participating in the pilot program? What are your concerns?
    a. Is it specific to a particular strategy or general?
    b. Loss of instructional time?
    c. Adequate number of staff?
    d. Food safety?
    e. Food waste?

7. Would you like to continue with the pilot?
    a. Universal free meals?
    b. Particular breakfast strategies currently implemented?

8. What type of additional support do you need to improve the implementation of the pilot project?

9. What would you change about the pilot project?

10. Is there anything else you would like to add?

Focus group interview questions (Principals)

1. What does the pilot program in your school involve?
    a. Breakfast and/or lunch?
    b. Type(s) of breakfast strategies?
        i. Type of meals (hot, cold, prepackaged, brown bag, etc.)?
        ii. When are meals served?

2. What are your general thoughts about the pilot project?
    a. Intent?
    b. Actual implementation?

3. How has your role changed as a result of the implementation of the pilot?
    a. What are the responsibilities for principals and teachers in the pilot project? (e.g., billing, scheduling, distribution of food, cleaning, etc…)
    b. How has the pilot affected other aspects of your work?

4. What benefits are you seeing as a result of the pilot program in your school?
    a. On students? (e.g. concentration, behavior, achievement, attendance, tardiness etc…)
    b. On kitchen staff?
    c. Other school staff? (e.g. cooperation, collaboration, etc…)
    d. Parents? (e.g. ease of financial burden, improved engagement)
    e. Overall school climate?

5. What part of the pilot is having the most positive effect so far in the pilot project?
    a. Universal meals?
    b. Particular breakfast strategies currently implemented?

6. What challenges are you facing by participating in the pilot program? What are your concerns?
    a. Is it specific to a particular strategy or general?
    b. Application return rate? Is the application available online?
    c. Student participation rate?
    d. Loss of instructional time?
    e. Scheduling?
    f. Adequate kitchen staff?
    g. Adequate custodial staff?

h. Food safety?
i. Food waste?
j. Kitchen equipment?

7. Would you like to continue with the pilot?
    a. Universal free meals?
    b. Particular breakfast strategies currently implemented?

8. What type of additional support do you need to improve the implementation of the pilot project?

9. What would you change about the pilot project?

10. Is there anything else you would like to add?

**** Please ask what would be the best avenue (date, time, etc…) to reach teachers, parents, and students?***

Semistructured interview questions (Superintendents)

1. What are your general thoughts about the pilot project?
    a. Intent?
    b. Actual implementation?

2. How has your role changed as a result of the implementation of the pilot?
    a. What are your responsibilities in the pilot project? (e.g., billing, scheduling, budget, etc…)
    b. How has the pilot affected other aspects of your work?

3. What benefits are you seeing/hearing as a result of the pilot program in your schools?
    a. On students? (e.g. concentration, behavior, achievement, attendance, tardiness, etc…)
    b. Parents? (e.g. ease of financial burden, improved engagement)
    c. On kitchen staff?
    d. On teachers? (e.g. cooperation, collaboration, etc…)
    e. Overall school climate?

4. What part of the pilot is having the most positive effect so far in the pilot project?
    a. Universal free meals?
    b. Particular breakfast strategies currently implemented?

5. What challenges are you encountering (or hearing about) as a result of the pilot program? What are your concerns?
    a. Is it specific to a particular strategy or general?
    b. Budgeting (application return rate)? Is the application available online?
    c. Loss of instructional time?
    d. Scheduling?
    e. Adequate kitchen staff?
    f. Adequate custodial staff?
    g. Adequate kitchen equipment?
    h. Food safety?
    i. Food waste?

6. Would you like to continue with the pilot?
    a. Universal free meals?
    b. Particular breakfast strategies currently implemented?

7. What type of additional support do you need to improve the implementation of the pilot project?

8. What would you change about the pilot project?

9. Is there anything else you would like to add?

Semistructured interview questions (Food Service Coordinators)

1. What are your general thoughts about the pilot project?
    a. Intent?
    b. Actual implementation?
        i. What type of changes did you initiate during the implementation of the pilot project?
        ii. What has been most helpful in helping you make the pilot program successful?
        iii. Student participation rates? What counts against participation rates? (i.e., absent students, 4/5 days for pre-K students, dropouts, fieldtrips, etc…)
        iv. In addition to breakfast and lunch, are snacks (i.e., fruits, veggies, etc…) available throughout the day? If so, is this a result of the pilot project?
        v. How is cook to meals ratio calculated? What is counted as a meal and what is not?

2. How has your role changed as a result of the implementation of the pilot?
    a. What are your responsibilities in the pilot project? (e.g., billing, scheduling, budget, purchasing, etc…)
        i. How much of the food items are purchased locally?
    b. How has the pilot affected other aspects of your work?

3. What immediate benefits are you seeing/hearing as a result of the pilot program in your school?
    a. On students? (e.g. stigma, concentration, behavior, achievement, attendance, etc…)
    b. Parents? (e.g. ease of financial burden, improved engagement)
    c. On kitchen staff?
    d. On teachers? (e.g. cooperation, collaboration, etc…)
    e. Overall school climate?
    f. Local vendors?

4. How does this pilot project fit in an overall 'wellness' strategies for students?

5. What mid- to long-term impacts do you anticipate?
    a. Better eating habits?
    b. Family meal time concept?
    c. Decrease in childhood obesity?
    d. Benefit for local vendors?

e. Achievement?

6. What challenges are you encountering (or hearing about) as a result of the pilot program? What are your concerns?
    a. Is it specific to a particular strategy or general?
    b. Are the challenges unique to each individual school?
    c. Budgeting (application return rate)? Is the application available online?
        i. What type of investments were/are needed to fully implement the pilot project? (i.e., personnel, equipment, etc…) Where did the funding come from?
    d. Loss of instructional time?
    e. Scheduling?
    f. Adequate kitchen staff?
    g. Adequate custodial staff?
    h. Adequate kitchen equipment?
    i. Kitchen equipment?
    j. Food safety? (i.e., allergy)
    k. Food waste?

7. What part of the pilot is having the most positive effect so far in the pilot project?
    a. Universal meals?
    b. Particular breakfast strategies currently implemented?

8. Would you like to continue with the pilot?
    a. Universal free meals? Particular breakfast strategies currently implemented?
    b. Do you think it is financially feasible for your district to continue the project?

9. What type of additional support do you need to improve the implementation of the pilot project?

10. What adjustments would you like/plan to make if/when the pilot project is expanded/continued?
    a. Bigger portions for older students (i.e., high school students)?

11. Is there anything else you would like to add?

Semistructured interview questions (Students)

1. What time do you leave home?
    a. How do you get to school?

2. Do you eat breakfast in school?
    a. If no, why not?

3. Do you like the breakfast in school?
    a. If yes, what do you like about it?
    b. If no, what don't you like about it?

4. How do you get your breakfast food?

5. What do you do while eating breakfast?
    a. Are you able to concentrate on learning while eating?

6. Who cleans up?

7. Do you eat lunch in school?
    a. If no, why not?

8. Do you like your school lunch?
    a. If yes, what do you like about it?
    b. If no, what don't you like about it?

9. How is the food different this year compared to last year?
    a. Breakfast
    b. Lunch

10. What can be done to make you more likely to eat breakfast or lunch in school?

Survey Findings Rounds 1 and 2

Baseline data about survey respondents

Compared to the number of schools and estimated number of staff in each of the participating counties, survey participation was somewhat uneven (Table A 2). In Round 1, Mason and McDowell counties were overrepresented in the overall survey response relative to the number of schools and staff involved, whereas Fayette and Mingo Counties were underrepresented. In Round 2, however, staff from Mason and McDowell counties responded in numbers more proportionate to their respective staff sizes, but Lincoln County was overrepresented in the total response. Responses from Fayette County remained a bit lower than expected relative to their number of staff.

Table A 2. County Location of Survey Respondents

		Staff		Round 1 survey respondents		Round 2 survey respondents	
County*	Number of schools	Number of staff**	Percent of staff	Number	Percent	Number	Percent
Total	67	3,188	100.0	506	100.0	489	100.0
Fayette	20	837	28.4	76	15.0	83	17.0
Gilmer	5	146	5.0	33	6.5	30	6.1
Lincoln	10	402	13.6	52	10.3	116	23.7
Mason	9	462	15.7	162	32.0	90	18.4
McDowell	10	464	15.8	122	24.1	96	19.6
Mingo	13	635	21.6	61	12.1	74	15.1

*No more than three responses were submitted from Clay County with each round and as such were excluded from analysis of EQ1.
**Staff numbers are estimates.

Participants were asked their current role and the number of years they had worked, in any role, at their school. The proportion of respondents by role remained somewhat stable between survey rounds—about 80% of respondents were teachers, 9% to 11% were administrators, and 10% to 11% were other school personnel (Table A 3).

Table A 3. School Roles of Respondents

	Round 1		Round 2	
Role	Number	Percent	Number	Percent
Total	506	100.0	489	100.0
Administrator (principal or assistant principal)	54	10.7	43	8.8
Teacher	400	79.1	391	80.0
Cook	6	1.2	2	0.4
Custodian	1	.2	0	0.0
Aide	11	2.2	16	3.3
Other service or support personnel	34	6.7	37	7.6

Over half of survey responses in Round 1 of the survey were from staff at elementary schools (58%), with a slightly reduced portion (48%) received in Round 2 (Table A 4). This reduction was offset by an increase in responses from middle/junior high schools in Round 2, whereas responses from high schools remained stable between rounds.

Table A 4. Program Level of Survey Respondents

	Round 1		Round 2	
Program level	Number	Percent	Number	Percent
Total	506	100.0	489	100.0
Elementary school	292	57.7	235	48.1
Middle or junior high school	67	13.2	102	20.9
High school	147	29.1	152	31.1

We saw stability between Rounds 1 and 2 for respondent years of service (Table A 5). The most frequent categories reported were *over 10 years of service* (30% in each round) and *3 to 5 years of service* (20% and 22% in the respective rounds) followed by roughly equal proportions in the remaining categories

Table A 5. Respondents' Years of Experience in any Position at Their School

	Round 1		Round 2	
Years of Service	Number	Percent	Number	Percent
Total	505	100.0	487	100.0
Less than one year	81	16.0	64	13.1
1 to 2 years	80	15.8	86	17.7
3 to 5 years	103	20.4	107	22.0
6 to 10 years	87	17.2	88	18.1
Over 10 years	154	30.5	142	29.2

Data analysis and interpretation: Round 1 and Round 2 common survey questions

As noted above, both rounds of surveys included a common subset of questions that requested information about (a) problems observed at schools (e.g., disruptive student behavior or fighting between students), (b) student well-being and engagement (e.g., students being motivated to learn or taking an active part in school activities), (c) staff concerns about the Universal Free Meals Pilot project, and (d) benefits of the project.

Problems Observed at School

For this series of questions, respondents were first asked the severity of selected student behaviors or physical ailments observed at school on a 4-point response scale, ranging from *not a problem* to *a major problem*. For analysis and clarity of reporting, this response scale was collapsed to a dichotomous variable (i.e., *not a problem or minor problem* and *moderate or major problem*). The survey then asked respondents how the problems compared to the previous school year on a 3-point scale—*gotten better*, *stayed the same*, or *gotten worse*. The latter set of responses also included *not applicable* and *don't know* options to accommodate staff who may not have worked at the school the previous year.

Most respondents indicated that various negative student behaviors—disruptive student behavior, physical fighting between students, lack of respect for staff by students, harassment or bullying among students, students having headaches or stomachaches, and cutting classes or skipping school—were not a problem or were only a minor problem in their schools in both rounds of the survey (Table A 6 page 102). These opinions remained stable between rounds on all behaviors except *lack of respect of staff by students,* where a statistically significant 9

percentage point shift was observed in staff reporting this to be a moderate or major problem (37% in Round 1 vs. 45% in Round 2).

There was a trend in both survey rounds for staff to report that the extent of these problems had stayed the same or had gotten better. Looking at the behaviors collectively, in Round 1 of the surveys, 52% to 70% of staff reported things had stayed the same, and 16% to 33% reported they had gotten better (Table A 9, page 105). No more than 24% of staff reported any of the behaviors had gotten worse since the previous year. In Round 2, staff responses tended to show even more improvement, with lower percentages reporting behaviors had gotten worse (4% to 21%) or had stayed the same (48% to 66%), and greater percentages reporting them to have gotten better (24% to 41%). For three of the behaviors or ailments—physical fighting between students, students having headaches or stomachaches, and cutting classes or skipping school—statistically significant improvements were observed (Table A 9).

Student Well-Being and Engagement

With these questions, we attempted to gather staff opinions about student well-being on selected positive health and behavioral traits—including that they are healthy and physically fit, are motivated to learn, are well-behaved, show respect for their teachers, show respect for other students, are actively engaged in learning, are happy to be at school, and take an active part in school activities. Again, a 4-point response scale was used (*almost all, most, some,* or *almost no students*). For analysis and clarity of reporting purposes this response scale was collapsed to a dichotomous variable (i.e., *almost all or most students,* and *some or almost no students*). These questions were followed by questions asking respondents how the problems compared to the previous school year on a 3-point scale—*gotten better*, *stayed the same*, or *gotten worse*. Finally, respondents were asked the extent to which the student well-being improvements from the previous year were attributable to the Universal Free Meals Pilot project. Here, a 4-point response scale was used that included *definitely, probably, probably not,* and *definitely not*. The latter set of responses also included *not applicable* and *don't know* options to accommodate staff who may not have worked at the school the previous year.

A majority of respondents reported *almost all* or *most* students at the school could be described by the selected health and behavioral traits—57% to 83% in Round 1 and 56% to 77% in round two (Table A 12, page 108). As suggested by the pattern in these percentages there was a decline in staff opinions about student well-being between the respective survey rounds, and for three of the student health and behavioral traits, the decline was statistically significant. These included items asking about the proportion of students that are well-behaved and show respect for their teachers and other students. For these items, there was a 5 to 6 percentage point decline in the number of staff indicating "almost all or most" students could be characterized by these traits.

When respondents were asked to compare these health and behavior traits to the previous school year, there was a trend in both survey rounds for staff to report that the student health and behavioral traits had gotten better or stayed the same. In Round, 1 between 58% and 73% of staff reported the traits had stayed the same, and 20% to 35% reported they had gotten better (Table A 15, page 110). No more than 12% reported that any had gotten worse since the previous year. In Round 2, staff responses tended to show improvement with about the same percentages reporting the student traits had gotten worse and lower percentages reported they

had stayed the same (53% to 67%). At the same time there were more staff reporting them to have gotten better (28% to 40%). On only one of the student traits—the proportion of students that show respect for other students—were the improvements statistically significant with a nine percentage point increase in staff reporting it to have gotten better (Table A 15).

The analysis of staff opinions as to whether changes in health and behavior traits were attributable to the Universal Free Meals Pilot was limited only to the 20% to 40% of staff who reported they had gotten better compared to the previous school year. In Round 1 of the surveys, 22% to 31% reported improvements in student well-being from the previous year were definitely attributable to the Universal Free Meals Pilot project, and another 53% to 69% reported the improvements were probably attributable (Table A 18, page 113). In Round 2, similar percentages were observed, in that 25% to 39% reported improvements to definitely be attributable to the Universal Free Meals Pilot project, and 54% to 64% reported improvement probably attributable. There appear to be no statistically significant differences between the two survey rounds. Limiting the analysis on this question to staff that reported improvements from the previous school year, however, resulted in such small cell sizes that a finding of statistically significant differences between rounds would have been viewed cautiously.

Concerns with the Universal Free Meals Pilot project

Staffs were questioned about their concerns with the Universal Free Meals Pilot project with respect to seven issues: integrating nutritional and instructional programming, organizing the distribution of food, time for food service staff to prepare and distribute food, problems with cleanup, food being wasted, food safety, and parent dissatisfaction with the project. A 4-point response scale was used that included *not a concern*, *minor concern*, *moderate concern*, and *major concern*.

On average in both survey rounds, about 50% of staff indicated the issues to not be a concern, whereas an average of about 10% reported them to be a major concern (Table A 21, page 116). It is noteworthy, too, that staff opinions about the issues were remarkably stable between survey rounds.

There was, however, a notable degree of deviation among the issues with food being wasted the outlier and of most concern—about a quarter of respondents indicated it to be a moderate concern and another quarter reporting it to be a major concern. Again, as with all seven issues staff opinion remained quite stable in the few months between the survey rounds.

Benefits of the Universal Free Meals Pilot project

The final set of questions common between the two survey rounds addressed the extent to which staff thought the Universal Free Meals Pilot project had been a success at their school, and whether they thought the pilot had been worth the investment in resources such as time, staff, materials, and money. Overall a majority of staff reported that the project has been successful at their school to a moderate or major extent, and this opinion became more favorable over time by a significant amount (Table A 24, page 119). In survey Round 2, an 11-point increase was observed in the percentage of staff who reported that the project had been a success to a major extent.

Similarly, a large majority of respondents (72% in round one and about 80% in round two) reported that the Universal Free Meals Pilot project has been worth the investment in time, staff, materials, money, and other resources their school or county has made. Also, the seven plus percentage point increase in this opinion between survey rounds was statistically significant (Table A 25, page 119).

Survey results tables

Table A 6. Problems Observed at School Overall by Survey Round

Behavior	Response	% Round 1	% Round 2	χ^2	*df*	*p*
Disruptive student behavior	Not a problem or minor problem	57.5	55.4	.440	1	.507
	Moderate or major problem	42.5	44.6			
Physical fighting between students	Not a problem or minor problem	79.0	79.9	.128	1	.721
	Moderate or major problem	21.0	20.1			
Lack of respect of staff by students	Not a problem or minor problem	63.4	54.7	7.609	1	.006
	Moderate or major problem	36.6	45.3			
Harassment or bullying among students	Not a problem or minor problem	69.9	65.8	1.910	1	.167
	Moderate or major problem	30.1	34.2			
Students having headaches or stomachaches	Not a problem or minor problem	83.4	85.1	.537	1	.464
	Moderate or major problem	16.6	14.9			
Cutting classes or skipping school	Not a problem or minor problem	76.9	78.9	.540	1	.462
	Moderate or major problem	23.1	21.1			

Table A 7. Problems Observed at School by Role Group

Behavior	Response	Percent responded: Administrator	Teacher	All other personnel	χ^2	*df*	*p*
Disruptive student behavior	Not a problem or minor problem	71.4	53.5	56.9	4.970	2	.083
	Moderate or major problem	28.6	46.5	43.1			
Physical fighting between students	Not a problem or minor problem	90.5	77.7	88.2	6.336	2	.042
	Moderate or major problem	9.5	22.3	11.8			
Lack of respect of staff by students	Not a problem or minor problem	83.3[a]	52.1[b]	51.0[b]	15.257	2	.000
	Moderate or major problem	16.7[a]	47.9[b]	49.0[b]			
Harassment or bullying among students	Not a problem or minor problem	88.1[a]	62.4[b]	72.5[a, b]	12.267	2	.002
	Moderate or major problem	11.9[a]	37.6[b]	27.5[a, b]			
Students having headaches or stomachaches	Not a problem or minor problem	95.2[a]	85.3[a, b]	75.5[b]	7.303	2	.026
	Moderate or major problem	4.8[a]	14.7[a, b]	24.5[b]			
Students' difficulty concentrating on instruction an hour or two before lunch	Not a problem or minor problem	92.9	85.9	90.0	2.073	2	.355
	Moderate or major problem	7.1	14.1	10.0			
Cutting classes or skipping school	Not a problem or minor problem	95.2[a]	77.4[b]	76.5[b]	7.412	2	.025
	Moderate or major problem	4.8[a]	22.6[b]	23.5[b]			

Each superscript letter denotes a subset of role categories whose column proportions do not differ significantly from each other at $p < 0.05$. Column cells with different superscript letters differ at $p < 0.05$.

Table A 8. Problems Observed at School by Program Level

Behavior	Response	Percent responded: Elem. school	Middle school	High school	χ^2	*df*	*p*
Disruptive student behavior	Not a problem or minor problem	70.3[a]	40.6[b]	42.6[b]	39.423	2	.000
	Moderate or major problem	29.7[a]	59.4[b]	57.4[b]			
Physical fighting between students	Not a problem or minor problem	89.6[a]	72.3[b]	70.1[b]	25.897	2	.000
	Moderate or major problem	10.4[a]	27.7[b]	29.9[b]			
Lack of respect of staff by students	Not a problem or minor problem	70.9[a]	36.6[b]	41.9[b]	47.370	2	.000
	Moderate or major problem	29.1[a]	63.4[b]	58.1[b]			
Harassment or bullying among students	Not a problem or minor problem	80.3[a]	47.5[b]	55.5[b]	43.414	2	.000
	Moderate or major problem	19.7[a]	52.5[b]	44.5[b]			
Students having headaches or stomachaches	Not a problem or minor problem	84.8	85.1	85.5	.032	2	.984
	Moderate or major problem	15.2	14.9	14.5			
Students' difficulty concentrating on instruction an hour or two before lunch	Not a problem or minor problem	88.6	88.1	83.4	2.269	2	.322
	Moderate or major problem	11.4	11.9	16.6			
Cutting classes or skipping school	Not a problem or minor problem	94.3[a]	88.0[a]	49.0[b]	116.259	2	.000
	Moderate or major problem	5.7[a]	12.0[a]	51.0[b]			

Each superscript letter denotes a subset of role categories whose column proportions do not differ significantly from each other at $p < 0.05$. Column cells with different superscript letters differ at $p < 0.05$.

Table A 9. Problems Observed at School Compared to Previous School Year Overall by Survey Round

Behavior	Response	% Round 1	% Round 2	χ^2	*df*	*p*
Disruptive student behavior	Gotten better	32.5	35.5	1.408	2	.495
	Stayed the same	52.0	47.9			
	Gotten worse	15.5	16.5			
Physical fighting between students	Gotten better	31.2	40.6	7.611	2	.022
	Stayed the same	57.9	50.4			
	Gotten worse	10.9	9.0			
Lack of respect of staff by students	Gotten better	20.6	24.5	1.920	2	.383
	Stayed the same	55.8	54.2			
	Gotten worse	23.5	21.3			
Harassment or bullying among students	Gotten better	26.0	28.7	3.567	2	.168
	Stayed the same	61.8	55.6			
	Gotten worse	12.3	15.7			
Students having headaches or stomachaches	Gotten better	23.5	32.4	7.732	2	.021
	Stayed the same	70.3	63.2			
	Gotten worse	6.2	4.4			
Cutting classes or skipping school	Gotten better	16.0	23.7	7.697	2	.021
	Stayed the same	69.7	66.3			
	Gotten worse	14.2	10.1			
Students' difficulty concentrating on instruction an hour or two before lunch*	Gotten better	NA	45.7	NA	NA	
	Stayed the same	NA	49.7	NA	NA	
	Gotten worse	NA	4.6	NA	NA	NA

Percentages exclude “not applicable” and “don’t know” responses.
*This question was not asked in Round 1 of the survey.

Table A 10. Problems Observed at School Compared to Previous School Year by Role Group

Behavior	Response	Percent responded: Administrator	Percent responded: Teacher	Percent responded: All other personnel	χ^2	*df*	*p*
Disruptive student behavior	Gotten better	31.4	34.5	46.5	7.618	4	.107
	Stayed the same	62.9	48.0	34.9			
	Gotten worse	5.7	17.4	18.6			
Physical fighting between students	Gotten better	45.5	39.2	47.6	3.491	4	.479
	Stayed the same	51.5	51.5	40.5			
	Gotten worse	3.0	9.3	11.9			
Lack of respect of staff by students	Gotten better	26.5	23.0	34.9	10.769	4	.029
	Stayed the same	70.6	53.5	46.5			
	Gotten worse	2.9[a]	23.6[b]	18.6[a, b]			
Harassment or bullying among students	Gotten better	42.9	26.4	34.9	10.651	4	.031
	Stayed the same	57.1	55.8	53.5			
	Gotten worse	.0[a]	17.9[b]	11.6[a, b]			
Students having headaches or stomachaches	Gotten better	19.4	33.2	36.8	8.780	4	.067
	Stayed the same	80.6	62.7	52.6			
	Gotten worse	.0	4.1	10.5			
Students' difficulty concentrating on instruction an hour or two before lunch	Gotten better	53.3	45.5	40.5	2.314	4	.678
	Stayed the same	46.7	49.5	54.1			
	Gotten worse	.0	5.0	5.4			
Cutting classes or skipping school	Gotten better	25.0	23.1	27.0	2.308	4	.679
	Stayed the same	70.8	65.7	67.6			
	Gotten worse	4.2	11.2	5.4			

Percentages exclude “not applicable” and “don’t know” responses.
Each superscript letter denotes a subset of role categories whose column proportions do not differ significantly from each other at $p < 0.05$. Column cells with different superscript letters differ at $p < 0.05$.

Table A 11. Problems Observed at School Compared to Previous School Year by Program Level

Behavior	Response	Percent responded: Elementary school	Middle school	High school	χ^2	*df*	*p*
Disruptive student behavior	Gotten better	31.0[a]	30.6[a, b]	45.7[b]	12.329	4	.015
	Stayed the same	54.3[a]	45.9[a, b]	39.5[b]			
	Gotten worse	14.7	23.5	14.7			
Physical fighting between students	Gotten better	29.9[a]	38.4[a]	57.4[b]	31.564	4	.000
	Stayed the same	63.6[a]	48.8[a]	32.6[b]			
	Gotten worse	6.5	12.8	10.1			
Lack of respect of staff by students	Gotten better	25.6	20.9	25.2	8.796	4	.066
	Stayed the same	57.4	46.5	54.3			
	Gotten worse	16.9	32.6	20.5			
Harassment or bullying among students	Gotten better	29.1	22.6	32.0	4.481	4	.345
	Stayed the same	57.7	56.0	52.3			
	Gotten worse	13.3	21.4	15.6			
Students having headaches or stomachaches	Gotten better	31.1	36.0	32.1	5.623	4	.229
	Stayed the same	62.3	60.0	67.0			
	Gotten worse	6.6	4.0	.9			
Students' difficulty concentrating on instruction an hour or two before lunch	Gotten better	45.1	42.5	48.7	1.092	4	.896
	Stayed the same	50.5	53.4	46.1			
	Gotten worse	4.4	4.1	5.2			
Cutting classes or skipping school	Gotten better	18.4	29.7	26.0	33.821	4	.000
	Stayed the same	80.1[a]	60.8[b]	53.7[b]			
	Gotten worse	1.4[a]	9.5[b]	20.3[b]			

Percentages exclude “not applicable” and “don’t know” responses.
Each superscript letter denotes a subset of role categories whose column proportions do not differ significantly from each other at $p < 0.05$. Column cells with different superscript letters differ at $p < 0.05$.

Table A 12. Student Well-Being and Engagement Overall by Survey Round

How many students …	Response	% Round 1	% Round 2	χ^2	*df*	*p*
are healthy and physically fit?	Most or almost all students	58.7	59.0	.005	1	.945
	Some or almost no students	41.3	41.0			
are motivated to learn?	Most or almost all students	64.2	61.8	.590	1	.442
	Some or almost no students	35.8	38.2			
are well-behaved?	Most or almost all students	82.6	76.8	5.025	1	.025
	Some or almost no students	17.4	23.2			
show respect for their teachers?	Most or almost all students	80.6	75.0	4.427	1	.035
	Some or almost no students	19.4	25.0			
show respect for other students?	Most or almost all students	80.4	74.7	4.409	1	.036
	Some or almost no students	19.6	25.3			
are actively engaged in learning?	Most or almost all students	75.1	72.9	.633	1	.426
	Some or almost no students	24.9	27.1			
are happy to be at school?	Most or almost all students	71.6	68.3	1.306	1	.253
	Some or almost no students	28.4	31.7			
take active part in school activities?	Most or almost all students	56.9	55.6	.148	1	.700
	Some or almost no students	43.1	44.4			

Table A 13. Student Well-Being and Engagement by Role Group

		Percent responded					
How many students …	Response	Admini-strator	Teacher	All other personnel	χ^2	*df*	*p*
are healthy and physically fit?	Most or almost all students	60.5	57.7	67.3	1.706	2	.426
	Some or almost no students	39.5	42.3	32.7			
are motivated to learn?	Most or almost all students	90.5[a]	56.6[b]	79.2[a]	25.22	2	.000
	Some or almost no students	9.5[a]	43.4[b]	20.8[a]			
are well-behaved?	Most or almost all students	95.2[a]	74.5[b]	79.6[a, b]	9.403	2	.009
	Some or almost no students	4.8[a]	25.5[b]	20.4[a, b]			
show respect for their teachers?	Most or almost all students	97.6[a]	72.4[b]	76.0[b]	12.86	2	.002
	Some or almost no students	2.4[a]	27.6[b]	24.0[b]			
show respect for other students?	Most or almost all students	95.2[a]	72.2[b]	77.6[b]	10.92	2	.004
	Some or almost no students	4.8[a]	27.8[b]	22.4[b]			
are actively engaged in learning?	Most or almost all students	95.2[a]	70.1[b]	75.5[b]	12.30	2	.002
	Some or almost no students	4.8[a]	29.9[b]	24.5[b]			
are happy to be at school?	Most or almost all students	92.9[a]	64.2[b]	79.6[a, b]	17.62	2	.000
	Some or almost no students	7.1[a]	35.8[b]	20.4[a, b]			
take active part in school activities?	Most or almost all students	81.0[a]	51.7[b]	65.3[a, b]	15.22	2	.000
	Some or almost no students	19.0[a]	48.3[b]	34.7[a, b]			

Each superscript letter denotes a subset of role categories whose column proportions do not differ significantly from each other at $p < 0.05$. Column cells with different superscript letters differ at $p < 0.05$.

Table A 14. Student Well-Being and Engagement by Program Level

How many students …	Response	Percent responded: Elementary school	Middle school	High school	χ^2	*df*	*p*
are healthy and physically fit?	Most or almost all students	70.0[a]	48.0[b]	49.7[b]	21.940	2	.000
	Some or almost no students	30.0[a]	52.0[b]	50.3[b]			
are motivated to learn?	Most or almost all students	77.9[a]	44.0[b]	49.7[b]	47.596	2	.000
	Some or almost no students	22.1[a]	56.0[b]	50.3[b]			
are well-behaved?	Most or almost all students	82.4[a]	69.0[b]	73.7[a, b]	8.214	2	.016
	Some or almost no students	17.6[a]	31.0[b]	26.3[a, b]			
show respect for their teachers?	Most or almost all students	85.5[a]	65.0[b]	65.8[b]	25.684	2	.000
	Some or almost no students	14.5[a]	35.0[b]	34.2[b]			
show respect for other students?	Most or almost all students	82.4[a]	65.0[b]	69.7[b]	14.056	2	.001
	Some or almost no students	17.6[a]	35.0[b]	30.3[b]			
are actively engaged in learning?	Most or almost all students	86.3[a]	58.0[b]	62.5[b]	40.288	2	.000
	Some or almost no students	13.7[a]	42.0[b]	37.5[b]			
are happy to be at school?	Most or almost all students	85.0[a]	58.0[b]	50.0[b]	57.696	2	.000
	Some or almost no students	15.0[a]	42.0[b]	50.0[b]			
take active part in school activities?	Most or almost all students	73.5[a]	48.0[b]	34.2[b]	59.696	2	.000
	Some or almost no students	26.5[a]	52.0[b]	65.8[b]			

Each superscript letter denotes a subset of role categories whose column proportions do not differ significantly from each other at $p < 0.05$. Column cells with different superscript letters differ at $p < 0.05$.

Table A 15. Student Well-Being and Engagement Compared to Previous School Year Overall

How many students …	Response	% Round 1	% Round 2	χ^2	*df*	*p*
are healthy and physically fit?	Gotten better	24.1	30.2	3.701	2	.157
	Stayed the same	73.1	67.0			
	Gotten worse	2.8	2.8			
are motivated to learn?	Gotten better	30.4	38.0	5.717	2	.057
	Stayed the same	60.2	54.8			
	Gotten worse	9.4	7.2			
are well-behaved?	Gotten better	29.7	35.7	4.302	2	.116
	Stayed the same	60.1	56.9			
	Gotten worse	10.2	7.5			
show respect for their teachers?	Gotten better	21.2	28.0	5.198	2	.074
	Stayed the same	67.1	60.4			
	Gotten worse	11.7	11.6			
show respect for other students?	Gotten better	20.0	29.1	9.124	2	.010
	Stayed the same	71.4	62.7			
	Gotten worse	8.6	8.2			
are actively engaged in learning?	Gotten better	35.4	39.5	2.377	2	.305
	Stayed the same	58.4	53.1			
	Gotten worse	6.2	7.4			
are happy to be at school?	Gotten better	32.7	40.4	5.260	2	.072
	Stayed the same	60.1	53.1			
	Gotten worse	7.2	6.5			
take active part in school activities?	Gotten better	29.1	32.1	1.831	2	.400
	Stayed the same	65.3	64.1			
	Gotten worse	5.5	3.8			

Percentages exclude “not applicable” and “don’t know” responses.

Table A 16. Student Well-Being and Engagement Compared to Previous School Year by Role Group

How many students …	Response	Percent responded: Administrator	Teacher	All other personnel	χ^2	*df*	*p*
are healthy and physically fit?	Gotten better	31.4	29.7	32.5	1.283	4	.864
	Stayed the same	68.6	67.1	65.0			
	Gotten worse	.0	3.2	2.5			
are motivated to learn?	Gotten better	50.0	36.7	39.0	6.220	4	.183
	Stayed the same	50.0	54.8	58.5			
	Gotten worse	.0	8.5	2.4			
are well-behaved?	Gotten better	35.3	35.5	37.5	5.274	4	.260
	Stayed the same	64.7	55.7	60.0			
	Gotten worse	.0	8.9	2.5			
show respect for their teachers?	Gotten better	29.4	27.7	29.3	5.344	4	.254
	Stayed the same	67.6	59.0	65.9			
	Gotten worse	2.9	13.4	4.9			
show respect for other students?	Gotten better	34.3	28.1	32.5	4.662	4	.324
	Stayed the same	65.7	62.4	62.5			
	Gotten worse	.0	9.5	5.0			
are actively engaged in learning?	Gotten better	52.9	38.1	39.0	6.953	4	.138
	Stayed the same	47.1	53.0	58.5			
	Gotten worse	.0	8.8	2.4			
are happy to be at school?	Gotten better	44.1	39.9	41.5	6.425	4	.170
	Stayed the same	55.9	52.1	58.5			
	Gotten worse	.0	7.9	.0			
take active part in school activities?	Gotten better	14.3[a]	32.9[a, b]	41.0[b]	10.836	4	.028
	Stayed the same	85.7[a]	62.4[b]	59.0[b]			
	Gotten worse	.0	4.7	.0			

Percentages exclude "not applicable" and "don't know" responses.
Each superscript letter denotes a subset of role categories whose column proportions do not differ significantly from each other at $p < 0.05$. Column cells with different superscript letters differ at $p < 0.05$.

Table A 17. Student Well-Being and Engagement Compared to Previous School Year by Program Level

How many students …	Response	Percent responded: Elementary school	Middle school	High school	χ^2	*df*	*p*
are healthy and physically fit?	Gotten better	38.0[a]	25.0[a, b]	22.0[b]	11.413	4	.022
	Stayed the same	60.3[a]	71.4[a, b]	74.0[b]			
	Gotten worse	1.6	3.6	4.1			
are motivated to learn?	Gotten better	42.4	31.4	35.9	13.058	4	.011
	Stayed the same	55.0	55.8	53.9			
	Gotten worse	2.6[a]	12.8[b]	10.2[b]			
are well-behaved?	Gotten better	38.2	28.2	36.8	3.972	4	.410
	Stayed the same	56.0	61.2	55.2			
	Gotten worse	5.8	10.6	8.0			
show respect for their teachers?	Gotten better	30.7	27.7	24.0	10.854	4	.028
	Stayed the same	62.5	53.0	62.0			
	Gotten worse	6.8[a]	19.3[b]	14.0[a, b]			
show respect for other students?	Gotten better	31.9	24.7	27.9	10.242	4	.037
	Stayed the same	63.8	60.0	62.8			
	Gotten worse	4.3[a]	15.3[b]	9.3[a, b]			
are actively engaged in learning?	Gotten better	44.7	33.3	35.7	9.656	4	.047
	Stayed the same	51.6	56.0	53.5			
	Gotten worse	3.7[a]	10.7[a, b]	10.9[b]			
are happy to be at school?	Gotten better	47.6	32.5	34.9	23.665	4	.000
	Stayed the same	49.7	63.9	51.2			
	Gotten worse	2.6[a]	3.6[a]	14.0[b]			
take active part in school activities?	Gotten better	32.4	36.9	28.3	6.631	4	.157
	Stayed the same	65.4	60.7	64.6			
	Gotten worse	2.2	2.4	7.1			

Percentages exclude "not applicable" and "don't know" responses.
Each superscript letter denotes a subset of role categories whose column proportions do not differ significantly from each other at $p < 0.05$. Column cells with different superscript letters differ at $p < 0.05$.

Table A 18. Student Well-Being and Engagement Changes Attributable to the Universal Free Meals Project Overall

How many students … (attributable to Universal Free Meals project)	Response	% Round 1	% Round 2	χ^2	df	p
are healthy and physically fit?	Definitely	25.6	38.9	6.090	3	.107
	Probably	68.6	59.3			
	Probably not	4.7	0.9			
	Definitely not	1.2	0.9			
are motivated to learn?	Definitely	30.8	30.2	2.274	3	.518
	Probably	62.5	61.2			
	Probably not	6.7	6.5			
	Definitely not	0.0	2.2			
are well-behaved?	Definitely	22.2	26.1	3.174	3	.366
	Probably	60.0	63.5			
	Probably not	14.4	7.0			
	Definitely not	3.3	3.5			
show respect for their teachers?	Definitely	21.8	28.2	3.031	3	.387
	Probably	52.7	54.1			
	Probably not	21.8	11.8			
	Definitely not	3.6	5.9			
show respect for other students?	Definitely	25.8	24.2	2.837	3	.418
	Probably	53.2	57.1			
	Probably not	21.0	15.4			
	Definitely not	0.0	3.3			
are actively engaged in learning?	Definitely	27.6	33.3	2.890	3	.409
	Probably	65.9	59.9			
	Probably not	6.5	5.4			
	Definitely not	0.0	1.4			
are happy to be at school?	Definitely	29.7	37.6	4.919	3	.178
	Probably	68.5	56.7			
	Probably not	0.9	3.5			
	Definitely not	0.9	2.1			
take active part in school activities?	Definitely	27.3	33.0	1.711	3	.635
	Probably	58.0	57.5			
	Probably not	11.4	7.5			
	Definitely not	3.4	1.9			

Analysis limited to respondents that reported the health and behavior traits to have gotten better since the previous school year. Percentages exclude "not applicable" and "don't know" responses.

Table A 19. Contribution of the Universal Free Meals Pilot Project to Overall Student Well-Being by Role Group

		Percent responded					
To what extent do you think the…	Response	Admini-strator	Teacher	All other personnel	χ^2	*Df*	*p*
opportunity for all students to eat free lunch at school contributes to their overall well-being?	To a major extent	59.5	59.4	67.3	1.848	4	.764
	To a moderate extent	31.0	27.4	21.8			
	To a minor extent or Not at all	9.5	13.2	10.9			
opportunity for all students to eat free breakfast at school contributes to their overall well-being?	To a major extent	66.7	61.9	70.9	2.666	4	.615
	To a moderate extent	26.2	25.4	20.0			
	To a minor extent or Not at all	7.1	12.7	9.1			
opportunity for all students to eat breakfast at an alternate time (e.g., breakfast in the class, grab-n-go, breakfast after first) contributes to their overall well-being?	To a major extent	25.0	37.7	35.8	5.987	4	.200
	To a moderate extent	45.0	29.2	24.5			
	To a minor extent or Not at all	30.0	33.1	39.6			
Universal Free Meals Pilot project has removed the social stigma attached to students who qualify for reduced-price and free meals at your school?	To a major extent	62.8	56.2	56.4	5.937	4	.204
	To a moderate extent	27.9	20.1	25.5			
	To a minor extent or Not at all	9.3	23.7	18.2			
Universal Free Meals Pilot project has been responsible for an increased participation of students who qualify for reduced-price and free meals at your school due to the removal of social stigma that was attached to them previously?	To a major extent	51.2	50.0	52.8	2.671	4	.614
	To a moderate extent	26.8	22.4	28.3			
	To a minor extent or Not at all	22.0	27.6	18.9			

Percentages exclude “not applicable” and “don’t know” responses.

Table A 20. Contribution of the Universal Free Meals Pilot Project to Overall Student Well-Being by Program Level

To what extent do you think the…	Response	Percent responded			χ^2	*df*	*p*
		Elementary school	Middle school	High school			
opportunity for all students to eat free lunch at school contributes to their overall well-being?	To a major extent	64.8	61.8	52.3	7.913	6	.245
	To a moderate extent	24.5	23.5	33.6			
	To a minor extent	7.7	11.8	9.4			
	Not at all	3.0	2.9	4.7			
opportunity for all students to eat free breakfast at school contributes to their overall well-being?	To a major extent	69.1[a]	62.4[a, b]	55.3[b]	17.155	6	.009
	To a moderate extent	22.6	19.8	31.6			
	To a minor extent	4.8[a]	14.9[b]	7.9[a, b]			
	Not at all	3.5	3.0	5.3			
opportunity for all students to eat breakfast at an alternate time (e.g., breakfast in the class, grab-n-go, breakfast after first) contributes to their overall well-being?	To a major extent	36.8	30.7	39.9	10.013	6	.124
	To a moderate extent	28.6	26.7	34.5			
	To a minor extent	18.6	27.7	14.2			
	Not at all	16.0	14.9	11.5			
Universal Free Meals Pilot project has removed the social stigma attached to students who qualify for reduced-price and free meals at your school?	To a major extent	58.6	56.9	53.9	4.452	6	.616
	To a moderate extent	18.5	20.6	26.3			
	To a minor extent	10.3	11.8	11.2			
	Not at all	12.5	10.8	8.6			
Universal Free Meals Pilot project has been responsible for an increased participation of students who qualify for reduced-price and free meals at your school due to the removal of social stigma that was attached to them previously?	To a major extent	53.3	47.5	47.9	5.678	6	.460
	To a moderate extent	19.2	28.3	26.7			
	To a minor extent	14.0	13.1	15.8			
	Not at all	13.5	11.1	9.6			

Percentages exclude “not applicable” and “don’t know” responses.
Each superscript letter denotes a subset of role categories whose column proportions do not differ significantly from each other at $p < 0.05$. Column cells with different superscript letters differ at $p < 0.05$.

Table A 21. Staff Concerns With the Universal Free Meals Pilot Project Overall

How much of a concern is…	Response	% Round 1	% Round 2	χ^2	df	p
Integrating nutritional and instructional programming	Not a concern	43.5	45.2	.720	3	.869
	Minor concern	28.2	28.0			
	Moderate concern	19.2	17.2			
	Major concern	9.1	9.5			
Organizing the distribution of food	Not a concern	50.5	50.4	5.025	3	.170
	Minor concern	22.5	26.9			
	Moderate concern	15.9	15.1			
	Major concern	11.1	7.6			
Time for food service staff to prepare and distribute food	Not a concern	49.4	47.9	1.587	3	.662
	Minor concern	27.1	25.2			
	Moderate concern	15.5	18.0			
	Major concern	8.0	8.9			
Problems with cleanup	Not a concern	47.9	47.3	.358	3	.949
	Minor concern	28.7	28.6			
	Moderate concern	14.8	16.0			
	Major concern	8.6	8.0			
Food being wasted	Not a concern	26.3	26.6	.716	3	.869
	Minor concern	28.3	27.5			
	Moderate concern	21.4	23.4			
	Major concern	24.0	22.5			
Food safety	Not a concern	63.7	64.9	2.724	3	.436
	Minor concern	20.9	21.0			
	Moderate concern	7.1	8.2			
	Major concern	8.3	5.8			
Parent dissatisfaction with the project	Not a concern	74.6	72.1	1.238	3	.744
	Minor concern	15.0	17.6			
	Moderate concern	6.7	6.4			
	Major concern	3.7	3.9			

Table A 22. Staff Concerns With the Universal Free Meals Pilot Project by Role Group

How much of a concern is…	Response	Percent responded: Administrator	Teacher	All other personnel	χ^2	*df*	*p*
Integrating nutritional and instructional programming	Not a concern	32.6	45.9	51.0	6.793	4	.147
	Minor concern	44.2	26.8	23.5			
	Moderate to major concern	23.3	27.3	25.5			
Organizing the distribution of food	Not a concern	46.5[a]	51.0[a]	49.1[a]	19.28	4	.001
	Minor concern	51.2[a]	24.2[b]	26.4[b]			
	Moderate to major concern	2.3[a]	24.7[b]	24.5[b]			
Time for food service staff to prepare and distribute food	Not a concern	44.2[a]	48.6[a]	46.2[a]	16.487	4	.002
	Minor concern	44.2[a]	24.7[b]	13.5[b]			
	Moderate to major concern	11.6[a]	26.7[a, b]	40.4[b]			
Problems with cleanup	Not a concern	69.8[a]	46.4[b]	36.4[b]	13.184	4	.010
	Minor concern	23.3[a]	28.4[a]	34.5[a]			
	Moderate to major concern	7.0[a]	25.3[b]	29.1[b]			
Food being wasted	Not a concern	30.2	27.7	16.4	8.694	4	.069
	Minor concern	39.5	26.2	27.3			
	Moderate to major concern	30.2	46.2	56.4			
Food safety	Not a concern	79.1	63.4	64.8	5.315	4	.256
	Minor concern	16.3	21.9	18.5			
	Moderate to major concern	4.7	14.7	16.7			
Parent dissatisfaction with the project	Not a concern	83.7	72.7	58.5	8.866	4	.065
	Minor concern	14.0	16.8	26.4			
	Moderate to major concern	2.3	10.6	15.1			
Student food allergies	Not a concern	58.1	55.6	56.6	4.125	4	.389
	Minor concern	30.2	33.9	24.5			
	Moderate to major concern	11.6	10.6	18.9			
Loss of instructional time	Not a concern	65.1	53.9	66.7	4.927	4	.295
	Minor concern	18.6	22.7	18.5			
	Moderate to major concern	16.3	23.5	14.8			
Sufficient kitchen staff to handle extra food preparation work	Not a concern	44.2[a]	52.5[a]	44.4[a]	13.989	4	.007
	Minor concern	34.9[a]	27.4[a]	14.8[a]			
	Moderate to major concern	20.9[a, b]	20.2[b]	40.7[a]			
Sufficient custodial staff to handle extra clean-up work	Not a concern	55.8	47.0	50.0	5.716	4	.221
	Minor concern	27.9	27.9	16.7			
	Moderate to major concern	16.3	25.1	33.3			

Each superscript letter denotes a subset of role categories whose column proportions do not differ significantly from each other at $p < 0.05$. Column cells with different superscript letters differ at $p < 0.05$.

Table A 23. Staff Concerns with the Universal Free Meals Pilot Project by Program Level

How much of a concern is…	Response	Percent responded: Elementary school	Middle school	High school	χ^2	*df*	*p*
Integrating nutritional and instructional programming	Not a concern	48.2	41.2	43.4	13.602	6	.034
	Minor concern	26.8	23.5	32.9			
	Moderate concern	18.9[a, b]	22.5[b]	11.2[a]			
	Major concern	6.1	12.7	12.5			
Organizing the distribution of food	Not a concern	53.2	50.5	46.1	5.959	6	.428
	Minor concern	23.8	31.7	28.3			
	Moderate concern	16.0	12.9	15.1			
	Major concern	6.9	5.0	10.5			
Time for food service staff to prepare and distribute food	Not a concern	48.5	48.0	47.0	6.533	6	.366
	Minor concern	21.6	25.5	30.5			
	Moderate concern	19.0	20.6	14.6			
	Major concern	10.8	5.9	7.9			
Problems with cleanup	Not a concern	48.7[a, b]	57.0[b]	38.8[a]	14.327	6	.026
	Minor concern	29.5	28.0	27.6			
	Moderate concern	14.1[a, b]	10.0[b]	23.0[a]			
	Major concern	7.7	5.0	10.5			
Food being wasted	Not a concern	29.9	19.6	26.3	7.247	6	.299
	Minor concern	26.1	26.5	30.3			
	Moderate concern	21.8	24.5	25.0			
	Major concern	22.2	29.4	18.4			
Food safety	Not a concern	65.2	66.0	63.8	1.744	6	.942
	Minor concern	21.0	23.0	19.7			
	Moderate concern	8.2	6.0	9.9			
	Major concern	5.6	5.0	6.6			
Parent dissatisfaction with the program	Not a concern	67.2	77.0	76.3	9.312	6	.157
	Minor concern	20.3	16.0	14.5			
	Moderate concern	9.1	4.0	3.9			
	Major concern	3.4	3.0	5.3			
Student food allergies	Not a concern	51.7	63.7	57.0	4.860	6	.562
	Minor concern	35.2	27.5	31.8			
	Moderate concern	8.3	4.9	6.0			
	Major concern	4.8	3.9	5.3			
Loss of instructional time	Not a concern	56.3	58.8	54.6	2.594	6	.858
	Minor concern	22.9	22.5	19.7			
	Moderate concern	11.7	10.8	13.2			
	Major concern	9.1	7.8	12.5			
Sufficient kitchen staff to handle extra food preparation work	Not a concern	47.0	57.0	52.6	6.408	6	.379
	Minor concern	27.2	22.0	28.9			
	Moderate concern	17.2	14.0	9.9			
	Major concern	8.6	7.0	8.6			
Sufficient custodial staff to	Not a concern	46.8	55.9	45.0	8.550	6	.201

Table A 23. Staff Concerns with the Universal Free Meals Pilot Project by Program Level

How much of a concern is…	Response	Percent responded: Elementary school	Middle school	High school	χ^2	*df*	*p*
handle extra clean-up work	Minor concern	25.1	24.5	30.5			
	Moderate concern	19.9	14.7	13.2			
	Major concern	8.2	4.9	11.3			

Each superscript letter denotes a subset of role categories whose column proportions do not differ significantly from each other at p < 0.05. Column cells with different superscript letters differ at p < 0.05.

Table A 24. Staff Opinion About the Success of the Universal Free Meals Pilot Project Overall

	Response	% Round 1	% Round 2	χ^2	*df*	*p*
To what extent do you think the Universal Free Meals Pilot project has been a success at your school?	To a major extent	46.9	58.2	17.713	3	.001
	To a moderate extent	32.1	29.2			
	To a minor extent	17.6	9.9			
	Not at all	3.4	2.7			

Table A 25. Staff Opinion About the Worth of the Universal Free Meals Pilot Project Overall

	Response	% Round 1	% Round 2	χ^2	*df*	*p*
Overall, do you think the Universal Free Meals Pilot project has been worth the investment your school or county has made?	Yes	72.2	79.5	11.154	3	.011
	No	8.7	8.0			
	Don't know	8.3	7.2			
	Too early to tell	10.7	5.3			

Table A 26. Staff Opinion About the Success of the Universal Free Meals Pilot Project by Role Group

	Response	Percent responded: Admini-strator	Teacher	All other personnel	χ^2	*df*	*p*
To what extent do you think the Universal Free Meals Pilot project has been a success at your school?	To a major extent	72.1	57.1	55.6	8.866	6	.181
	To a moderate extent	20.9	28.8	38.9			
	To a minor extent	7.0	11.1	3.7			
	Not at all	0.0	3.1	1.9			

Table A 27. Staff Opinion About the Worth of the Universal Free Meals Pilot Project by Role Group

	Response	Percent responded: Admini-strator	Teacher	All other personnel	χ^2	*df*	*p*
Overall, do you think the Universal Free Meals Pilot project has been worth the investment your school or county has made?	Yes	90.5	78.2	80.0	4.286	6	.638
	No	4.8	8.5	7.3			
	Don't know	2.4	7.4	9.1			
	Too early to tell	2.4	5.9	3.6			

Table A 28. Staff Opinion About the Sustainability of the Universal Free Meals Pilot Project in Their School or

County by Role Group

		Percent responded					
	Response	Admini-strator	Teacher	All other personnel	χ^2	*df*	*p*
To what extent are you concerned about the ability of your school or county to sustain the Universal Free Meals Pilot project in the future?	To a major extent	51.2[a]	27.1[b]	24.1[b]	14.632	6	.023
	To a moderate extent	9.3[a]	29.5[b]	27.8[a, b]			
	To a minor extent	23.3	26.4	31.5			
	Not at all	16.3	17.1	16.7			

Each superscript letter denotes a subset of role categories whose column proportions do not differ significantly from each other at $p < 0.05$. Column cells with different superscript letters differ at $p < 0.05$.

Table A 29. Staff Opinion About the Continuation of the Universal Free Meals Pilot Project by Role Group

		Percent responded					
	Response	Admini-strator	Teacher	All other personnel	χ^2	*df*	*p*
Based on your participation in the Universal Free Meals Pilot project this year, would you like for your school to continue in the program next year?	Yes	97.6	84.9	89.1	6.034	4	.197
	No	2.4	4.6	3.6			
	Undecided at this time	0	10.5	7.3			

Table A 30. Staff Opinion About the Success of the Universal Free Meals Pilot Project by Program Level

		Percent responded					
	Response	Elementary school	Middle school	High school	χ^2	*df*	*p*
To what extent do you think the Universal Free Meals Pilot Project has been a success at your school?	To a major extent	63.8	53.9	52.6	8.452	6	.207
	To a moderate extent	25.9	31.4	32.9			
	To a minor extent	8.6	12.7	9.9			
	Not at all	1.7	2.0	4.6			

Table A 31. Staff Opinion About the Worth of the Universal Free Meals Pilot Project by Program Level

		Percent responded					
	Response	Elementary school	Middle school	High school	χ^2	*df*	*p*
Overall, do you think the Universal Free Meals Pilot project has been worth the investment your school or county has made?	Yes	82.6	76.2	76.8	8.921	6	.178
	No	5.1	7.9	12.6			
	Don't know	7.2	7.9	6.6			
	Too early to tell	5.1	7.9	4.0			

Table A 32. Staff Opinion About the Sustainability of the Universal Free Meals Pilot Project in Their School or County by Program Level

		Percent responded					
	Response	Elementary school	Middle school	High school	χ^2	*df*	*p*
To what extent are you concerned about the ability of your school or county to sustain the Universal Free Meals Pilot project in the future?	To a major extent	30.0	24.5	30.2	4.308	6	.635
	To a moderate extent	24.5	32.4	28.9			
	To a minor extent	26.6	29.4	24.8			
	Not at all	18.9	13.7	16.1			

Table A 33. Staff Opinion About the Continuation of the Universal Free Meals Pilot Project by Program Level

		Percent responded					
	Response	Elementary school	Middle school	High school	χ^2	*df*	*p*
Based on your participation in the Universal Free Meals Pilot project this year, would you like for your school to continue in the program next year?	Yes	87.7	90.2	82.1	8.084	4	.089
	No	2.6	2.9	7.9			
	Undecided at this time	9.8	6.9	9.9			

Appendix C. Evaluation Question 2: Impacts on Student Achievement

Descriptive Statistics Comparing Treatment Samples to Treatment Population

Table A 34. Descriptive Statistics Comparing Treatment Samples to Treatment Population: Elementary School

		Sample		Population		Difference
		Frequency	Percent	Frequency	Percent	in %
Grade by group	3	297	33.8	1542	32.5	1.3
	4	266	30.3	1541	32.5	-2.2
	5	220	25	1126	23.8	1.2
	6	96	10.9	530	11.2	-0.3
	Total	879	100	4739	100	
Race by group	0	833	94.8	4502	95	-0.2
	1	46	5.2	237	5	0.2
	Total	879	100	4739	100	
LEP by group	0	878	99.9	4735	99.9	0
	1	1	0.1	4	0.1	0
	Total	879	100	4739	100	
Special education eligibility by group	0	778	88.5	4132	87.2	1.3
	1	101	11.5	607	12.8	-1.3
	Total	879	100	4739	100	
Disability category by group	AU	2	0.2	12	0.3	-0.1
	BD	1	0.1	15	0.3	-0.2
	CD	27	3.1	194	4.1	-1
	HI	1	0.1	7	0.1	0
	LD	37	4.2	194	4.1	0.1
	MM	19	2.2	105	2.2	0
	NONE	778	88.5	4132	87.2	1.3
	OH	12	1.4	73	1.5	-0.1
	PH	1	0.1	1	0	0.1
	TB	0	0	2	0	0
	VI	1	0.1	4	0.1	0
	Total	879	100	4739	100	
Free/reduced price lunch eligibility by group	0	294	33.4	1579	33.3	0.1
	1	585	66.6	3160	66.7	-0.1
	Total	879	100	4739	100	
Gender by group	0	398	45.3	2259	47.7	-2.4
	1	481	54.7	2480	52.3	2.4
	Total	879	100	4739	100	
School math	1	232	26.4	1157	24.4	2

Table A 34. Descriptive Statistics Comparing Treatment Samples to Treatment Population: Elementary School

		Sample		Population		Difference
		Frequency	Percent	Frequency	Percent	in %
proficiency by group	2	287	32.7	1703	35.9	-3.2
	3	178	20.3	986	20.8	-0.5
	4	134	15.2	671	14.2	1
	5	48	5.5	222	4.7	0.8
	Total	879	100	4739	100	
School reading/ language arts proficiency by group	1	293	33.3	1572	33.2	0.1
	2	212	24.1	1165	24.6	-0.5
	3	189	21.5	1028	21.7	-0.2
	4	134	15.2	673	14.2	1
	5	51	5.8	301	6.4	-0.6
	Total	879	100	4739	100	
School district by group	16	61	6.9	367	7.7	-0.8
	20	227	25.8	1256	26.5	-0.7
	22	48	5.5	248	5.2	0.3
	43	69	7.8	434	9.2	-1.4
	49	220	25	1145	24.2	0.8
	54	136	15.5	710	15	0.5
	60	118	13.4	579	12.2	1.2
	Total	879	100	4739	100	

Table A 35. Descriptive Statistics Comparing Treatment Samples to Treatment Population: Middle School

		Sample		Population		Difference
		Frequency	Percent	Frequency	Percent	in %
Grade by group	3	57	6.8	238	6.1	0.7
	4	44	5.3	209	5.4	-0.1
	5	135	16.1	628	16.2	-0.1
	6	210	25.1	963	24.8	0.3
	7	217	25.9	957	24.7	1.2
	8	174	20.8	885	22.8	-2
	Total	837	100	3880	100	
Race by group	0	806	96.3	3753	96.7	-0.4
	1	31	3.7	127	3.3	0.4
	Total	837	100	3880	100	
LEP by group	0	837	100	3877	99.9	0.1
	1	0	0	3	0.1	-0.1
	Total	837	100	3880	100	
Special education eligibility by group	0	721	86.1	3374	87	-0.9
	1	116	13.9	506	13	0.9
	Total	837	100	3880	100	
Disability	AU	3	0.4	6	0.2	0.2

Table A 35. Descriptive Statistics Comparing Treatment Samples to Treatment Population: Middle School

		Sample		Population		Difference in %
		Frequency	Percent	Frequency	Percent	
category by group	BD	3	0.4	7	0.2	0.2
	CD	10	1.2	70	1.8	-0.6
	HI	4	0.5	6	0.2	0.3
	LD	51	6.1	227	5.9	0.2
	MM	27	3.2	122	3.1	0.1
	NONE	721	86.1	3374	87	-0.9
	OH	16	1.9	61	1.6	0.3
	TB	1	0.1	1	0	0.1
	VI	1	0.1	6	0.2	-0.1
	Total	837	100	3880	100	
Free/reduced price lunch eligibility by group	0	283	33.8	1306	33.7	
	1	554	66.2	2574	66.3	
	Total	837	100	3880	100	
Gender by group	0	419	50.1	1866	48.1	2
	1	418	49.9	2014	51.9	-2
	Total	837	100	3880	100	
School math proficiency by group	1	314	37.5	1345	34.7	2.8
	2	232	27.7	1151	29.7	-2
	3	154	18.4	723	18.6	-0.2
	4	99	11.8	486	12.5	-0.7
	5	38	4.5	175	4.5	0
	Total	837	100	3880	100	
School reading/ language arts proficiency by group	1	285	34.1	1279	33	1.1
	2	246	29.4	1113	28.7	0.7
	3	179	21.4	844	21.8	-0.4
	4	82	9.8	475	12.2	-2.4
	5	45	5.4	169	4.4	1
	Total	837	100	3880	100	
School district by group	16	92	11	402	10.4	0.6
	20	202	24.1	994	25.6	-1.5
	22	3	0.4	9	0.2	0.2
	43	238	28.4	1077	27.8	0.6
	49	10	1.2	25	0.6	0.6
	54	166	19.8	840	21.6	-1.8
	60	126	15.1	533	13.7	1.4
	Total	837	100	3880	100	

Table A 36. Descriptive Statistics Comparing Treatment Samples to Treatment Population: Secondary School

		Sample		Population		
		Frequency	Percent	Frequency	Percent	Difference in %
Grade by group	5	6	0.7	34	0.7	0
	6	34	3.9	214	4.4	-0.5
	7	144	16.5	792	16.3	0.2
	8	131	15.0	723	14.8	0.2
	9	295	33.7	1626	33.4	0.3
	10	265	30.3	1478	30.3	0
	Total	875	100	4	0.1	
Race by group	0	820	93.7	4590	94.2	-0.5
	1	55	6.3	281	5.8	0.5
	Total	875	100	4871	100	
LEP by group	0	874	99.9	4866	99.9	0
	1	1	0.1	5	0.1	0
	Total	875	100	4871	100	
Special education eligibility by group	0	768	87.8	4279	87.8	0
	1	107	12.2	592	12.2	0
	Total	875	100	4871	100	
Disability category by group	AU	1	0.1	9	0.2	-0.1
	BD	4	0.5	19	0.4	0.1
	CD	5	0.6	19	0.4	0.2
	DF	0	0	1	0	0
	HI	1	0.1	11	0.2	-0.1
	LD	55	6.3	320	6.6	-0.3
	MM	22	2.5	125	2.6	-0.1
	NONE	768	87.8	4279	87.8	0
	OH	19	2.2	86	1.8	0.4
	VI	0	0	2	0	0
	Total	875	100	4871	100	
Free/reduced price lunch eligibility by group	0	361	41.3	2064	42.4	-1.1
	1	514	58.7	2807	57.6	1.1
	Total	875	100	4871	100	
Gender by group	0	382	43.7	2332	47.9	-4.2
	1	493	56.3	2539	52.1	4.2
	Total	875	100	4871	100	
School math proficiency by group	1	349	39.9	1907	39.2	0.7
	2	226	25.8	1315	27	-1.2
	3	163	18.6	919	18.9	-0.3
	4	108	12.3	564	11.6	0.7
	5	29	3.3	166	3.4	-0.1
	Total	875	100	4871	100	
School reading/	1	282	32.2	1532	31.5	0.7
	2	251	28.7	1436	29.5	-0.8

Table A 36. Descriptive Statistics Comparing Treatment Samples to Treatment Population: Secondary School

		Sample		Population		
		Frequency	Percent	Frequency	Percent	Difference in %
language arts proficiency by group	3	202	23.1	1085	22.3	0.8
	4	113	12.9	617	12.7	0.2
	5	27	3.1	201	4.1	-1
	Total	875	100	4871	100	
School district by group	16	44	5	240	4.9	0.1
	20	269	30.7	1440	29.6	1.1
	22	42	4.8	274	5.6	-0.8
	43	62	7.1	384	7.9	-0.8
	49	213	24.3	1144	23.5	0.8
	54	116	13.3	676	13.9	-0.6
	60	129	14.7	713	14.6	0.1
	Total	875	100	4871	100	

Operationalization of Variables Used in Propensity Score Matching

Student pretreatment mathematics achievement. We used students' standardized 2011–2012 WESTEST 2 mathematics scores as a measure of their mathematical ability prior to the treatment year. Scores were standardized within each grade level so that the state mean score for each grade was zero and the standard deviation was 1. This allowed for easy interpretation of scores (e.g., a score of .25 is the equivalent of one quarter standard deviation above the state mean) and also for valid aggregation of assessment results across grade levels to increase effective sample sizes for some tests[13]. The correlation between students' prior and current mathematics achievement is known to be statistically significant and of great magnitude.

Student pretreatment reading/language arts achievement. We used students' standardized 2011–2012 WESTEST 2 reading/language arts (RLA) scores as a measure of their RLA ability prior to the 2011–2012 school year. Scores were standardized using the same method as mathematics achievement. This covariate was included in the matching model to ensure that the treatment and comparison groups comprised students' with similar RLA skills prior to the treatment.

Student race. Student race was operationalized as a binary indicator denoting whether or not students were White. Caucasian students represent approximately 92% of all students in West Virginia. The variable was coded such that it described whether or not a student was nonwhite.

[13] tandardized test scores indicate a student's relative position within the distribution of her/his grade-level peers. Conversely, students' scale scores are relatively nebulous quantities that have little interpretive value except as they relate to a cut score that expresses a policy expectation (e.g., proficiency).

Student English proficiency. Students' English proficiency were coded as a binary indicator, denoting whether or not students possessed an LEP plan. West Virginia has historically had very low enrollment among LEP students.

Student special education eligibility. Special education eligibility was operationalized as a binary indicator, which indicated whether or not a student had an individualized education program (IEP). Special education eligibility is known to possess a negative and statistically significant relationship with student achievement.

Student free/reduced-price lunch eligibility. Students' socioeconomic status was operationalized using a proxy measure, free and reduced-price lunch eligibility. This indicator was binary, indicating whether or not the student was eligible. This variable is known to possess a negative and statistically significant relationship with student achievement.

Student gender. Student gender is known to be associated with academic achievement such that male students are often significantly lower performing than their female peers in both mathematics and reading/language arts. Thus, it was included in all matching models. We coded the variable as a binary indicator which described whether or not the student was male.

School enrollment. School enrollment was operationalized as the total number of students enrolled in each student's home school at the conclusion of the second month of the treatment year (i.e., the 2011–2012 school year). This variable was included in our models to account for the impact of school size.

School free/reduced-price lunch eligibility. We also accounted for the percentage of students enrolled in each student's home school at the conclusion of the second month of the treatment year.

School mathematics performance. Our models included the percentage of all students in each student's home school who scored at or above the "mastery" level on the WESTEST 2 mathematics assessment at the conclusion of the 2011–2012 school year.

School reading/language arts performance. Our models included the percentage of all students in each student's home school who scored at or above the "mastery" level on the WESTEST 2 reading/language arts assessment at the conclusion of the 2011–2012 school year.

Covariate Balance Summaries

Table A 37. Covariate Balance Summary for Elementary School Sample (EQ2)

	Covariate	Treatment premean*	Comparison premean	Premean diff	Comparison postmean	Postmean diff	Percent improvement postmatching
Student level	Propensity Score	.044	.017	.026	.044	.00	99.94
	Math2011	-.082	.036	-.119	-.059	-.02	80.44
	RLA2011	-.099	.038	-.137	-.066	-.03	76.40
	Race	.052	.087	-.035	.050	.00	93.59
	LEP	.001	.008	-.007	.001	.00	100.00
	SPED	.114	.148	-.033	.117	-.00	93.22
	S_LSES	.665	.535	.129	.676	-.01	91.22
	Gender	.547	.508	.039	.524	.02	41.65
School level	Enroll	397.767	453.430	-55.662	394.537	3.23	94.19
	LSES	66.486	53.539	12.946	66.308	.17	98.62
	Math2012	41.565	49.661	-8.096	41.400	.16	97.95
	RLA2012	42.515	50.243	-7.727	42.194	.32	95.84

*Treatment postmean is identical to treatment premean because no cases were discarded.

Table A 38. Covariate Balance Summary for Middle School Sample (EQ2)

	Covariate	Treatment premean*	Comparison premean	Premean diff	Comparison postmean	Postmean diff	Percent improvement postmatching
Student level	Propensity Score	.156	.012	.143	.144	.011	91.79
	Math2011	-.231	.000	-.231	-.204	-.027	88.35
	RLA2011	-.312	.010	-.322	-.339	.027	91.55
	Race	.037	.076	-.039	.051	-.014	63.78
	LEP	.000	.005	-.005	.000	.000	100.00
	SPED	.138	.120	.018	.148	-.009	47.37
	S_LSES	.661	.504	.157	.671	-.009	93.91
	Gender	.499	.507	-.008	.520	-.021	-161.04
School level	Enroll	523.237	684.192	-160.954	501.427	21.810	86.44
	LSES	68.101	49.462	18.639	68.551	-0.450	97.58
	Math2012	36.264	46.611	-10.347	38.106	-1.842	82.19
	RLA2012	37.525	49.530	-12.004	38.146	-.621	94.82

*Treatment postmean is identical to treatment premean because no cases were discarded.

Table A 39. Covariate Balance Summary for Secondary School Sample (EQ2)

Covariate		Treatment premean*	Comparison premean	Premean diff	Comparison postmean	Postmean diff	Percent improvement postmatching
Student level	Propensity Score	.126	.022	.037	.091	.034	66.98
	Math2011	-.210	.013	.992	-.217	.007	96.85
	RLA2011	-.275	.012	.991	-.181	-.094	67.30
	Race	.062	.071	.256	.052	.010	-26.85
	LEP	.001	.004	.065	.002	-.001	64.49
	SPED	.122	.109	.312	.114	0.005	38.22
	S_LSES	.587	.427	.494	.568	0.019	87.87
	Gender	.563	.502	.500	.548	0.014	75.54
School level	Enroll	692.833	967.844	453.106	666.754	26.078	90.51
	LSES	36.321	44.702	10.019	36.661	-0.340	95.94
	Math2012	38.603	48.065	9.517	39.616	-1.012	89.29
	RLA2012	58.137	43.693	10.375	57.075	1.061	92.64

*Treatment postmean is identical to treatment premean because no cases were discarded.

Appendix D. Evaluation Question 3. Impacts on Student Attendance

Tests of statistical significance

We conducted paired *t* test analyses to examine whether within-group changes in attendance rates over time were statistically different from zero. Table A 40 provides an overview of the differences in total absence rates by programmatic level for the treatment group. Notably, the treatment group's change in total absence rates was not statistically significant for any of the three programmatic levels. As a point of contrast in high schools, the comparison group's average total absence rate increased from 7.0% in 2010–2011 (SD = .06) to 7.9% in 2011-2012 (SD = .07). This increase in absenteeism was statistically significant $t(874) = 4.041$, $p < .000$.

Table A 40. Tests of Significance in Total Absence Rates Over Time for Treatment Group

Programmatic level	Mean (2012 rate – 2011 rate)	*sd*	*t*	*df*	*p*
Elementary	-.001	.044	-1.145	863	.252
Middle	.003	.051	1.692	833	.091
High	.003	.064	1.718	874	.086

Table A 41 provides the same overview, but for differences in the treatment group's unexcused absence rates. We observed an increased unexcused absence rate for middle schools—a rate of 3.3% in 2010–2011 (*SD* = .03) to 3.7% in 2011-2012 (*SD* = .04). As is evidenced in Table X, this increase was statistically significant. No other statistically significant changes were observed within the treatment group. However, we should note that in high schools, the comparison group experienced an increase in unexcused absence rates from 2010–2011 (*M* = 3.9%, *SD* = .04) to 2011-2012 (*M* = 4.2%, *SD* = .05). This difference was statistically significant $t(874) = 2.175$, $p = .030$.

Table A 41. Tests of Significance in Unexcused Absence Rates Over Time for Treatment Group

Programmatic Level	Mean (2012 rate – 2011 rate)	*sd*	*t*	*df*	*p*
Elementary	.001	.029	1.172	863	.242
Middle	.003	.041	2.62	833	.009
High	-.001	.052	-.865	874	.387

Chi square tests conducted in ancillary analyses

This section includes information about significance testing used in ancillary analyses related to changes in student attendance. In this report, we calculated the odds ratio to represent the odds of being identified as *at risk* based upon membership in the treatment group. For example, the first row of Table A 42 indicates that in 2011, elementary school students in the treatment group were approximately 1.2 times more likely to be identified as at risk than their counterparts in the comparison group. The second row indicates that in 2012, the same students were again 1.2 times more likely to be identified as at risk. The column labeled "*p*" indicates the significance criterion for each year. Since for both rows the value is greater than .05, it is clear that neither difference was statistically significant.

Table A 42. Tests of Significance for *Significantly At Risk* Identification Based Upon Group Membership Over Time (Total Absences)

Test	χ_2	*df*	*p*	Odds Ratio*
Elementary 2011	2.72	1	.099	1.24
Elementary 2012	2.65	1	.103	1.23
Middle 2011	.021	1	.886	1.02
Middle 2012	.034	1	.855	0.97
High 2011	3.11	1	.077	1.10
High 2012	.733	1	.392	1.09

*In this table the odds ratio represents the odds of being identified as at risk based upon membership in the treatment group.

Table A 43. Tests of Significance for *At Major Risk* Identification Based Upon Group Membership Over Time (Total Absences)

Test	χ_2	*df*	*p*	Odds Ratio*
Elementary 2011	.468	1	.494	1.26
Elementary 2012	.031	1	.860	1.06
Middle 2011	.220	1	.639	.89
Middle 2012	.343	1	.558	1.14
High 2011	7.95	1	.005	1.83
High 2012	.539	1	.463	1.14

*In this table the odds ratio represents the odds of being identified as at risk based upon membership in the treatment group.

Table A 44. Tests of Significance for *Significantly At Risk* Identification Based Upon Group Membership Over Time (Unexcused Absences)

Test	χ_2	*df*	*p*	Odds Ratio*
Elementary 2011	2.03	1	.154	1.44
Elementary 2012	.453	1	.501	1.19
Middle 2011	.344	1	.558	.89
Middle 2012	.137	1	.711	.93
High 2011	7.47	1	.006	1.54
High 2012	2.50	1	.114	1.27

*In this table the odds ratio represents the odds of being identified as at risk based upon membership in the treatment group.

Table A 45. Tests of Significance for *At Major Risk* Identification Based Upon Group Membership Over Time (Unexcused Absences)

Test*	χ_2	*df*	*p*	Odds Ratio**
Middle 2011	2.92	1	.087	.41
Middle 2012	.630	1	.427	.72
High 2011	4.66	1	.031	2.11
High 2012	.430	1	.512	1.24

*Elementary school students are not included due to low cell counts impacting the reliability of estimates.
**In this table the odds ratio represents the odds of being identified as at risk based upon membership in the treatment group.

GLOBAL21

Students deserve it • The world demands it

West Virginia Department of EDUCATION

James B. Phares Ed.D.
State Superintendent of Schools