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Supporting School Wellness Policices Through Game On! Implementation in 13 High-Need Connecticut Schools

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**SUPPORTING SCHOOL WELLNESS POLICIES THROUGH GAME ON!
IMPLEMENTATION IN 13 HIGH-NEED CONNECTICUT SCHOOLS**

Sarah M. Bourque

B.S. University of Connecticut, 2009

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of
Master's of Science at the University of Connecticut 2011

APPROVAL PAGE

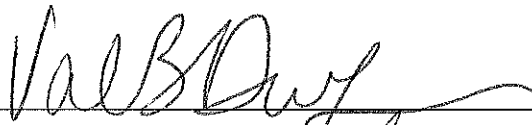
Master of Science Thesis

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Presented by

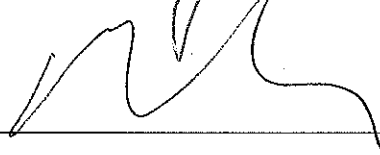
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Introduction

Action for Healthy Kids is a national non-profit organization whose mission is to combat childhood obesity and promote academic achievement through school wellness programs. Game On! The Ultimate Wellness Challenge is an Action for Healthy Kids program that targets elementary school students. It is a no-cost step-by-step online guide for schools to utilize when implementing wellness programs. Game On! provides schools with the information and resources needed to host a successful school wellness program. The program follows an ecological model and targets students, school staff, school environments, and the extended community with social marketing. Game On! is a flexible framework that allows school staff to plan and implement activities that emphasize healthy eating and physical activity in schools and throughout the community.

Game On! The Ultimate Wellness Challenge was piloted during the 2008-2009 school year in 20 schools throughout Ohio, Florida, Michigan, New Mexico, and Arizona. Of the 20 schools, 30% were classified as urban. Only 5 schools had a free and reduced price lunch rate of greater than 50%, meaning only those 5 schools served free meals to all students. Caucasian students accounted for approximately 50% of pilot study participants.

The Connecticut Action for Healthy Kids state team reached out to the department of Allied Health at the University of Connecticut to implement Game On! in Hartford Public Schools during the 2009-2010 school year. Funding for the project was donated by Stop and Shop Supermarkets. The Hartford Game On!

project was the first time the program had been implemented in low-income, urban schools with a diverse ethnic population. All of Hartford schools had a free and reduced price lunch rate of greater than 50%, all are in an urban setting, and about 90% of the student population was Hispanic or Black.

The first part of this thesis follows Game On! implementation in Hartford during the 2009-2010 school year. A Graduate Assistant in Allied Health served as the Project Coordinator. Schools received coaching and tailoring of program activities to meet the unique needs of each school. UCONN provided schools with social marketing materials, as well as individual student and school incentives. The project was evaluated through direct observation, verbal feedback, and program reach.

The second part of this thesis evaluates year two of the Game On! project. The 2010-2011 Game On! project reached Hartford, Windham, and Norwich schools. Identical program structure and implementation methods used during year one of the project were used during year two. Year one verbal feedback and direct observation data was considered by the Project Coordinator, but did not affect program structure or methods. The third chapter describes the 2010-2011 Game On! Project which evaluated change in school wellness environment among the three participating school districts with quality of partnerships between UCONN and those districts. The second phase of Game On! assessed the impact quality of partnerships had on school wellness environment change. The fourth and final chapter of this thesis addresses the overall findings from the Game On! project. It

also discusses future directions for creating sustainable wellness programs within schools and a new model for Action for Healthy kids to follow when implementing programming in diverse, high-need schools.

CHAPTER I

Introduction

Study Aim

According to the Centers for Disease Control, childhood obesity rates have tripled over the past 30 years. Currently, around 20% of children age 6-11 are obese, compared to 6.5% in 1980 [8]. Overweight and obesity can lead to numerous chronic diseases, including hypertension, coronary artery disease, type 2 diabetes, arthritis, sleep apnea, and certain cancers. Approximately 61% of overweight children have at least one risk factor for heart disease [9]. Addressing overweight and obesity early in life is critical, as 70-80% of overweight and obese children are likely to become overweight and obese adults [8,9].

Numerous studies have examined the impact of school-based interventions on change in student health behavior. However, many of these interventions take a top-down, one-size fits all approach with less attention to differences among schools. As a result, wellness programming often disappears with the end of the formal intervention and schools are unable to sustain the programming to the unique needs of their students and community. A need exists to identify the unique factors that impede and encourage school-based wellness programming in low-income schools. Identifying these factors would allow for the creation of a multi-dynamic model on how to tailor wellness programming to fit specific school environments.

This thesis focuses on an intervention to promote a healthy diet and adequate physical activity for economically disadvantaged school-aged children and their families

through school-based wellness interventions and community partnerships. The school setting can offer children a number of opportunities for nutrition and physical activity. The key is to understand the barriers (challenges) and facilitators (opportunities) for nutrition and physical activity programming for a sustainable wellness environment in low-income schools. This thesis also aims to provide a framework for school wellness program implementation and sustainability.

Background

This background will review scientific literature on how poor dietary quality and physical inactivity contributes to obesity risk among children, especially those living in low-income areas. It will also address standards for nutrition and physical activity in schools and identify examples of how those standards are being met. Models of school-based interventions that aim to improve nutrition and increase physical activity will be reviewed with attention to those that address issues of sustainability.

Current Dietary and Physical Activity Recommendations for Children

The 2010 Dietary Guidelines for Americans recommends that people age 2 and older maintain energy balance through adequate nutrition and regular physical activity [1]. Americans should focus on consuming nutrient-dense foods like fruits and vegetables, whole grains, low-fat dairy, lean meats and poultry, eggs, beans and peas, and nuts and seeds, while limiting intake of sodium, saturated fat, refined grains and added sugars [26]. More specifically, less than 10% of daily calories should be from saturated fat and added sugars should be limited as much as possible. According to Healthy People 2020, good nutrition is important to the growth and development of children. A healthful

diet helps reduce the risks for many health conditions, such as overweight/obesity, diabetes, coronary artery disease, hypertension, and cancer [2].

The Centers for Disease Control (CDC) 2008 Physical Activity Guidelines for Americans reports that children ages 6-17 require at least 60 minutes of moderate physical activity each day (ref). Moderate exercise for children can include brisk walking, riding a bike, dancing, roller-skating, jumping rope, hopscotch, helping with yard work or household chores at home, and playground activity [3]. According to the CDC, physical activity can reduce the risk of developing obesity or chronic diseases like cardiovascular disease and diabetes. The long-term cost of physical inactivity is high and is significantly associated with overweight/obesity, chronic disease, and premature death [4, 31]. As physical activity and proper nutrition have been identified with preventing obesity, chronic disease, and improving overall health, it is imperative for school-aged children to have access to and learn positive eating and physical activity behaviors.

School-aged children are not meeting dietary and physical activity recommendations

Children between ages 6-19 consume, on average, less than half the daily recommended minimum servings of fruits [7]. Children age 6-11 consumed slightly over half the recommended minimum servings of vegetables, but over one third of those accounted for were French fries [7]. A study by Bradlee et al evaluated data from the National Health and Nutrition Examination Survey (NHANES) III and found that children with a BMI greater than 85th percentile consumed fewer servings of dairy, whole grains, and fruits and vegetables than those whose BMI was less than the 85th percentile

[9]. Often, servings of fruits, vegetables, whole grains, and low-fat dairy are replaced with less nutritious, more caloric foods and can lead to overweight and obesity [10].

The school meal environment can have large impact on improving the fruit and vegetable intake among children. USDA meal programs, like the National School Lunch Program, School Breakfast, and after-school snacks, are required to serve lunches that are consistent with recommendations from the Dietary Guidelines for Americans 2010 [13]. The guidelines recommend avoiding oversized portions, make half of the plate fruits and vegetables, make half of grains whole, choosing lower sodium and added sugar foods, drinking water instead of sugary beverages, and vary protein choices weekly [13]. In addition, lunches must provide, on average over each school week, at least 1/3 of the daily Recommended Dietary Allowances for protein, iron, calcium, and vitamins A and C. Under the new guidelines, schools are also required to reinforce healthy messages through school wellness initiatives. The National School Lunch Program and School Breakfast can positively impact the school wellness environment by exposing students to healthy foods, improving their intake of recommended foods, and increasing the knowledge and skills on following a healthy diet [14].

Children are also not meeting physical activity recommendations. It is recommended children are active for at least one hour (60 minutes) each day [16]. According to the CDC's 2009 Youth Risk Behavior Surveillance Survey, only 23% of high school students were active for 60 minutes on at least one of the seven days before the survey [16]. Only 11.4% of girls and 24.8% of boys were active at least 60 minutes each day.

Increased consumption of snacks, caloric beverages, and fast food combined with physical inactivity is directly associated with weight gain and obesity among children [6]. Not all children have equal access to healthy foods and opportunities for physical activity at home, which can create a challenge for families with limited access. Income level, location, and cultural and educational factors can potentially create barriers to accessing a balanced diet and physical activity at home. Schools do have the opportunity, however, to reach children from all cultures, income levels, and locations and provide them with access and education on healthy behaviors.

Diet quality and physical activity among low-income children

Food choices are affected by numerous variables, including production, supply, and foods acquired [10]. What foods are acquired is influenced by cultural, demographic, educational, and environmental factors. Factors like time, cost, access, and food preparation can serve as positive or negative influences on diet quality [10]. Typically, families with lower income and educational status consume fewer healthful foods, like fruits and vegetables, because they face greater barriers of consumption like cost and access. [7,30]. The CDC's National Health Interview Survey showed the highest obesity rates to be associated with those living at the lowest income and education levels [11].

According to nationally-representative data, childhood obesity disproportionately affects low-income and minority children compared to their upper-income counterparts [12]. Many low-income families face food insecurity. Food insecurity is defined as "limited or uncertain availability of nutritionally acceptable or safe foods" [7]. In 2009, 17.2 million American children were living in food insecure households [13]. Food

insecurity has been associated with lower diet quality and greater consumption of lower cost, energy-dense foods [7,31]. Issues with safety and access to exercise facilities also create barriers for many children in low-income communities to receive adequate physical activity [14]. Based on these findings, children living in families with low income and educational level are at an especially high risk of becoming overweight and obese.

The Child Nutrition Reauthorization Act of 2004 includes provisions for children of families who receive Supplemental Nutrition Assistance (SNAP). Under this law, these children have access to free school meals without the family needing to complete additional paperwork through the school. By making this amendment, the Child Nutrition Reauthorization Act of 2004 removed one major barrier to receiving free school meals and made nutritious foods more accessible by those children who need it most.

It is crucial for low-income children to have access to environments that support good nutrition and physical activity, as well as provide an education to children and families on how to carry out healthy behaviors in their homes.

School Environment and Childhood Obesity

Interventions to improve dietary intake and increase physical activity for children can focus on the school, home, and community. Schools are an especially key environment to reach children, since approximately 95% of American youth of all ethnic and social classes are enrolled in school [17]. Students spend, on average, six hours each

weekday in a school setting. Many children also consume breakfast and lunch in their school cafeterias each day. School nutrition and physical activity programs have been found to improve student's eating and exercise behaviors [16]. Cafeteria food environments, classroom health education, physical education, and recess are four of the major areas where wellness activities take place.

School Wellness can be defined as policy, environment, and curriculum efforts made within local school systems to establish regular physical activity, health education, and support access to healthy food choices [16]. These efforts can help address the increase in childhood overweight, help reduce children's risk for chronic diseases and ensure that children receive the nutrients they need for good health. Schools enforce wellness through local wellness policies [5]. Typically, these policies set goals and standards for school wellness, including nutrition and physical activity [5]. The following section will address the federally mandated school wellness policy, as well as recommendations for enforcing such policies.

Recommendations for School Nutrition and Physical Activity Policies

Each local agency participating in a program authorized by the National School Lunch or Child Nutrition Act of 2004 is required to establish a Local School Wellness Policy by 2006 [5]. Wellness policies were required to set goals for nutrition, physical activity, and other school-based activities, set nutrition guidelines for school meals, and create a plan for measuring policy implementation.

The impact of federally mandated local school wellness policies on school wellness environment has been evaluated. One study examined the rates of implementing the wellness policies in Pennsylvania based on a wellness policy checklist completed by school district representatives [17]. Between 85-100% of schools met goals for nutrition education and physical activity. However, the most common policy goals were very broad and general, making them difficult to achieve and evaluate. This finding suggests schools may need assistance in refining their goals, developing action plans, and evaluating policy implementation. School staff also reported the superintendant and food service director as being responsible for enforcing wellness policies. District-level faculty may not be able to adequately enforce wellness policy initiatives at school level. The study suggests greater emphasis should be placed on engaging staff as the school and district level. By placing the responsibility of school wellness at the local level, schools have the ability to tailor wellness programming to meet their individual needs [17].

The Connecticut State Department of Education has created a comprehensive guideline for school districts to follow when developing and implementing local policies to promote healthy eating and physical activity initiatives [18]. The Action Guide for School Nutrition and Physical Activity Policies also ensures schools meet national and state recommended guidelines and school wellness policy requirements of the U.S. Department of Agriculture. The Action Guide translates research-based policy development concepts and models into real –life strategies that work at the local level. It was created based on the experience of ten Connecticut Public School districts [18].

The Action Guide provides implementation guidance for nutrition and physical activity policy development. Recommended nutrition policies include: standards-based sequential nutrition education

- ❖ connecting with existing curriculum
- ❖ educational links with schools, professional development for teachers
- ❖ education reinforcement
- ❖ nutrition promotion
- ❖ staff awareness
- ❖ staff members as role models [19].

The Action Guide recommends using Connecticut's State Department of Education Healthy and Balanced Living Curriculum framework for nutrition curriculum development in school health and physical education classes. The guideline recommends nutrition education should improve student knowledge of nutrients, healthy eating, principles of weight management, and food safety. Additional educational recommendations include increasing nutrition related skills, like healthy meal planning, understanding food labels, and how to develop lifelong healthy habits [19]. Educational policies should be consistent with the Dietary Guidelines for Americans, be culturally relevant, developmentally appropriate, and engage families as partners in education [18,19]. The Action Guide also recommends following the CDC's Coordinated School Health model in policy development. The Coordinated School Health Model integrates health and physical education, health and nutrition services, healthy school environment, and parent/community involvement [19].

The school environment is cited throughout the Action Guide as an important setting for reinforcement of wellness messages. Suggestions on reinforcement strategies include providing low-fat, low-sodium foods in vending machines, providing healthy foods at school meals, connecting school menus with health curriculum and after school programs, and having school staff serve as role models through their own healthy behaviors. Unfortunately, schools often lack the resources to adequately implement and support school wellness programs. Limited finances, time, and personnel can stand in the way of school wide wellness programs reaching their full potential. The action guide indirectly addresses this and recommends collaborating with non-profit organizations to strengthen and support wellness activities.

The Action Guide for School Nutrition and Physical Activity Policies uses a top-down approach, where recommendations are made on how to create and implement wellness policy goals [18]. Local wellness policies are carried out by school administration and staff and supported by school wellness councils. For many school districts, however, wellness policy implementation can be a challenge. High demands are placed on schools to achieve academic success with limited resources. Wellness activities can be viewed as an optional or lower-priority activity as many schools aim to meet other requirements, first. Non-profit organizations, along with state and federally-funded agencies, can provide the external support needed to launch and sustain school-based wellness programs. They can provide additional funding and expertise needed to carry out wellness policy goals.

SNAP-Education is one such federal program. The Supplemental Nutrition Assistance Program (SNAP) has an educational component that also provides nutrition

and wellness interventions to low-income families receiving SNAP benefits. The goal of SNAP-Ed is to improve the likelihood that SNAP eligible families will make healthy food choices within a limited budget and choose physically active lifestyles consistent with current Dietary Guidelines for Americans [20]. SNAP-Education at the University of Connecticut partners with elementary, middle, and high schools to bring nutrition education to low-income children and their families SNAP-Education also often partners with non-profit organizations, like Action for Healthy Kids, to improve children's health through providing free or low-cost school based wellness programs. Action for Healthy Kids is a network of both staff and volunteers throughout the country who engage and empower school staff and community members to create sustainable, positive changes in school environments.

School Based Interventions to improve diet quality and physical activity

Action for Healthy Kids – Game On!

Action for Healthy Kids is the nation's leading non-profit and largest volunteer network fighting child under-nutrition and obesity. It is a collaboration of 70 organizations and over 20,000 members across the country. The organization was founded in 2002, after former U.S. Surgeon General Dr. David Satcher made a public call to action to work with schools to fight the national epidemic of childhood obesity [21].

During the 2009-2010 school year, Action for Healthy Kids reached 4.5 million

students in 9,200 schools with their various school-based wellness programs [21]. Figure 1 illustrates the components of the Action for Healthy Kids model for preventing childhood obesity and promoting academic achievement. The organization utilizes the school environment, communications, and building community networks to implement programming. They help schools to improve quality of meals, enhance nutrition education, increase physical activity, and increase opportunities for wellness. They are able to make sustainable changes in schools through partnerships with businesses, non-profit groups, and community members. Action for Healthy Kids follows a model that addresses the multiple challenges facing children's health, including poor nutrition and physical inactivity, through fostering healthy school environments, communicating effective methods, and building support systems.

Figure 1. Action for Healthy Kids Model for Healthy Kids [22]



Action for Healthy Kids has school-wellness programs geared towards all age groups – from Kindergarten through high school. Game On! The Ultimate Wellness Challenge is geared toward elementary students, while Fuel Up to Play 60 reaches middle schools and Students Taking Charge is a high-school program. All three programs are accessible through the Action for Healthy Kids website and provide resources to help schools assess their wellness environment, develop appropriate goals, and implement wellness programming [21].

Game On! The Ultimate Wellness Challenge is a no-cost step-by-step online guide that provides all the information and resources to host a successful school wellness. The program addresses nutrition and physical activity through two sections - Eat Better and Moving More. The Game On! framework features over 35 Eat Better and Move More activities, for students grades K through 6, that emphasize healthy eating and physical activity before, during, and after school. Each of the Eating Better and Moving More activities falls into one of the four topics, or “challenges.” The nutrition topics covered are fruits and vegetables, whole grains, low-fat dairy, and MyPyramid and physical activity topics focus on exercise before, during, and after school [23].

Game On! Pilot Study 2008-2009

The Game On! demonstration project was completed during the 2008-2009 school year and involved 20 schools from five states – Arizona, Florida, Michigan, Ohio, and New Mexico. Participating schools ranged from rural to large urban, with about 45% of

school classified as suburban, 30% as urban, and 25% as rural or small town [23].

Approximately 70% of schools had a free and reduced price lunch participation rate greater than 25%. Seventy-five percent of the demonstration schools were elementary schools serving kindergarten through fifth or sixth grade. The remaining schools served students in 6-8th grade and K-12.

Pre and post-program surveys were collected among students at each of the twenty participating schools. Four of the five states showed significant positive change from pre to post-survey in knowledge of recommended serving sizes for fruits and vegetables, whole grains, and low-fat dairy. Significant positive change was also observed in students self-reported liking of focus food groups and consumption of those same groups [24].

School Coordinator interviews were also conducted. Coordinators in 17 of the 20 schools reported their schools were implementing a district or school wellness policy, while 15 of the 20 schools reported their school had a wellness policy committee. Twelve of those fifteen school wellness committees were involved in Game On! implementation [24].

Half of participating schools claimed the activities were their key successes from Game On!. Another success cited was the school's ability to provide incentives for students through Game On! funding. Funding was mentioned several times as a key success for schools, as it allowed for them to implement challenges and provide prizes for students and the school. Improvement in students' attitude towards healthy eating and exercise was another major program success.

School coordinators were also asked to report program barriers. Four of the twenty pilot schools reported limited time as a major barrier. Many of the school personnel

involved in Game On! already had a full set of responsibilities, and the addition of Game On! proved to be difficult. Several schools even reported that the coordinating position could be a full time job on its own. Four schools also reported a need for more volunteers to supervise Game On! events. Schools used strategies like reaching out to community and parent volunteers to overcome barriers [24].

School Coordinator interviews concluded with recommendations for improving Game On!. The majority of schools reported the need for funding to support programs and incentives. Pilot schools also felt support from school administration was necessary to build a team and run the program. Those schools without support struggled with program implementation. Equally as important, schools need to identify their unique needs and resources available within their community so program activities can be adjusted appropriately.

The pilot study measured attitudes and knowledge of individual students, as well as barriers and facilitators to implementing the Game On! program. While students' behavior changes and reporting from project coordinators is vitally important to illustrating program impact, the evaluation is often short-term.

School Wellness Interventions

Researchers Probart et al (2006) implemented a school-based intervention in Pennsylvania that focused on school environment and policy changes [37]. The statewide intervention, Project PA, was a collaboration between the Pennsylvania Department of Education, Division of Food and Nutrition and the Pennsylvania State University

Department of Nutritional Sciences in response to the School Meals Initiative for Healthy Children. This initiative made it mandatory for school meals to meet Nutrient Standards and the US Dietary Guidelines and required the training of food service employees. The intervention focused its efforts on studying and supporting school policy and environment changes through educational training for employees, local workshops, video and print materials, and a train-the-trainer food service program. Two mini-grants were donated during the intervention to assess school nutrition environments, develop nutrition policies, and implement strategies to encourage students to make healthier food choices. Two team researchers reviewed each of the twenty-two schools' reports to identify common themes. Some of the common themes found included an identified weakness in marketing and communication of wellness policies, understanding the necessity for developing a way to assess wellness projects' success, administrative support was critical in instituting policy changes, the media helped facilitate policy changes, time and cost were cited as barriers to program implementation, and finally wide variability among schools' success of making environmental changes existed. These findings could be used as a guideline of factors to consider when enforcing wellness policies in schools.

In the "Shape up Somerville Experience," Goldberg et al (2009) implemented a school-based wellness program with a focus on improving the food service environment [28]. The "Shape up Somerville: Eat Smart, Play Hard" program took place in Somerville Public Schools, Massachusetts. The program goal was to balance energy intake with output among early elementary school students by making small changes in school and community environments. Over 60% of the school students qualified for free or reduced-

price meals, and 50% of the student population belonged to an ethnic/minority group. Focus groups were held with school employees, students, and parents prior to program implementation to set goals for change. Topics discussed included dietary behaviors, feelings about school food, and input on potential program activities. Focus group information was combined with information from interviews with the Food Service director to create the food service intervention. The nutrition intervention included meal changes, professional development, and improving communication strategies.

Focus group participants expressed an interest in improving the health and quality of meals at school. After menu analysis, breakfast cereals and fresh produce at breakfast were named as two areas for possible improvement and menu changes were made. Sugary cereals were replaced with high-fiber, low-sugar choices on Fridays and fresh fruit was served at breakfast daily. Side salads were offered once each week and main entrée salads were offered as an alternate three times each week. Outdated equipment was also identified as a barrier to preparing healthy foods. About \$35,000 was spent on purchasing new kitchen equipment and staff was trained on how to prepare fresh produce.

Focus groups identified a need to communicate with parents and the school community about healthy behaviors. Food Services collaborated with the local media and classroom teachers to display nutrition information, recipes, and held monthly taste tests highlighting healthy menu options. Parent newsletters providing nutrition information were also sent home with students. This social marketing strategy was used to increase student awareness and exposure to healthy menu options and increase acceptability.

School meal changes were evaluated through direct observation, surveys, and sales tracking. Food service staff was given a pre-intervention survey to assess knowledge on preparing fresh produce, as well as gauge their opinions on healthy eating initiatives. Taste tests were evaluated by students and parents – students were asked to vote for foods they would like added to the menu and parents were sent home a survey on their awareness of school nutrition changes.

Total cafeteria sales decreased when healthy menu options (high fiber, low sugar cereal, oatmeal, vegetarian options, salads) were initially offered. However, sales returned to pre-intervention levels and were maintained by the end of the school year. By the end of the year, 90% of school staff believed students enjoyed the taste test events. Food service staff also reported that new healthy menu options required more work on their part but they were optimistic about student acceptance and encouraged to continue. About 55% of parents reported knowledge of menu changes and nutrition activities at their child's school.

This study illustrates that small changes can be made to improve the nutrition of school meals while still meeting the guidelines, despite many constraints. Support of the Food Service Director and managers were cited as key elements for the program's success. Local food vendors donated a majority of produce served and new kitchen equipment was purchased through the research grant. This may not be a feasible option for many school districts, so the study may not be generalized to budget-restricted school districts.

A study by Johnston et al. (2009) illustrated how to create a sustainable school wellness environment through the School Lunch Program [14]. The intervention took place during the 2007-2008 school year in Broome and Tioga Counties in New York State, where 40% of children qualify for free or reduced price lunch. Broome and Tioga Counties participated in *Steps to a Healthier New York*, a state-funded program to reduce the risk of chronic disease and promote health through evidence-based community programs. *Steps to a Healthier New York* programs included the “Power up with Breakfast” program, “Give me Five” campaign, “Step it Up! For Health and Wellness” program, the “Rock on Café” program, and school wellness policy development. Each of the *Steps* programs used social marketing and environmental changes to promote healthy eating and make better food choices more available at school. Wellness policy development involved schools following the New York State School Nutrition Association’s “Choose Sensibly” guidelines. These policies included healthy meal options, nutrition regulations for a la carte items, food safety, fund-raising and concessions at school events, and classroom refreshments.

A regional planning team was formed to implement and enforce *Steps* programs in the fifteen participating school districts. The team included Food Service Directors (FSD) and a consultant dietitian. Program implementation began with a food procurement initiative, which consolidated the bidding of food items across all participating school districts. A standardized six-week regional menu was also created for all participating districts. One bid from all districts leveraged buying power; so healthier food items (fresh fruits/vegetables, low-fat, whole grain items) were more affordable. The intervention also included recipe development, where cafeteria staff was trained on how to prepare new

recipes and students taste-tested food items. Only items approved by students were added to the standardized menu. The dietitian performed nutritional analyses of all food items available in schools, participated in menu planning, and offered consulting services to participating school districts. For a \$5,000 fee, school districts received consolidated bidding on food items and 25 hours of nutrition consultation services. A final and important intervention component was branding and social marketing. “Rock on Café” logos were created for the elementary and high schools. Logos were placed on school websites, monthly menus, packaged foods, and on flyers with nutrition tips. Seasonal menu themes were employed and menu items were announced to students during daily announcements. A public relations campaign announced wellness events through television, radio, and local school district web pages.

The program was evaluated using a pre-post design – data from menu analysis, food purchases and costs, lunch participation rates, media reach measures, and surveys of FSDs were analyzed. Results found no net increase in overall food expenditures occurred, as savings were spent on purchasing foods with greater nutritional value. School lunch participation also increased 3% in the first month. All FSDs rated the overall program as good to excellent and they indicated they were looking forward to continuing the program next year. Most FSDs (71.4%) identified the use of registered dietitian services and consolidation of food procurement as most valuable, and 85.7% reported their administrators found the program to be valuable.

Limitations include an ethnically and racially homogenous population, which limits its generalizability to other populations. Also, evaluations were done over a short period of time with limited funding. Strengths include the program’s sustainability –

through organizational memory and institutionalized standards, school districts continue to use the standardized cycle menu, expand marketing ideas, and enforce program activities.

All schools are required to have a school wellness policy. Schools are often not held accountable for wellness policy implementation, though, and many times policy goals are not met. A need exists to assist schools with implementing wellness policies and achieving wellness goals. The need also exists to tailor school wellness programs to meet the unique needs and characteristics of a particular district.

Study Goals

The goals of this study are to assist schools in enforcing local wellness policies through a partnership with the University of Connecticut's Department of Allied Health, and create a tailored framework for school wellness program implementation in participating schools.

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CHAPTER II

Creating an organizational framework for school-based wellness programs in low-income, urban schools

Abstract

Objective: To identify existing barriers and opportunities in implementing a school-based wellness program in a low-income, urban school district, as well as to identify strategies to overcome barriers. **Design:** A 9-month qualitative descriptive study.

Participants: A convenience sample of the administration and school staff of six Hartford Public Schools in Hartford, Connecticut. **Intervention:** Action for Healthy Kids reached out to the Department of Allied Health Sciences (AHS) at the University of Connecticut to deliver a school-based wellness program in nine Hartford Public Schools. Through the collaboration, a graduate assistant served as the Project Coordinator and undergraduate dietetic students provided program support. The University of Connecticut provided expertise and guidance needed to make Game On! possible. School staff worked with the Project Coordinator to implement school-based wellness activities via Game On! The Ultimate Wellness Challenge to students. The Game On! program included four one-month challenges. Each challenge focused on a different nutrition and physical activity topic. Schools were to engage students and parents in activities to reinforce the nutrition and physical activity messages for each challenge. Challenge activities included taste tests, distributing social marketing materials, physical activity and nutrition education lessons, tracking healthy eating and exercise, and rewarding students and schools for successes. The Project Coordinator met with the administration

and faculty to identify strengths and weaknesses in school's wellness activities, identify key school and community wellness collaborators, barriers and opportunities for implementation of the intervention, and creating a sustainable wellness initiative. The Project Coordinator made observations about the fidelity of the implementation of the intervention at each school. **Main Outcomes:** Approximately 1,500 students participated in Game On! activities. Collaborations between the University of Connecticut, Action for Healthy Kids state and national teams, End Hunger Connecticut!, Stop and Shop, and school faculty helped strengthen and support the Game On! implementation. University of Connecticut support was instrumental in program success and created a mutually-beneficial relationship between undergraduate dietetic students and participating Hartford schools. All schools successfully completed the four challenges and held pre and post program celebrations. Other successes included students reached with program activities and social marketing campaign, incentives for students and schools, and parent/community outreach. Program barriers were limited classroom time, limited administrative and food service involvement, and travel/food delivery complications for taste tests. School staff were provided with resources to allow for Game On! activities to continue during future school years. Several schools had faculty who were invested in the program and motivated to continue activities. Lack of food service support would make sustaining nutrition activities challenging. **Conclusion:** Universities can serve as a key collaborator with schools to provide wellness program expertise, management, and support. School-based wellness programs need buy-in from school administration and food services to reach full potential. Parent volunteers could support program activity

implementation and engage the community in wellness promotion. Creating a greater sense of school accountability may also increase program sustainability.

Introduction

According to the 2003-2004 NHANES Survey, 17.1% of American children and adolescents aged 2 to 19 are overweight [1]. Childhood obesity rates have been on an upward trend, with prevalence of obesity among children aged 6-11 more than doubling over the past 20 Years (6.5% in 1980 to 17% in 2006) [1]. Overweight and obese children are at significantly greater risk of developing obesity-related co-morbidities, like Type 2 diabetes, cardiovascular disease, sleep apnea, osteoarthritis, and some cancers. Overweight youth are more likely to become overweight adults, as well [2].

Childhood obesity disproportionately affects low-income and minority children, compared to their higher-income, Caucasian counterparts [3]. In 2006, 10.7% of Connecticut children lived in families with incomes below the federal poverty level. Of these families, 47% live in Hartford [4]. Over 50% of children in Hartford qualify for free or reduced-price school meals [5]. The low-income, urban food environment may not promote children's consumption of fruits and vegetables, as barriers regarding affordability and accessibility to these foods often exist [6]. Exposure to healthy foods, including fruits and vegetables, at an early age is critical. Early selection greatly influences food choices later in life [1].

Ecological models have been supported for the design and implementation of health promotion programs. Such an approach recognizes the dynamic interaction

between the individual and elements of the social and physical environment [7]. An ecological approach to obesity prevention should account for the multiple etiologies contributing to the problem. Specifically, educational and environmental strategies should be used in school settings [8.] The U.S. Surgeon General, World Health Organization, and Centers for Disease Control have identified environmental and policy interventions as promising strategies for creating population-wide improvements in healthy eating, physical activity, and obesity [9]. Various levels of intervention programming can be applied to an ecological model. Direct education targets the individual, while other, broadly reaching techniques, like social marketing, can change awareness and behavior among larger groups. Social marketing can be defined as the application of commercial marketing techniques (advertisements, commercials, etc) to reach non-commercial ends for society's well-being [10]. It is hypothesized that the immediate effects of social marketing, increased level of awareness, precedes behavioral change [10].

Ecological models can be applied to school-based interventions. The school environment fits into the ecological model. Students are the primary individuals and relationships among students are secondary groups. All students, teachers, and school staff make up the third level of interaction as the school community. The school then interacts with the greater society for a fourth level of influence. Numerous social marketing campaigns have been successfully used to promote positive behavior change among youth. Schools have been identified as a unique, key setting for childhood obesity prevention programs. School nutrition and physical activity programs have been found to improve student's eating and exercise behaviors [15]. Cafeteria food environments,

classroom health education, physical education, and recess are four of the major areas where wellness activities take place within the school. School Wellness can be defined as policy, environment, and curriculum efforts made within local school systems to establish regular physical activity, health education, and support access to healthy food choices [16]. These efforts can help address the increase in childhood overweight, help reduce children's risk for chronic diseases and ensure that children receive the nutrients they need for good health.

One example of a social marketing campaign is the VERB project. VERB was a national mass-communication campaign from 2002-2003. The campaign used television, print, and radio as primary communication channels and messages were supported through community, school, and internet secondary messaging. [18] The VERB campaign aimed to increase physical activity among children age 9-13. A study by Huhman et al evaluated first year campaign impact [18]. A cross-sectional analysis of a population exposed to the campaign was assessed. Children aged 9-13 were asked a series of questions to assess level of campaign awareness and understanding of campaign messaging. Participants were identified as having unprompted awareness if they could name the VERB campaign, prompted awareness if they could only identify the VERB campaign, or no awareness if they could not name or identify the VERB campaign. Participants were also asked questions relating to campaign messaging and assessed as having either high, low or no understanding of the VERB campaign. From the analysis, 17% of participants had an unprompted awareness of the campaign, 57% had a prompted awareness, and 26% had no awareness. Understanding of campaign messages was associated with being a white female, being from a moderate-high income home, having

one parent with a college degree, and participating in regular physical activity. VERB campaign coordinators were able to identify initial effects and adjust messaging and media targets for the remainder of the project.

Action for Healthy Kids follows the ecological model and promotes wellness through social marketing. Action for Healthy Kids is the nation's leading nonprofit and largest volunteer network fighting childhood obesity. The organization addresses childhood obesity and undernourishment prevention by working with schools to help children eat healthy and exercise [22]. Action for Healthy Kids partners with families, communities, and business to support schools in their wellness efforts. They have multi-level support teams that connect schools to state teams and states to national resources. One of their school wellness programs, Game On! The Ultimate Wellness Challenge, promotes healthy eating and physical activity through morning announcements, parent letters, posters, classroom contests, and rewarding healthy behaviors. Action for Healthy Kids also distributes news to local and national media and takes part in national campaigns to fight childhood obesity.

School Wellness Policies

Action for Healthy Kids assists schools in implementing local school wellness policies. The Child Nutrition and WIC Reauthorization Act of 2004 required all schools participating in a federal school meal program to create a local wellness policy by 2006 [21]. The goal of the wellness policy is for schools to recognize the importance of promoting children's health through nutrition and physical activity. School wellness policies must include goals for nutrition education, physical activity, and other school-

based activities to promote wellness. Nutrition guidelines, community and parent involvement, and an evaluation plan must also be included in wellness policy language. While all schools are required to have wellness policies, they are not always held accountable for policy implementation. Wellness policy implementation is often a challenge for schools, with many facing limited financial and staffing resources and high demands placed on teachers.

A coding tool for school wellness policy evaluation was developed by the RUDD Center for Food Policy and Obesity at Yale University [20]. The School Wellness Policy Evaluation Tool measures the quality of school wellness policies by rating each of the 96 policy items within the seven policy sections on a scale of 0-100. Policies are scored in two areas, comprehensiveness and strength. Comprehensiveness measures the proportion of topics that are mentioned in the wellness policy, while strength measures the proportion of topics that are addressed with specific and direct language. Table 1 provides data from Connecticut's State Department of Education School Wellness Policy Evaluation results. The School Wellness Policy Evaluation tool was used to assess current wellness policies from each district in Connecticut [25]. Wellness policy categories were ranked on a scale from 0-100%. Each district's category scores were compared with average category scores for the entire state. Hartford Public School's wellness policy ranked higher than the state average in each of the seven policy categories [26]. Nutrition education received the highest score, while community and promotion received the lowest score. All of Hartford's policy categories ranked greater than 50 out of 100.

Table 1. School Wellness Policy Evaluation Scores Completed by CT Department of Education

Category	Hartford Score	State Score
Nutrition education	89	65
School meals	69	40
Other school food/beverage	76	67
Physical education	71	44
Physical activity	70	50
Community and promotion	58	45
Evaluation	83	59
Overall Score	74	53

² School Wellness Policy Evaluation report (based on ranking scale from 0-100%)

The School Wellness Policy Report only evaluates language of the wellness policy, not policy implementation. States have the power to determine if or how they will hold schools accountable for wellness policy implementation [20]. While Connecticut has reviewed the language of their wellness policies, little is mentioned on ensuring policies are being implemented [25]. Hartford's policy is highly ranked in all categories, but the school wellness environment may not reflect written policy. Collaboration with an

outside organization, like Action for Healthy Kids, can assist schools in overcoming barriers to wellness policy implementation and create sustainable wellness programming. The Game On! project aims to create wellness programming in Hartford schools and identify where barriers to enforcing wellness policies may exist.

Barriers to school wellness program implementation commonly exist. Barriers include any financial, environmental, knowledge/belief, or time factor that limits a student's access and exposure to wellness curriculum and activities within their school. Increasing pressures on schools to meet performance requirements on standardized tests has placed more emphasis on core curriculum subjects, resulting in less time for nutrition education and physical activity programs [28]. Limited financial resources to purchase wellness curriculum, wellness marketing materials, and physical education equipment have been identified as physical activity barriers. A national survey of nutrition education in K-5th grade found, on average, only 13 hours each school year were spent on nutrition education, where 50 hours/year has been cited as the minimum time requirement to change student behavior [24]. Daily enrollment in physical education also decreased from 42% of students in 1991 to 25% in 1995 and continues to decrease [18/24]. Despite limited classroom focus on nutrition education and physical activity time, students are still presented with an opportunity for healthy behaviors in the school cafeteria [25].

The National School Lunch Program serves as an opportunity to expose students to healthy foods, like fruits and vegetables, through school meals. School meals are required to meet the US federal government nutrition standards and foods are served in appropriate portion sizes [25]. The school cafeteria could increase student exposure to healthy foods, and in turn, increase student knowledge of and preference for these foods.

With continuous reinforcement of healthy eating behaviors, the school cafeteria can promote healthy eating behaviors and prevent obesity [26]. However, barriers often exist that limit school lunch programs from providing only healthy food options and make it difficult to provide reinforcement of healthy menu items. Fresh produce and healthier food choices can cost more than processed foods. While schools attempt to serve healthy meal choices, they are forced to work within an often limited budget. This can result in less healthful meals being served. Government programs, like the USDA Fruit and Vegetable Program, provide schools with funding for fresh fruit and vegetable grants [28]. Nonprofit grants for school wellness, like those from Action for Healthy Kids, can be used to purchase healthier foods for school meals.

While school districts may face barriers to enforcing school wellness within their own staff, outside collaborations may provide opportunities for wellness program support. School wellness opportunities include any community, higher education or organizational collaborations that remove barriers for school wellness activities and allow for increased exposure to healthy foods, nutrition education and physical activity for students. Partnerships with institutes of higher education and community health organizations can strengthen school based wellness efforts by providing expertise, funding, and materials needed for wellness activities [26].

Identifying existing barriers and opportunities for school wellness can help schools better tailor wellness activities to fit their learning environment, increase awareness among school staff of existing wellness environment, and serve as a motivator for schools to change and improve current wellness activities. Strategies to overcome existing barriers can be developed and implemented to achieve wellness goals. Some of

these strategies include collaborations with community partners and institutes of higher education, as well as creating networks among partners to unify and strengthen school wellness efforts.

School wellness environments can be assessed through direct observation and verbal reporting. Verbal reporting through focus groups and interviews provide critical information on perceived barriers and facilitators to wellness programming, as experienced by multiple populations (students, faculty, parents, etc) [7]. A study by Power et al. found that most adolescents demonstrated a limited understanding of what foods promote “healthy eating” and reported preference for high-density snacks [12]. Students, parents, and teachers reported that families, friends, and schools were major influences on physical activity and eating habits. Barriers to healthy lifestyles were family schedules, media, lack of money/transportation, and competitiveness of children’s sports. The focus group also revealed that one group often blamed another group for barriers to healthy behaviors (e.g. teachers blamed poor behaviors parents for poor monitoring and busy schedules). The difference in responses generated the conclusion that a wellness intervention should address educate individuals in each group on how they can impact healthy behaviors [12].

Objectives

The objective of the Game On! research project was to assist schools in fostering wellness policy implementation. Game On! aimed to do this by working with schools to identify opportunities and barriers to wellness program implementation and develop a tailored structure for wellness activities. Game On! had not previously been implemented in urban schools. One project objective was to identify barriers and opportunities to Game On! implementation in urban schools.

Methods

Design

The University of Connecticut and Action for Healthy Kids collaborated with Stop and Shop to provide funding for the Game On! Hartford project. Stop and Shop donated \$50,000 to the Connecticut Action for Healthy Kids state team to implement the Game On! program. Action for Healthy Kids then reached out to the Supplemental Nutrition Assistance Program-Education team in the Department of AHS at the University of Connecticut for program support. The SNAP-Education team was able to double the Action for Healthy Kids grant through the USDA's Food and Nutrition Service MATCH reimbursement for nutrition education funds. With the Action for Healthy Kids grant, UCONN funded one graduate assistant in the Department of Allied Health to serve as Project Coordinator and provided 36 undergraduate dietetic students with opportunities to deliver in-classroom nutrition education and support for taste tests.

Grant funding was also used to purchase food for taste tests at local Stop and Shop Supermarkets and school incentives through the Action for Healthy Kids online store.

A nine-month implementation and evaluation of Game On! the Ultimate Wellness Challenge began in September, 2009. The project was a short-term qualitative-descriptive study and included three months of recruiting and planning, four months of program implementation, and two months of follow-up evaluation. A Registered Dietitian and Graduate Assistant from the Department of AHS served as Project Coordinator. The Project Coordinator provided program support for schools and built community collaborations. Undergraduate dietetic students from UCONN served as paraprofessionals who delivered a portion of the wellness activities. Participating schools followed the Game On! The Ultimate Wellness Challenge program for implementing school-based wellness activities. The Game On! Program was evaluated through verbal feedback of activities provided by school staff and observations made by the Project Coordinator. The purpose of verbal feedback and observations was to identify potential barriers and opportunities for Game On! activities. The Project Coordinator also recorded the number and type of activities completed, and the number of students reached during the project, as process indicators.

Participants

Hartford Elementary Schools were targeted for the project, as the school district meets both low-income and urban standards defined by the researchers (See Table 2 for the demographic characteristics of each of the schools). The Hartford Public School's Food Service Director recruited nine schools for the Game On! program via email. Table

2 shows the demographic characteristics of each of the schools. Recruited schools were contacted by the Project Coordinator and initial informational meetings were held. Seven schools began the Game On! program in the fall of 2009. One school dropped out of the program after two months of participation due to a conflict among school staff. Six schools participated in the Game On! program through the end of the 2009-2010 school year.

Table 2. Participating Game On! Hartford School Census and Demographic Data (2009)

School Name	District	Type of School (Elementary, Middle, High, Other)	Rural, Urban, Suburban, or Small City	# of Students	Demographics of School					
Fred D Wish	Hartford Public Schools	Pre K-8	Urban	437	% Black	% Hispanic	% White	% Asian	% A. Indian	% Non- English Speaking Home
					54%	45%	0.70%	0.50%	0.00%	36.50%
RJ Kinsella Magenet School of Performing Arts	Hartford Public Schools	Pre-K-8	Urban	490	26.70%	65.40%	7.70%	0.00%	0.20%	56.40%
Parkville Community School	Hartford Public Schools	Pre-K-6	Urban	596	17.60%	70.10%	0.50%	0.00%	0.70%	60.50%
American's Choice at S.A.N.D	Hartford Public Schools	Pre-K-6	Urban	366	46.40%	53%	0.30%	0.00%	0.30%	30.70%
OPPortunity High School	Hartford Public Schools	High School	Urban	90	N/A	N/A	N/A	N/A	N/A	N/A
										* school is in 1st yr oper. no data a available
Hartford Magnet Middle School	Hartford Public Schools	Middle: Grades 6-8	Urban	602	33.20%	35.40%	29.10%	2.00%	0.30%	34.60%

Program Overview

Game On! The Ultimate Wellness Challenge

Game On! The Ultimate Wellness Challenge is a school-based wellness program created by Action for Healthy Kids. It aims to address childhood obesity via improved nutrition and increased physical activity. The Game On! program exposes children to healthy foods through taste tests and nutrition education and promotes exercise before, during, and after school physical activities. Game On! recognizes the impact school environment can have on children's physical and mental health [29].

The program consisted of four one-month challenges, with each challenge having a nutrition and physical activity component. Figure 1 illustrates the four challenges and their physical activity and nutrition topics. The first challenge focused on fruit and vegetables and promoted before-school physical activity. The second challenge focuses on whole grains and during-school physical activity while the third challenge is about low-fat dairy and after-school physical activity. The fourth, and final, challenge educates children about MyPyramid and how to set nutrition and physical activity goals.

Fig 1. Game On!
Challenges – Making
Better Food Choices,
Moving More



School staff utilized the Game On! website to access over 35 different activities and social marketing tools to utilize for each challenges. Typical activities included taste tests, walking clubs, tracking contests, in-class wellness activities. Each challenge was highlighted with posters, banners, morning announcements, and other marketing tools. Students are rewarded for their participation and recognized for their healthy behaviors at the end of each challenge, typically with award certificates and Game On! prizes.

Procedure

Orientation and Planning

Participants at each school attended a kick-off meeting where they were introduced to the Project Coordinator and oriented to Action for Healthy Kids and the Game On! Program. Orientation included distribution of folders containing a description of the program, an overview of the Game On! website, and a description of the partnership between the University of Connecticut for program implementation. A verbal description of the expectations of school staff was also discussed during the training session. Schools were expected to commit to monthly meetings, distribute any materials provided, and support the implementation of Game On! activities. The University of Connecticut agreed to provide all materials and supplies necessary for program implementation, undergraduates to provide direct nutrition education, as well as provide expertise and guidance for program activities.

Schools worked with the Project Coordinator to identify a “champion,” or a school staff member who is responsible for planning and engaging students in Game On!

activities. Champions were the school staff most closely involved with planning and implementing Game On! activities. Champions were recruited per their position, which typically related to health and wellness (e.g., Health or PE teacher). Of the six school champions, three of them were PE teachers and three held administrative positions. Champions at each school worked with the Project Coordinator to plan and implement school-based wellness activities. The Project Coordinator collaborated with state and national Action for Healthy Kids teams for project support. The Action for Healthy Kids state team met monthly for Game On! updates and to provide assistance with planning and implementation. Action for Healthy Kid's national staff provided materials, evaluation tools, and program support. The Project Coordinator also supervised undergraduate dietetic students from the University of Connecticut. Dietetic students were placed in Game On! classrooms to deliver direct nutrition education and assist with challenge activities.

University Student Involvement

The Game On! program not only aimed to benefit Hartford schools, but also to enrich the educational experience of university students. Undergraduate dietetic students from the University of Connecticut's Department of Allied Health were involved with project implementation. Approximately 36 junior and senior dietetic students each received at least 16 hours of experience assessing, planning, and implementing wellness activities in Game On! schools. A total of 780 Game On! supervised practice hours were had by both junior and senior dietetic students. The Game On! project provided valuable field experience and exposed students to new career possibilities in community and school nutrition. UCONN student involvement created even greater program

sustainability, as new students would be available each year to provide direct education and program support in Game On! schools.

Champion Meetings

Each school champion met with the Project Coordinator monthly to discuss any barriers and opportunities present with Game On! activities at the school. The Project Coordinator gave new materials for upcoming challenges. School champions reviewed the Game On! website with the Project Coordinator to identify future activities and set up a timeline for implementation. Champions were trained on how to implement Game On! challenges, collaborate with staff, inform students and the community, and overcome activity barriers. Training school champions was done to create sustainable programming and engage school staff in program activities.

Program Kick-Off

The program began with a kick-off celebration held at each school to introduce the Game On! program to school staff and students. Game On! signage was displayed throughout the school and a morning announcement was made to inform students of the upcoming program. The kick-off event was hosted by the Project Coordinator, school champion, and UCONN dietetic undergraduate students. All schools held a fresh fruit and vegetable kick-off where students could sample fruits and vegetables during lunch, receive prizes, and listen to music about healthy eating. A parent letter was sent home with students to inform families of the upcoming program.

Challenges

All six schools participated in each of the four Game On! challenges. Challenge activities addressed both nutrition and physical activity. Nutrition activities included taste tests, in-class nutrition education, and student healthy food tracking contests. Taste tests were typically held in the cafeteria and addressed individual student, student to student interactions, and the school environment. The Project Coordinator and UCONN undergraduate students set up a table in the cafeteria with samples of healthy foods. Foods varied from fresh fruits and vegetables, yogurt parfaits, low fat cheese, whole grain crackers and hummus, and air popped popcorn. During students' lunch, UCONN undergraduates distributed the healthy food to students and provided a brief explanation of the food and its health benefits.

Classroom teachers were provided with in-class activities for each challenge. In-class activities addressed the individual student knowledge and exposure to nutrition and physical activity, as well as impacted the school's wellness environment. Activities were encouraged, but not required. Teachers were provided with instructions for a tracking contest, where students recorded their healthy food choices and exercise each day for one month. Students used the Game On! Rookie Tracker for recording foods and activities. The students who had the best participation in filling out their tracing documents received a prize. Teachers were provided with Brain Breaks and Take 10 - classroom nutrition and exercise activities that are brief, age appropriate, and curriculum-based. An analysis of Take 10! effectiveness revealed brief, in-class activities increase calories burned and can be a useful strategy in promoting physical activity [30]

Physical education teachers organized walking clubs to promote physical activity during the school day. Students tracked the number of laps they completed during each walking session. Physical education teachers received foot charms to give to students who had reached certain distances. Walking clubs took place during free time, recess, and physical education classes. The Game On! challenges also focused on before and after school physical activity. The Project Coordinator reached out to Safe Routes to Schools, an organization through the Department of Transportation whose aim was to increase walking to school. However, Safe Routes to Schools was unable to gain support for walking to school programs due to a lack of parent volunteers. Teachers were unable to stay after school hours to supervise student recreational activities. Physical activity challenges took place only within the school day.

Challenge-specific social marketing materials were used monthly to expose the entire school community to nutrition and physical activity information and encourage behavior change. School cafeterias and gymnasiums were provided with informational posters and signs related to healthy eating and exercise. Schools received nutrition and physical activity tip morning announcements. Monthly parent letters were distributed by classroom teachers and sent home with students. Parent letters included low-budget recipes, nutrition information, and tips for increasing physical activity. Parent packets were provided in both English and Spanish.

University of Connecticut undergraduate dietetic students delivered direct, in-classroom nutrition education in both academic classroom and physical education settings. Education topics covered the four nutrition challenges, as well as the importance of exercise and how to exercise before, during, and after school. Each challenge

concluded by providing all levels of the ecological model with incentives for participation. Students received individual prizes, including Game On! water bottles, Frisbees, nutrition activity books, and certificates of participation. Schools received pedometers, walking club charms, playground equipment, posters, Take 10! Curriculum, and nutrition and physical activity themed games for the classroom and physical education. Parents and the community were rewarded with take-home information and activities. Incentives were not only provided to reward students and schools for completing challenges, but to provide schools with materials necessary to create sustainable wellness programming. All incentives were nutrition or physical activity related and could be reused by schools year after year to host wellness activities.

Challenge Course Event

Game On! concluded with a celebration and a challenge-course event. The challenge course event was an obstacle course held in each of the schools' gymnasiums. Students were given the opportunity to participate in the obstacle course in their physical education classes. The Project Coordinator, UCONN dietetic students, and the Physical Education teacher led students in a nutrition-themed warm up and then divided among the obstacle stations. Once each student had completed each station, they received a healthy snack and thanked for their participation throughout the program.

Table 3. Game On! 2009-2010 Program Timeline

Event	Description	Time
Recruiting schools	Phone interviews, e-mails	September - November 2009
Kick-off/initial meetings	Introduction to program, distribute materials, plan challenge 1, ID champion(s)	December 2009
Session 1	Champion meeting – review Challenge 1, plan challenge 2	January 2010
Session 2	Champion meeting – review Challenge 2, plan Challenge 3	February 2010
Session 3	Champion meeting – review Challenge 3, plan Challenge 4	March 2010
Session 4	Champion meeting – review Challenge 4, plan celebration	April 2010

Final Session	Champion meeting – review program	May 2010
TOTAL		9 months

Evaluation

Informal school champion verbal feedback was collected at monthly champion meetings to evaluate Game On! activities. Identifying barriers and facilitators to school wellness can help tailor programs to fit their school community and create sustainable change. Verbal feedback was collected from informal discussions with school champions to identify opportunities and barriers to program implementation.

Reporting program reach was another form of evaluation. The number of people reached through program activities can be an important indicator of the size of the program. The Education and Administrative Reporting System (EARS) is used to account for people reached through Supplemental Nutrition Assistance Program- Education activities [28]. It is an online database where information on SNAP-Education activities and participants is entered. EARS categorizes activities into two groups – direct and indirect education. Direct education is any information provided through a traditional lesson form, where a nutrition educator is verbally informing participants of healthy behaviors. Direct education typically takes place in the classroom. Indirect education includes any messaging delivered through exposure to ideas or behaviors, but does not

include the traditional lesson format. Indirect education often involves environmental changes, like healthy food options in a school cafeteria or displaying posters promoting physical activity throughout the school. People are also categorized into two groups – participants and contacts. A participant is accounted for during their first exposure to an activity through SNAP-Education. After their first experience, any further participation in SNAP-Education activities is counted as a contact. A participant may have numerous contacts within a wellness program. Program reach was also reported through community collaborations made among Action for Healthy Kids,

The Project Coordinator reported observations made throughout the Game On! program. Observations of interactions between UCONN students, the Project Coordinator and with school staff were reported. The Project Coordinator also reported details of program activities, especially any major successes or barriers to implementation.

All qualitative data collected during the project was used to tailor Game On! implementation to meet the unique needs of each school. Program activities were adjusted per requests by verbal feedback and direct observation by the Project Coordinator to overcome any barriers present. Qualitative data was also used to make suggestions on improving program activities in other schools during the project.

Results

Process Indicators

All six schools successfully completed the four Game On! challenges, kick-off event, and concluding challenge course. All of the schools held taste tests and distributed parent materials,

According to the EARS reporting system, 341 participants were reached via direct nutrition education during the 2009-2010 Game On! program (Appendix A). A total of 1,496 contacts were made throughout the program (Table 4). Approximately 49% of participants were female and 51% male. Actual counts of participants and contacts were recorded. Demographic data for each school was used to estimate the demographic breakdown of Game On! contacts and participants. On average, 59% of participants were Hispanic, 22% black, and 19% non-Hispanic white. Thirteen direct education lessons were delivered among the six participating schools. Lessons averaged between 30-60 minutes in length to approximately 350 students.

Twenty-nine taste tests were held throughout the Game On! project for approximately 4,960 total student contacted. Taste test foods included fresh fruits and vegetables, fruit and yogurt parfaits, whole wheat pasta salad, air-popped popcorn, whole wheat crackers with hummus, and trail mix. Each student participating received six promotional prizes throughout the program. Each school received nine nutrition and physical activity posters, three sets of Take 10 or Brain Breaks curriculum, MyPyramid classroom lessons, and instructions for classroom contests and activities. Four parent newsletters containing health information and SNAP-eligible recipes went home during the Game On! program. Assuming one family per child participant, it is estimated that 5,250 family contacts were made throughout the program.

*Wellness Opportunities Created***Program Collaborations**

The Project Coordinator connected with several community partners in Hartford, including the Hispanic Health Council, End Hunger Connecticut!, Safe Routes to Schools the Hartford Childhood Wellness Alliance, and Cooking Matters. Community partners shared event opportunities with the Project Coordinator and worked with the Project Coordinator to strengthen wellness efforts throughout Hartford.

The Hispanic Health Council is a community-based organization in Hartford, CT whose mission is to improve the health and social wellbeing of Latinos and other diverse cultures in Connecticut [31]. The organization participates in community-based research and provides various wellness programming, including school-based health education in Hartford and other districts throughout Connecticut. The Game On! Project Coordinator met with members of the Hispanic Health Council to review both group's programs and ensure that the programs were not duplicative.

End Hunger Connecticut! is a non-profit organization whose mission is to eliminate hunger throughout the state through advocacy, outreach, and public education [32]. EHC! became a Game On! partner through its involvement with Action for Healthy Kids. The Connecticut Action for Healthy Kids team leader is the Deputy Director of Programs for End Hunger Connecticut!. End Hunger Connecticut! was able to open doors for Game On! in Hartford Public Schools through existing relationships with Hartford Food Services. End Hunger Connecticut! provided continuous program support through their work with Child Nutrition and school lunch and breakfast programs. End Hunger

Connecticut! campaigned to increased participation in school lunch and breakfast programs and Game On! worked with food service to highlight the health benefits of school meals.

The Game On! Project Coordinator was also a member of the Hartford Childhood Wellness Alliance. Founded in 2009, the Alliance is an organization containing members of the health and wellness community throughout Hartford. The organization's mission is to create a unified health resource for Hartford families and their children, so they may access wellness education, programming, and health assistance programs available in their community. The Project Coordinator served on the School and Nutrition subcommittees to inform members about Game On! activities, as well as coordinate efforts to provide additional programming in Game On! schools.

The Project Coordinator also reached out to Connecticut Safe Routes to Schools, an international program to promote safe walking and bike riding to schools [33]. In Connecticut, the program is operated by the Department of Transportation. The Connecticut Safe Routes to Schools Coordinator met with the Game On! Project Coordinator to combine physical activity efforts at several of the Hartford Game On! schools. A walking school bus was attempted at one of the Game On! schools, but barriers to sustainability prevented Safe Routes from continuing. The Game On! Project Coordinator continued to meet with Safe Routes to establish strategies to overcome barriers, but little action was taken on the part of Safe Routes to follow up.

Cooking Matters is a six-week cooking and nutrition course provided through Share Our Strength, a national non-profit working to end hunger in America [34]. The

Game On! Project Coordinator worked with Connecticut Cooking Matters to serve as one of the class volunteers. The Project Coordinator served as the nutrition educator for a six-week cooking class with 11-12 year olds at the Boys and Girls Club in Hartford, CT.

Through their involvement with Cooking Matters, the Project Coordinator was able to secure future collaborations between Game On! and bring the Cooking Matters class to Game On! schools during the 2010-2011 school year. There are plans to pilot the Cooking Matters program in Windham Public Schools during the summer of 2011.

Many of the Game On! collaborators had similar missions and provided support for school-based wellness programming through outreach to the Hartford parents and community. The goal of collaboration was to highlight some of the strong wellness programming already taking place in Hartford at the time of Game On! implementation, as well as to strengthen efforts through multiple groups supporting the same activities.

Program Reach

The Game On! program reached approximately 1,500 students and their families in Hartford during the 2009-2010 school year. Students received wellness education via classroom lessons, cafeteria and gymnasium signage, and exposure to healthy foods during school meal taste tests. Healthy messages were reinforced through participation rewards, parent newsletters and Game On! collaborations with community partners. Hartford students gained valuable exposure to healthy eating and exercise behaviors and encouraged each other to participate in such behaviors through tracking contests held throughout the program. Students also increased awareness of the health benefits of a balance diet and exercise through classroom education and school signage. At the

majority of taste tests, students at taste tests verbally reported to the Project Coordinator that they enjoyed the food provided and would eat the food at home. They also reported enjoying the in-class lessons provided by the dietetic undergraduate students. A walking club was piloted at two schools during recess and PE classes, where students could track the distance walked and earn bracelet charms for reaching distance goals. The PE teachers reported students were very excited to be earning charms and that participation in the group had grown significantly as the school year progressed.

Participating school staff was involved in planning and implementing Game On! activities. School staff received health and wellness curriculum, supplemental worksheets, activity ideas, and rewards for students through the program. School staff increased their awareness of how to implement wellness activities and the importance of balanced nutrition and physical activity in schools. During monthly planning meetings, school champions reported both students and staff enjoyed the opportunity to try healthy foods. Many also reported adding the foods to their own personal diet. School champions also stated they welcomed many of the PE and recess activities, as it gave students an outlet for their energy and helped reduce misbehavior during free time. Most school champions felt the UCONN students did an excellent job of delivering nutrition education through interactive physical activity games. Champions also recommended additional types of exercise equipment and wellness curriculum to the Project Coordinator, who in turn used grant funding to provide requested materials to schools.

Undergraduate dietetic students from the University of Connecticut also gained significant experience in the community nutrition field through participation in the Game On! program. Dietetic students gained proficiency in planning and implementing

developmentally and culturally-appropriate nutrition lessons. Senior dietetic students completing their month-long research rotation with Game On! developed management and supervisory skills, as they monitored their junior peers delivering Game On! activities. All of the Game On! activities met dietetic supervised practice requirements set forth by the University of Connecticut and the Commission on Dietetic Registration. By meeting their community nutrition requirements, students are eligible to sit for the registration exam and become Registered Dietitians. The collaboration between the University of Connecticut and Action for Healthy Kids proved to be mutually beneficial.

Barriers to Program Implementation

Several barriers to program implementation were identified during the Game On! project. Barriers were observed by the Project Coordinator and reported by school champions at monthly meetings. Barriers existed both within the Hartford schools and with UCONN involvement with Game On!. Within the schools, barriers included limited time for continued wellness education, limited involvement from food services and district administration. UCONN barriers included logistical challenges for travel, food delivery, and providing schools with rewards and incentives.

During initial school Game On! meetings, all principals agreed to deliver program activities and distribute any materials given. Initial meetings were also held with the district food service director, who agreed to inform cafeteria staff in participating schools about the program and support collaboration between UCONN and food services. After the first month of Game On!, champions reported during the planning meeting that it was difficult for many classroom teachers to take time away from planned curriculum to

complete the Game On! classroom activities provided. Classroom activities were typically set for one day a week and changed monthly. Hartford Public Schools is very focused on improving scores on the Connecticut Mastery Tests (CMT) through rigorous classroom curriculum, and most school principals did not require teacher to complete their Game On! activities on top of what was already required. Several teachers did report enjoying the activities and using them during any break time. As a result, most Game On! activities were limited to physical education classes or recess. Limited classroom time was addressed by the Project Coordinator and teachers were provided with curriculum-based, ten minute physical activity and nutrition lessons. The intention of the short lessons was to take up limited time and provide wellness education that adhered with other core subjects' curriculum.

Observations during the first several taste tests revealed a limited collaboration between UCONN and Hartford food services. Most food service managers were unaware of the Game On! program initially and were hesitant to allow a taste test table in the cafeteria. Food services generally did not work with UCONN to plan taste tests or provide input on strategies to highlight healthy menu choices. One school chose not to hold taste tests in the cafeteria. Instead, they were held in the library, where students could stop in to sample foods after their physical education class. As a result, UCONN worked independently in most schools to choose taste test foods and select types of marketing materials to provide to cafeterias. One school Food Service Manager did, however, work with the Project Coordinator to host Game On! cafeteria events. One such event was a student raffle for those who selected the fresh vegetable with their meal. The Food Service Manager also worked with the Project Coordinator to identify taste test

foods and develop nutrition information to be displayed on the service line. Schools lacking a collaborative relationship with the Project Coordinator held taste tests that were run by UCONN students and food was provided solely by Stop and Shop.

School champions also expressed difficulties finding staff available to support cafeteria taste tests. Many teachers had a full schedule and typically could only stop by the taste test for a few minutes. Other barriers discussed during monthly meetings included difficulty in expanding Game On! activities to before and after school programs. Two school champions did agree to hold a before-school open gym twice a week, though. After-school activities were often difficult to coordinate, since programs either did not exist or were meant for specific purposes, like music or the arts. Most schools also wanted to target specific grades in their school with the in-class activities, taste tests, and contests. The Project Coordinator worked with school staff to develop activities that could be completed at home or during free time, so limited teaching time was lost.

Lack of volunteer support for Game On! created another program barrier. No parents or community members volunteered to assist with Game On! activities. This placed a large limitation on following the volunteer-based model Action for Healthy Kids follows for its programs. As a result, the Project Coordinator and UCONN undergraduate students supported the majority of Game On! activities. Lack of community volunteers also limited the ability for schools to offer before and after school programming. Parent and community volunteers could support Game On! activities where school staff involvement is lacking. Volunteers would be able to extend Game On! activities beyond brief classroom lessons and into before and after school time. Volunteer support for

program activities would be a large step towards creating a completely sustainable wellness program within the school.

All students were exposed to the social marketing aspect of the Game On! program, but only several grades in each school participated in all of the Game On! events. School administration felt trying to engage the entire school would be overwhelming. All of the classroom activities were strongly encouraged, but optional. Most of the contests held among students also required limited classroom time. Taste tests required little space and virtually no preparation or involvement from the food service staff.

Barriers to program implementation also existed among the UCONN team. The Project Coordinator purchased taste test food through the local Stop and Shop. Little food service involvement limited the types of foods that could be taste tested because foods had to be within the preparation abilities of Stop and Shop and students had to be able to transport foods to the schools. Working with an outside food distributor to implement taste tests at times resulted in complications. Several times, miscommunications among Stop and Shop employees and between Stop and Shop and the Project Coordinator led to taste test food being prepared significantly late. Transportation of large quantities of food was also a challenge, as the Project Coordinator had to get food from the local Stop and Shop to the school.

At times, providing incentives for Game On! schools was challenging. The UCONN team had to follow the guidelines provided by SNAP-Education as far as types and cost of materials distributed to schools, children, and families. For example, schools

expressed interest in building indoor recess kits with interactive exercise video games, but those types of incentives did not correspond with SNAP-Education guidelines. Instead, the Project Coordinator worked with school staff to create kits containing allowable items. Again, transportation and delivery of materials was a challenge to program implementation. The Project Coordinator ordered materials into the Community Nutrition office, and those materials then had to be delivered to schools by the Project Coordinator. Schools were able to tell the Project Coordinator their preference for incentives and rewards, but they did not have the ability to purchase items themselves. A disconnect between the schools and project funds may have created a lack of program ownership among school staff. Game On! may have been viewed as a UCONN program the school was participating in instead of the school adopting their own Game On! program. Providing schools with mini-grants to purchase their own incentives and program materials would eliminate this barrier and potentially give schools greater accountability for program participation.

Discussion

Main Findings.

Much of the results from the 2009-2010 Game On! project aligned with Game On! pilot study results from 2008-2009. Participating schools successfully completed all four challenges using the Game On! website and Project Coordinator support. Common project barriers included limited resources, limited time among school staff for wellness activities, and limited administrative support. The 2009-2010 Game On! project was able to overcome several key program barriers through its collaboration with the University of

Connecticut. The University of Connecticut was able to provide a graduate assistant to serve as Project Coordinator and provide program guidance and expertise. Undergraduate dietetic students were able to facilitate Game On! activities. As in the 2008-2009 pilot study, this Game On! project could be improved with greater community/parent volunteerism. Future directions for Game On! should include using the university partnerships to provide program support, expertise, and remove wellness program barriers.

Limitations

Barriers to Game On! implementation included limited food service and administrative support, lack of volunteers for program support. Limitations to Game On! are valuable lessons to for future school-based wellness programs. School administration and food service support is essential for a program to be implemented to its potential. Presenting school administration with research connecting wellness to academic achievement in schools could encourage greater administrative support. School administration must also realize that a school-based wellness program can fit within their community with appropriate resources and support.

Schools must tailor activities to overcome barriers and enhance opportunities for wellness programs depending on each schools' environment. A wellness program more relevant to an individual school's needs is likely to be better accepted and adopted by school administration and staff.

Food Service support is also key for program success. The ability to order foods through food service and prepare taste tests on-site would have allowed for a wider variety of foods to be served and would have made foods more easily available for the entire school, not just a limited population. If schools were given their own mini-grants for program implementation, they would likely take more ownership of the program and be more involved. Allowing schools to purchase their own materials would also eliminate some of the complications regarding material restriction and delivery that existed when UCONN handled all of the purchasing. A collaborative food service department would also create a very rich educational environment for higher education students to learn about school nutrition programs. A staff wellness component to the project could also encourage greater teacher and administrative support.

Even with administrative support, school staff may not always be available to assist with wellness program activities. School champions or Project Coordinators should reach out to district parent-teacher organizations or parent groups to recruit volunteers. Parent volunteers can fill in the staffing gap for school-based events when teachers and other staff are busy and take a more active role in children's health and well-being. Parent volunteers can also assist in gaining community support and engaging various other community groups with school wellness programs.

The significance of this study is that it increases the body of knowledge available to public health professionals about barriers and opportunities for wellness programs in low-income, urban school districts and how to use these barriers and opportunities to identify strategies to create successful school wellness programs. Lessons learned from implementing Game On! in Hartford can be applied to future wellness programs in

Hartford, as well as in other low-income, urban school districts. The study provides an organizational structure for schools to use when initiating wellness programs.

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Game On! Organizational Structure Logic Model (Year 1)

Inputs	Outputs		Outcomes -- Impact		
	Activities	Outputs	Short	Medium	Long
Resources: Action for Healthy Kids, Game On! toolkit, UCONN office space/nutrition supplies Funds: Action for Healthy Kids/Stop and Shop grant, SNAP-Ed MATCH Community Stakeholders: 6 Hartford schools (students, staff, food services, administration), Action for Healthy Kids, End Hunger Connecticut!, Hispanic Health Council, Hartford Child Wellness Coalition, Stop and Shop University Stakeholders: SNAP-Ed collaboration team, undergraduate dietetics students	Compliance: IRB, adhere to state nutrition-education plan Action for Healthy Kids MOU, Build Community Collaborations: UCONN AHS, undergraduate dietetic students, State/National Action for Healthy Kids, Hartford Public Schools, End Hunger Connecticut! Training: UCONN dietetic student mentoring Game On! Program support: Project Coordinator assist with Game On! activities, engage faculty members in program participation; train implementation Network Support: Project Coordinator participate in monthly Action for Healthy Kids state and national team calls Funding: UCONN manage project funding, provide schools with materials during year 1, establish timeline for school-managed funding Evaluation: process indicators (EARS reporting), impact, observation, verbal feedback, School Wellness Investigation	IRB compliant schools, staff, UCONN students; program activities meet nutrition-education plan Build network of school and community partners to support Game On! in schools and throughout community, connect with other community activities School staff becomes proficient in planning and implementing Game On! program within school, UCONN students gain proficiency in nutrition education Game On! program receives support and is able to grow within school community during initial implementation stages Hartford schools receive Game On! materials, incentives during year 1 Project Coordinator gains valuable information from Action for Healthy Kids network on guiding schools through wellness program implementation, share Hartford project updates with state/national teams	Adherence to University IRB, nutrition education plan goals are met Identify participating schools and collaborators Identify school champions for program support Gain Support of SNAP-Education MATCH funding Create organizational structure for program delivery at UCONN Create Game On! core structure within Hartford schools (champion, Project Coordinator, Food service staff, etc) Hartford schools have materials needed to support Game On! activities (UCONN does project evaluation)	Implement Game On! challenges Engage students, parents, and school staff in wellness activities Create partnerships with university and community collaborations Hartford Schools are required to report project outcomes to receive mini-grants for continued programming	Continued improvement in school wellness Set up evaluation for wellness program activities Sustain partnerships with community organizations, university Create sustainable school wellness program by engaging volunteers to implement activities Continuous opportunities for UCONN students to gain proficiency in nutrition education Hartford schools report on all program activities to receive full grant funding for sustainable project within school

CHAPTER III

Assessing quality of Game On! implementation in urban and rural Connecticut schools

Abstract

Under the Child Nutrition and WIC Reauthorization Act of 2004, all local educational agencies participating in the National School Lunch Program are required to have a local school wellness policy [1]. Schools may face barriers when implementing wellness policy initiatives. Low-income schools face their own set of challenges, often revolving around availability of and access to resources. Even more differences may exist between rural and urban low-income schools. Each have unique environmental and social characteristics that may result in different wellness program outcomes. Formative research on wellness program implementation in rural and urban schools was done during the second part of the Game On! project. We explored wellness environments and quality of programming in rural and urban school settings. During the 2010-2011 school year, Game On! continued in three Hartford schools and expanded into two rural school districts, Windham and Norwich. Differences in districts were recognized through demographic and geographical data. The Project Coordinator reported quality of experiences in each district. Participating schools completed a pre and post School Wellness Environment survey and key school staff met with the Project Coordinator for a program questionnaire. Greater program support and more in-depth involvement from school administration and staff allowed for greater improvement in wellness environment and program sustainability.

Study Aim

The project aim was to evaluate quality of Game On! implementation through assessing change in school wellness environment and quality of partnerships among participating districts.

Introduction

The following chapter describes formative research on wellness program implementation in rural and urban low-income schools. A need exists to identify how variations in school environment and quality of partnerships effect wellness program implementation. By better understanding the differences among districts, school wellness programs can be tailored to meet the needs of a community and be successful.

School Wellness Policy Implementation

Enforcing school wellness can be a challenge for many districts. Limited resources, funding, and staff can limit the scope of wellness policy implementation. Several guides exist to assist school districts in planning and implementing school wellness initiatives.

The United States Department of Agriculture created the Healthy Meals Initiative, an online database that provides nutrition resources for Child Nutrition Program participants [2]. Schools may access the information provided on the Dietary Guidelines and nutrition education resources to improve the quality of school meals and meet wellness policy goals. California's Project LEAN (Leaders Encouraging Activity and

Nutrition) and the California Department of Health Services created a Policy In Action Guide for school wellness policy implementation [3]. The guide contains step-by-step instructions on prioritizing wellness goals and following those goals through implementation and evaluation. The guide instructs schools on how to utilize resources to create an implementation plan, engage students, build community support, use marketing, and monitor and evaluate wellness initiatives. The Connecticut State Department of Education has created a similar guide to enforcing school wellness policies. The Action Plan for School Nutrition and Physical Activity provides districts with guidance on developing and implementing local wellness policies. The goal of the Action Guide is to help schools meet federal and state health requirements [4]. The Centers for Disease Control's (CDC) Coordinated School Health provides a model framework for planning school wellness [5]. Coordinated School Health addresses nutrition, physical activity, mental health, family and community involvement, and staff wellness under its framework. The CDC also provides funding for states to improve and support Coordinated School Health programs [5].

Non-profit organizations have also created low or no-cost wellness program tools and resources available to schools. Action for Healthy Kids is one such example, with Game On! being its school wellness program geared towards elementary students. Action for Healthy Kids programming was developed in accordance with recommendations from the Surgeon General and the current federal health standards [6]. Action for Healthy Kids connects schools to other nutrition and physical activity resources, like MyPyramid, that can be used to develop programming to meet school wellness policies.

School Wellness Assessment

Effective interventions must address the specific needs of the school community. Direction in school wellness program planning can come from qualitative measurements like assessment surveys and focus groups. A school wellness survey is typically completed by school administration and stakeholders in school wellness - typically the physical education and health departments. The survey assesses various aspects of the nutrition and physical activity environment. The School Health Index (SHI) is one such survey used to assess school wellness environments [17]. The SHI is a self-assessment planning guide developed by the Centers for Disease Control and Prevention to help schools assess and improve health and safety policies. It contains four modules: nutrition, physical activity, Assessments are tabulated into a percentage score and areas of strengths and weaknesses are identified. SHI scores provide support for the impact of a coordinated school health program and rational for school wellness programs [10,11].

The School Health Policies and Programs Study (SHPPS) is a survey done by the CDC to assess school health policies at the national, state, and local levels [13]. The survey evaluates states in six components: physical education, health education, health services, mental health and social services, nutrition services, and faculty and staff health promotion. The 2006 SHPPS Survey of Connecticut schools showed moderate physical activity and nutrition policies. Schools are required to address all recommended physical education topics and provide funding for staff development. However, regularly scheduled recess and following national physical education guidelines is encouraged, but not recommended. The state is required to have a Food Service Director, but individual districts are not required to have them. Schools are not required to offer lunch to students

and are encouraged, but not required to offer a variety of healthy choices and restrict fried foods served. Funding is provided, though, for staff development on improving nutritional quality of meals and following the dietary guidelines for Americans.

The SHI and similar survey protocols are a valuable tool in evaluating school environment change before and after program implementation, as well as identify areas to focus on when developing program protocol. The CDC provides another evaluation tool, School Level Impact Measures (SLIMs). SLIMs are measures of the percentage of secondary schools in a district that are implementing policies and practices recommended by CDC to address critical health problems faced by children and adolescents [15]. They are based on research findings and derived from CDC scientific guidance documents [15]. SLIMs are a valuable tool in environmental assessment of school wellness environment.

Action for Healthy Kids, a national non-profit organization who aims to end childhood obesity and promote child wellness and academic achievement, uses a similar questionnaire protocol to evaluate school wellness environment [13]. The School Wellness Investigation is based on the SHI. It is a series of questions divided into three modules (nutrition services, physical activity, parent/community involvement) to be answered by school administration and staff [13]. Environmental assessment tools like the SHI and SLIMs provide a road map for school wellness programming and can measure comprehensive, dynamic change within school systems. The School Wellness Investigation was used to assess environmental change in Game On! schools.

Variations Among School Districts

Despite there being numerous resources available to schools to assist in developing wellness activities, many districts face challenges with planning and implementation. Wellness program implementation and outcomes may vary depending on the schools' geographical location, community population, economic status, staffing, resources, and culture. Transportation and access to distant sites may be a challenge for rural districts implementing wellness activities. Individuals with low incomes are less likely to achieve recommended levels of physical activity and fruit and vegetable consumption than the general population [7]. Urban schools may encounter environmental safety concerns that hinder physical activity efforts and limited access to healthy foods (food deserts). Urban and rural schools may also have different attitudes and beliefs towards wellness initiatives and different availability of community support programs [8]. A school's response to a wellness program can be affected by geography.

A study by Nanny in 2008 evaluated poverty-related factors associated with obesity prevention policies in Utah secondary schools [9]. The evaluation was a cross-sectional study that examined school nutrition and physical activity policies by poverty markers and geographic location. Over 200 schools participated, with 19% having a high (45-72%) enrollment in free/reduced price lunch, 30% from a rural area, 30% suburban, and 40% urban. Results showed less than 5% of schools offered fruits and vegetables or low-fat milk outside school meals. Urban schools were more likely to offer healthy snacks during school compared to rural and suburban schools. Schools with high participation in free/reduced price lunch were more likely to allow the purchase of unhealthy snacks during lunch and were less likely to offer intramural activities. Fewer

rural schools reported supporting walking/biking to school than urban schools. The study concluded that limited access to healthy foods and physical activity opportunities existed in rural schools make rural schools a top priority for addressing childhood obesity.

A 2006 study by Hawley et al assessed the effectiveness of a child obesity prevention program in a rural setting over two years [10]. The first year of the study evaluated the scope of the obesity problem within a three-county area. A Health and Wellness Questionnaire was distributed to 113 families in the area and Community Partnership meetings were held to identify the area's needs and elicit program support. Meetings revealed a number of wellness resources throughout the community, but a number of problems with accessing resources were cited. The community partnership group created recommendations to overcome barriers to wellness. Recommendations included addressing transportation difficulties in rural areas, improving financial assistance to low-income families with children who wish to participate in organized sports, provide physical activity options that go beyond organized sports, and increase efforts to reach families who do not enjoy physical activity.

The second part of the study was a community nutrition intervention program centered at a rural middle school. Sixty-five students participants were recruited for the study, and 25 of those students families agreed to participate as well. The program had two components: a five-session middle school education program and a family fun night to promote physical activity and nutrition. The program integrated recommendations generated from part 1 of the project to fit a rural setting. Participants' pre and post physical activity frequency and health behaviors/attitudes were evaluated. The family fun night was free and offered fitness options beyond organized sports. Results from part 2

revealed no significant change in students' individual health attitudes and behaviors, but a significant increase in self-efficacy of healthy eating, physical activity level, and fitness knowledge was observed among families. In conclusion, community partners helped pool resources to reduce barriers in school wellness program implementation.

Differences in school environments result in varying effects of wellness program implementation. The previous studies illustrate the importance of community partnerships, collaboration, as well as a strong wellness policy, to overcome barriers and provide successful wellness programming. This chapter aims to investigate wellness program impact in multiple school districts through quality of partnerships and results from school wellness surveys.

Methods

Design

A qualitative descriptive study was used to assess student participation as well as barriers and facilitators in the second phase of implementing Game On! The Ultimate Wellness Challenge. For the second phase, Windham Public Schools and one school in Norwich, and three schools in Hartford, agreed to participate in Game On! for the 2010-2011 school year for a six-month school wellness program and evaluation. The Game On! program followed the same format as phase 1 of the project, with each school selecting a champion to work directly with the Project Coordinator for identifying, planning, and implementing wellness activities. The School Food Service Department was also recruited to participate in the planning and implementation of cafeteria taste tests. University of Connecticut undergraduate dietetic students were again used to

deliver direct nutrition education and support Game On! activities. Champions received support from the Project Coordinator with monthly meetings and materials and incentives for participation. Champions agreed to complete the School Wellness Investigation survey to assess nutrition, physical activity, and parent/community involvement. The Project Coordinator also made observations and collected verbal feedback from champions regarding program implementation. Several champions agreed to complete a Game On! questionnaire on program experiences. Quality of partnerships in each district were evaluated and assessed after the six-month intervention.

Participants

Participating schools included three Hartford elementary schools, six Windham Public Schools, and one middle school in Norwich. Hartford was identified as an urban district, while Windham and Norwich were considered rural. The table below describes general census data from each district [13].

Table 1. Game On! Demographic Data for Hartford, Windham, and Norwich School District (including total population, % of school-aged population, and median household income) based on 2000 US Census Data

District	Population	% people < 18 years old	Median Household Income
Hartford	121,578	30%	\$24,820

Willimantic	15,823	23%	\$37,080
Norwich	36, 117	25%	\$39,181

³ Data based on 2000 census data

Procedures

Windham and Norwich School Districts were recruited for the program based on previous collaborations with the Allied Health Supplemental Nutrition Assistance Program – Education Department. Hartford schools that wished to continue Game On! beyond the first year participated in year 2 of the project. In Hartford, the same champions from phase 1 served as champions for phase 2. In Windham and Norwich, each school identified a champion through the physical education or nursing staff. Windham and Norwich food services were adjunct champions and were closely involved in nutrition event planning. After recruitment, the Project Coordinator held a Game On! orientation meeting with the Windham health educators, physical education teachers, school nurses, and Food Service Director. Windham staff members received an overview of the 2009-2010 Game On! Hartford project and training on how to utilize Game On! in their own schools. Participating Hartford champions were contacted at the beginning of the academic year to schedule a refresher Game On! training and monthly planning meetings. Project implementation for year two followed the logic model for year one of the project

Data Collection

The Project Coordinator measured quality of partnerships through direct observation of Game On! activities, verbal feedback from champions at monthly meetings, and project reach. Project reach was assessed based on program activities, level of staff involvement, and number of students reached. Each school completed the School Wellness Investigation to assess wellness environment before and after Game On! implementation. The School Wellness Investigation is a series of questions regarding a school's nutrition, physical activity, and parent/community involvement in wellness [13]. It was developed from the CDC's School Health Index and Massachusetts' Action for Healthy Kids' Students Taking Charge evaluation [13]. The investigation is divided into three modules: nutrition services, physical activity/physical education, and parents and community. Each module has about 10 questions. Answers to module questions were scored using a multiplier for each answer option and a grand total is calculated. All module scores were placed within the overall scorecard to categorize scores into low, medium, or high categories. Low and medium scores are considered areas where improvement is needed. Each school's Wellness Investigation was entered into an excel spreadsheet and analyzed for differences among school scores.

Program Activities

Each participating school followed Game On!'s four-challenge format and held the same direct and indirect activities as year one of the project. Undergraduate dietetic students from the University of Connecticut were also placed in schools to deliver

nutrition education. All schools received the same involvement and program materials and incentives as schools during year one.

Results

Overall Program Reach

During the 2010-2011 Game On! Project, all participating schools successfully completed all four challenges. Each school held a kick-off event, appropriate challenge activities, and a concluding challenge course event. According to the 2010-2011 EARS reporting (Appendix B) , 260 student participants were reached through direct in-classroom nutrition education. Forty-five taste tests were held, 18 parent newsletters, and 7 types of promotional items were distributed throughout all participating schools. In total, 48,603 indirect educational contacts were made.

Windham School District – Quality of Partnerships

Windham School District had the most extensive project involvement. All students in each school participated in Game On! activities. The Project Coordinator and Windham Food Service Director worked closely together to plan nutrition activities through school meals. Food Services worked with its vendors to provide healthy menu options and connect those healthier items with Game On! program activities. One example of the close collaboration between Food Services, local vendors, and Game On! was the healthy flavored milk taste test. Windham Food Services worked with a local milk producer to create a flavored milk that was lower in added sugar to offer at meals. Once the product was created, Windham Food Services coordinated with Game On! to hold a taste test where students could sample the new milk and provide feedback. The

taste test provided positive feedback on the new milk and as a result, the district switched to the healthier product. The Food Service Director also met weekly with district principals and the superintendant and updated them on all Game On! activities. All food service employees worked with the Project Coordinator and undergraduate students to hold taste tests and utilize any nutrition education materials provided. As a result of Game On!, Windham's Food Service Director realized the value of having a Registered Dietitian on staff to implement wellness programs and created a part-time school Dietitian position for the 2011-2012 school year.

Windham's school nursing staff, teachers, and administration were very involved in the Game On! project. Nurses from each of the elementary schools and the middle school attended Game On! planning meetings and worked with the Project Coordinator to initiate game on activities, like healthy morning announcements and Game On! involvement in after school walking clubs. Physical education staff at each school, as well as health teachers at the middle school, collaborated with Game On! and allowed undergraduate dietetic students to provide nutrition education to their classes. A health teacher at Windham High School used Game On! to start an after school health club that met twice each week. The club focused on non-threatening physical activity and health education. Students walked around the school and the Project Coordinator provided nutrition education. Principals at schools delivered healthy message morning announcements and informed students of upcoming Game On! activities. The Food Service Director met with all school principals and the superintendant weekly, where they were updated on Game On! initiatives.

Windham teachers connected Game On! to the parent community by involving the program with after-school family game nights. UCONN students set up Game On! booths and provided wellness information and children's games to families who attended.

The Project Coordinator collaborated with Cooking Matters, a 6-week cooking and nutrition education class offered by Share Our Strength. Share Our Strength is one of the nation's leading non-profit organizations aiming to end hunger in America [14]. Share Our Strength began teaching the Cooking Matters course in Hartford during the summer of 2010. The Game On! Project Coordinator reached out to the Cooking Matters Coordinator to bring the program to Windham Schools. A meeting was held among middle school Game On!, champions, as well as a dietitian from Windham Hospital, to educate them on Cooking Matters and recruit the middle school as a pilot program site. Participating staff was interested in piloting Cooking Matters with the after-school walking group. However, staff time and resources were limited at the time and the group decided to postpone any pilot program until the summer food program.

Norwich - Kelly Middle School

Kelly Middle School in Norwich was highly involved in Game On!, as well. Two staff members who were members of the school wellness committee took part in Game On! planning meetings. They provided information on wellness activities currently taking place, identified gaps in wellness programming, and utilized the Game On! program to fill in gaps and strengthen current efforts. Game On! helped to support the school's walking club. The Norwich Food Service Director was aware of and supported the Game On! program and deferred direct involvement to the Food Service Manager at Kelly

Middle School. The Food Service Manager worked closely with the Project Coordinator to plan and implement taste tests, hold raffles for students who chose a healthy lunch option, and display nutrition information in the cafeteria. The Health Education teacher worked with the Project Coordinator to place UCONN dietetic undergraduate students in health classes to deliver nutrition education.

Hartford Schools

Hartford schools were more reserved in their program participation. Of the six schools that participated during year one, only three wished to continue the program. The three schools that did not continue either stopped communicating with the Project Coordinator or did not want to commit to another year of delivering wellness activities. Of the three schools who agreed to continue Game On! for another year, two participating schools no longer allowed taste tests in the cafeteria. Instead, taste tests were held during physical education classes or during an after-school program. Taste tests were limited in these schools because food often had to be served at the end of class as students were leaving, so opportunities for education were somewhat limited. Types of food served also had to be adjusted, as all foods had to be relatively simple and portable. School food service staff was not involved in taste test planning or implementation. The food service director was not collaborative with the Game On! program. School principals deferred program involvement to the physical education teachers. The principal at one of the participating schools, who was also a large supporter for the Game On! program, resigned mid-school year. Game On! promotion was limited beyond the school gymnasiums. Classroom teachers were provided with in-class activities, but most schools reported little to no classroom time for additional activities. The Project

Coordinator worked with physical education teachers to plan taste tests and walking clubs within the gymnasium. UCONN undergraduate dietetic students were also able to provide nutrition education to students in the gym.

School Wellness Investigation

All Windham and Hartford participating schools completed a pre and post-intervention School Wellness Investigation (SWI) survey. Schools were scored in three wellness modules: nutrition, physical activity, and family/community involvement in wellness (Appendix C,D). Kelly Middle School had completed the School Health Index prior to Game On! and supplied module total scores for the pre- intervention survey (Appendix E). For the post-intervention survey, Kelly Middle School champions completed the School Wellness Investigation and total scores of modules were compared. Nutrition scores were based out of 39 points, physical activity out of 30, and parent/community involvement out of 18 points. The following figures and tables provide results from the pre and post-program SWI surveys given in Hartford, Windham, and Norwich schools.

Table 2. Average Change in SWI Module Score Among Participating Schools in Hartford, Windham, and Norwich Schools during the 2010-2011 Game On! project

District	Average Pre-Post Change (in pts.)		
	Module 1	Module 2	Module 3

Hartford	3	0.33	1
Windham	4	1	2
Norwich*	13	4	6

*indicates pre-post change in %

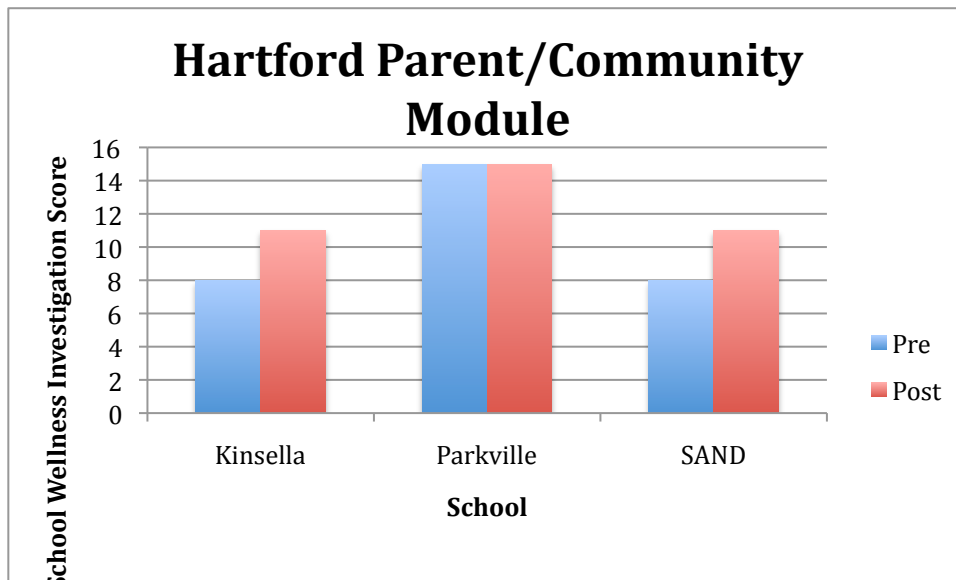


Fig. 1. Change in Parent/Community SWI score pre-post 2010-2011 Game On! program in Kinsella, Parkville, and SAND Schools (scores out of 18 points)

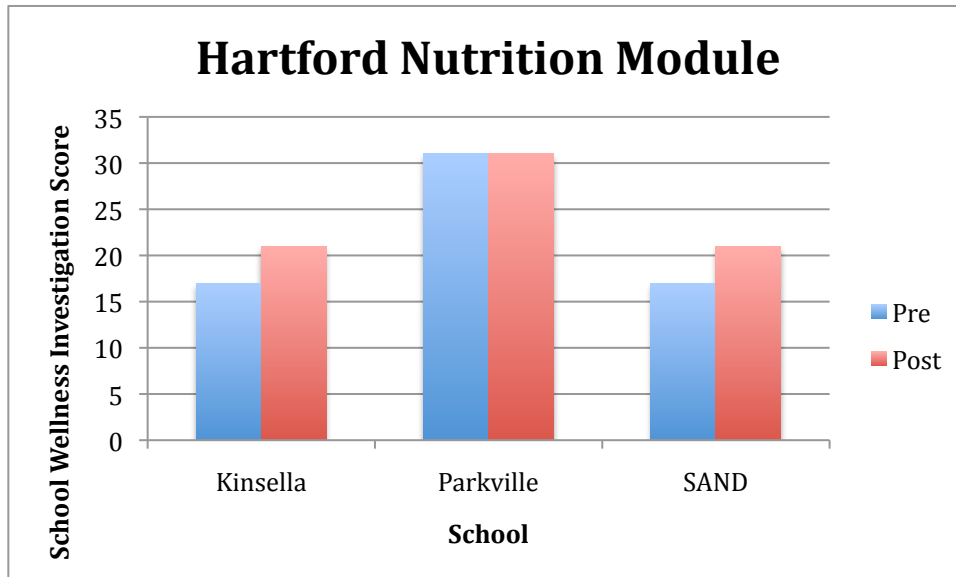


Fig. 2. Change in Nutrition SWI score pre-post 2010-2011 Game On! program in Kinsella, Parkville, and SAND Schools (scores out of 39 points)

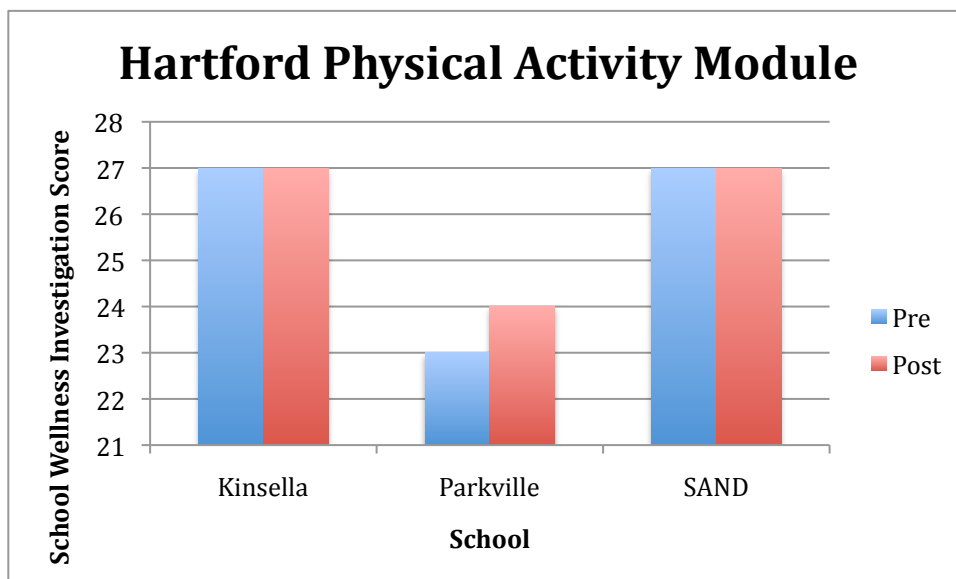


Fig. 3. Change in Physical Activity SWI score pre-post 2010-2011 Game On! program in Kinsella, Parkville, and SAND Schools (scores out of 30 points)

Fig. 4. Change in Physical Activity SWI score pre-post 2010-2011 Game On! program in all 6 participating Windham Schools (scores out of 30 points)

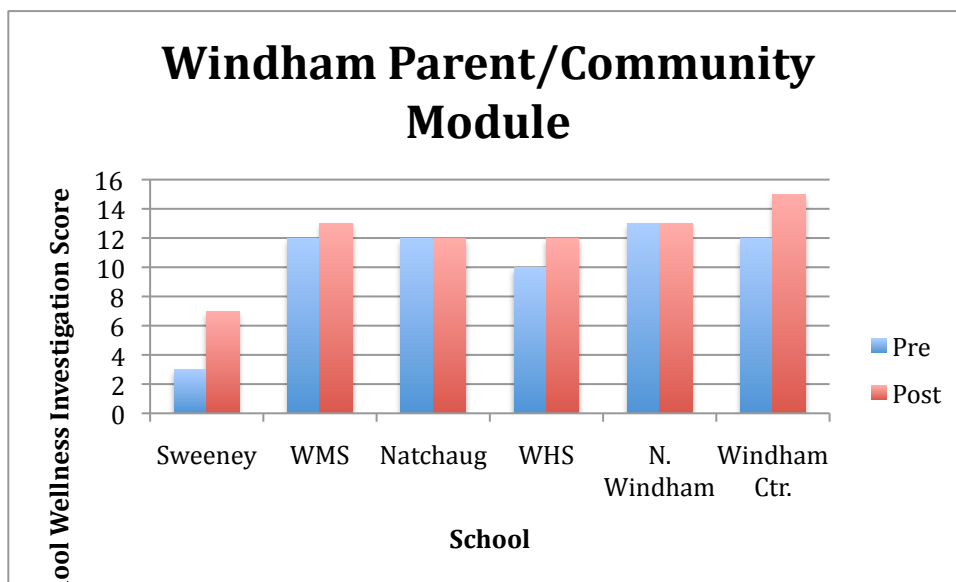


Fig. 5. Change in Parent/Community SWI score pre-post 2010-2011 Game On! program in all 6 participating Windham Schools (scores out of 18 points)

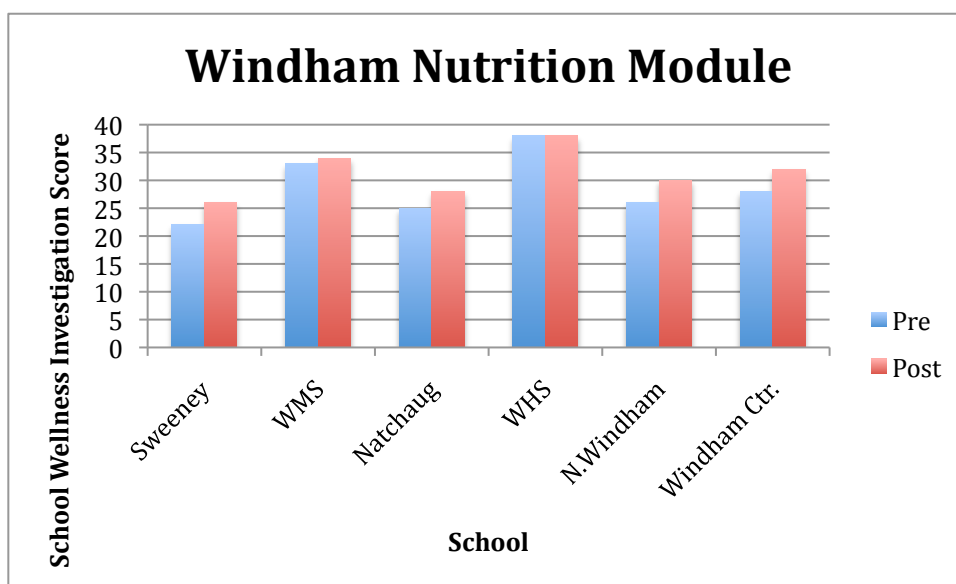


Fig. 6. Change in Nutrition SWI score pre-post 2010-2011 Game On! program in all 6 participating Windham Schools (scores out of 39 points)

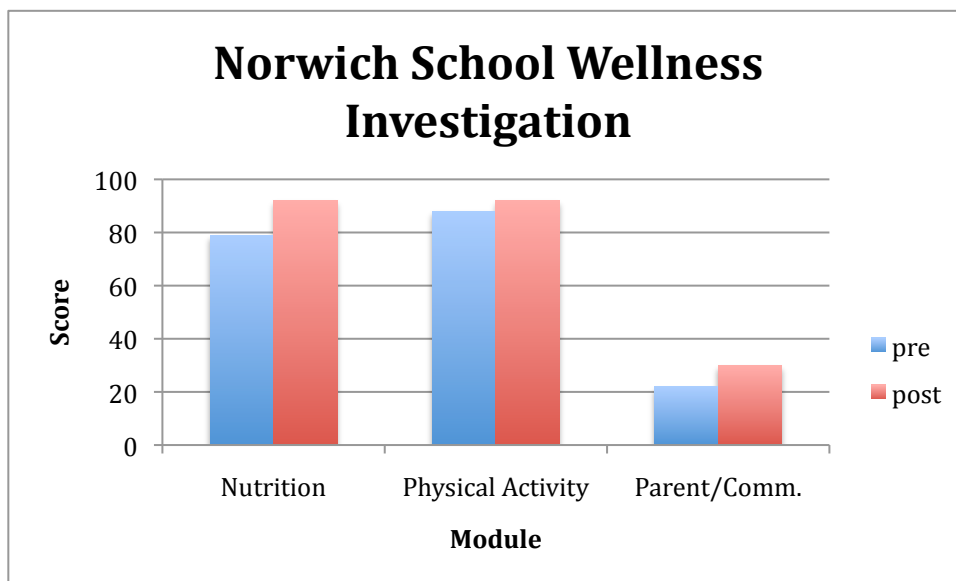


Fig. 7. Change in pre-post SHI Nutrition, Physical Activity, and Parent/Community Modules for 2010-2011 Game On! program in all 6 participating Windham Schools (scores out of 100%)

Windham Schools experienced the greatest increase in scores in all modules across all schools (Table 2). All Windham elementary schools and Kelly Middle School saw the greatest increase in their total nutrition scores. Hartford schools saw the least pre-post change for all modules compared with Norwich and Windham (Table 2). Nutrition modules saw the most significant increase in scores among all participating schools (Fig. 1-7). Parent/community involvement had the least change compared to nutrition and physical activity modules in all participating schools (Fig. 1-7).

School Champion Interviews

School champions were asked to participate in a questionnaire regarding their school's participation in Game On!. Two school champions in Hartford, the Food Service Director and one school champion in Windham agreed to participate. The school champions from other participating schools provided verbal feedback on program successes and barriers.

Both Hartford school champions reported that Game On! was a stand-alone program and was not part of a larger wellness initiative. One Hartford school reported plans to start a wellness program for at-risk students, but not for the general school population. Neither of the schools reported having wellness committees. Both schools in Hartford also cited common program successes, which included increased student knowledge of nutrition, self-efficacy in choosing healthy behaviors, and an overall enjoyment of program activities by school staff and students. Other successes included the incentives and rewards received by schools and students for program participation. Program barriers were also similar between the two Hartford schools. Champions felt overwhelmed classroom teachers were unable to add additional tasks to their schedule and there was a sense of little support from food services. One Hartford champion also reported the lack of support from new administration made it difficult to expand Game On!. Several other UCONN wellness programs also occur in Hartford Schools. One champion reported an occasional overlap with programs made it difficult to fit in all Game On! activities. Barriers were addressed through the provision of brief, curriculum-

based wellness activities for the classroom. Take 10 and Brain Breaks were provided to classroom teachers to promote nutrition and physical activity through ten-minute lessons. Program overlap was addressed by communicating with other program Project Coordinators to ensure activities did not repeat messaging and were planned on different days. Finally, both Hartford champions reported that the Project Coordinator was needed for program success and that the school likely would not be able to pick-up program activities without support due to limited resources.

Windham Food Services and one Windham school champion reported Game On! as being part of a larger wellness initiative being started by the school district. Barriers included limited classroom time and resources and a cultural gap between students and program activities. Both Windham champions felt Game On! successes included being able to improve school menus, expand student knowledge of nutrition and physical activity, and engage students in more physical activity. The Food Service Director reported plans on expanding more into the community and involving parents with school events for the next school year. Windham does not have a formal wellness committee, but all school principals, superintendant, and food service director meet weekly to discuss school activities, including wellness initiatives. Both Windham champions stated the Project Coordinator was very helpful in program implementation and that they could continue wellness activities without as much hands-on involvement with UCONN. Windham Food Services now has plans to hire a dietitian to continue programming next school year. One Windham champion added she felt that many students came from Hispanic homes and could not relate to the “American” nutrition and physical activity

information provided by Game On!. She also added that many of the activities were geared towards small groups and she could not do many of them with her larger classes.

School champions at Kelly Middle School in Norwich reported Game On! as a success and part of a larger wellness initiative taking place within the school. They used Game On! activities to support other initiatives going on throughout the school, like eliminating sugar-sweetened beverages and providing in-class wellness activities. Game On! taste tests were viewed as a success and the cafeteria staff plans on continuing to provide nutrition information on serving lines, as well as hold raffles for healthy menu items. The champions also felt UCONN students delivering nutrition education positively enhanced their wellness initiative.

Discussion

The impact Game On! had on school wellness environment was greatly influenced by the degree of involvement by school staff. All three districts received equal face time with the Project Coordinator and the same resources and incentives. However, Windham and Norwich districts had greater involvement from Food Services and were able to make greater and more sustainable changes in nutrition education and menu offerings. The Windham Food Service Director served as a Game On! advocate and helped gain administrative support from school principals and the superintendent. With greater district support for the program, school staff became more involved with Game On! activities. Support from Windham school nurses and health teachers also greatly influenced what in-school activities were carried out. School nurses and health teachers

were able to work directly with their principals to communicate school-wide wellness messages and inform students and families of Game On! events. Hartford schools did not share the same support, and as a result, program activities and students reached were limited.

While the grassroots approach worked to gain program support from school staff, administrative support was needed for Game On! to reach its potential. Limited administrative support from Hartford Public Schools could be a result of dealing with educational challenges on a larger scale, unique socioeconomic issues, and cultural barriers. While all school principals felt wellness education was important, for urban districts it was not seen as a top priority. Rural schools may have experienced greater program support as a result of a smaller student population and a greater sense of community among school staff and students. Rural district staff seemed to coordinate efforts to address issues, like school wellness. A greater sense of collaboration among rural school administration, teachers, and families allowed for greater program impact.

Schools with administrative support felt they would be able to continue Game On! activities without heavy involvement from the Project Coordinator and the UCONN dietetic students. Administrative support, especially among the Food Service department, is needed to encourage and guide school staff to continue wellness activities.

In schools with minimal administrative support, parents and community members could serve as program champions and facilitate wellness activities both inside and outside of schools. Community volunteers would not only remove the burden of wellness program implementation from school staff, but they would promote community

investment in health and wellness. Engaged parents would positively change the school, community, and home environments and help children form healthy, lifelong habits.

A model for higher education collaborations can also be used to strengthen school program efforts and remove the burden from school staff. University of Connecticut students almost completely supported the Game On! program in Hartford schools during the second year of the project. While school administration did not support program initiatives, University of Connecticut students were able to provide valuable wellness education to Hartford children. The collaboration is mutually beneficial, as incoming undergraduate students will always be available to assist schools and schools provide undergraduate students with valuable field experience. Future collaborations with higher education should also focus on building community volunteer support for school-based programs.

More research is needed to examine why differences within urban and rural school wellness programs exist. Future wellness programs should address schools' unique characteristics and provide multiple strategies for implementation. Perhaps organizations who provide school wellness programs should participate in greater community outreach and parent engagement. Once a strong volunteer support base is built, programs may have a greater chance of being adopted by schools.

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CHAPTER IV

Future Directions and Overall Findings

Overall Findings

Game On! the Ultimate Wellness Challenge was successfully implemented in Hartford, Windham, and Norwich schools. Students received nutrition and physical activity education and increased exposure to healthy foods and exercise. Schools staff became more aware of wellness programming, school wellness environment, and became more engaged in wellness activities. Schools received materials to support Game On! activities and promote healthy behaviors. While all participating schools received the same materials and program support, not all schools saw the same project results. Community partnerships helped to support program efforts and expand Game On! reach beyond the school setting.

Schools with greater administrative and food service support were able to implement more extensive program activities and reach more students. Food Service involvement allowed for a wider variety of foods to be served during taste tests and offer taste tests foods to all students. Food Services staff was able to order taste test foods through school vendors and use cafeteria staff to assist in preparing and serving foods. Cafeteria staff also displayed nutrition promotional materials and informed students of upcoming events. Schools with limited food service support had less reach with nutrition activities. For these schools, taste test food procurement, delivery, and distribution was done completely by the Project Coordinator. Limited food service involvement resulted in taste tests reaching smaller groups of students, as the Project Coordinator was unable

to supply and prepare enough food for the entire student population. In schools with limited food service involvement, school administration often limited the number of student participants to a select group to not overwhelm school staff.

Two distinct approaches to Game On! implementation arose between Hartford and Windham/Norwich schools. Windham and Norwich had greater program support from Food Service and school administration. Game On! activities were supported by both school staff and UCONN students. In Hartford, the approach to Game On! was to keep it segmented and to not have a multidisciplinary team for program implementation. Game On! activities were mainly supported by UCONN students and a few key school staff, but activities were not a part of the entire school environment. Common barriers to program implementation existed among all schools. Classroom teachers are often overwhelmed with curriculum demands and wellness education is challenging to fit into their teaching schedule. Organizing before and after school activities was difficult in schools where programs did not already exist. Schools were often limited in available staffing and resources for extended hour activities.

Barriers were addressed by providing classroom teachers with brief nutrition activities and by deferring many of the Game On! activities to physical education and health classes. Taste tests challenges in schools with limited staff support were addressed by developing a closer relationship between Stop and Shop grocery stores and the Project Coordinator. Stop and Shop agreed to prepare and occasionally deliver foods to schools. UCONN dietetic students and the Project Coordinator often filled in to support program activities where school staff involvement was limited. Schools with limited staff involvement may find it challenging to continue the program if Project

Coordinator/UCONN support was not so hands-on. Future wellness programs should be established so schools are gradually given more accountability and responsibility for program support and the Project Coordinator serves more as a troubleshooter for program implementation.

Creating a sustainable structure for wellness

Action for Healthy Kids – University- Community Collaboration

Action for Healthy Kids (AFHK) has established itself as one of the leading providers of school-based wellness programs in Connecticut. Its state team has been widely supported by a collaboration with the University of Connecticut for program delivery. For greater future success, AFHK should restructure its state teams to follow a university-community collaboration model. AFHK state teams should reach out to universities as partners for wellness program implementation and connect local school districts to community and university partners for program implementation.

University health students can serve as Action for Healthy Kids volunteers who connect with local schools to assist and train school staff on wellness program implementation. Students could perform needs assessments, identify areas for improvement, connect school staff to appropriate resources, help apply for grant funding, and provide activity support where needed. The relationship between UCONN and Action for Healthy Kids was mutually beneficial. Action for Healthy Kids was able to successfully deliver its programming, increase exposure within the Connecticut community, and UCONN students gained unique and valuable experience in community health programs.

Students are a renewable resource, and new students each school year would be available to support program activities. Under this model, Action for Healthy Kids would build strong partnerships with universities and create sustainable programming in many schools.

Collaborations with community partners help to strengthen program efforts and expand program reach. Action for Healthy Kids should reach out to community groups to enhance and support program activities. Community groups can promote Action for Healthy Kids programs through their own events and strengthen wellness program activities within schools. Community partners should include organizations and parents/individual community members. Parents should be engaged through a train-the-trainer model. Parent and community member volunteers can help schools overcome barriers to wellness program implementation by providing program planning, guidance, and supervision.

Greater collaboration with community partners will also encourage more parents to take part in wellness activities. Many community group members have children in the school system and could be ideal for taking on a “champion” role if school staff is overwhelmed with other demands. A train-the-trainer model for engaging parent volunteers would provide schools with program experts from within the community. Trained volunteers could also provide greater feedback and shape the program to better fit the community’s cultural climate.

Creating sustainable programs within schools

Once a structure for wellness program has been created between a school, Action for Healthy Kids, and university/community partners, a plan for fostering program sustainability should be created.

Strategies for gaining administrative support

First, school administration and food services must be invested in the wellness program. In order to gain administrative and food service support, AFHK should educate school administration on the connection between wellness and academic achievement. While numerous studies exist illustrating this relationship, information specific to a particular school community should be provided. For example, information on a school's test scores, absenteeism, and behavior should be collected during the pilot stages of wellness program implementation. Once the data has been collected and analyzed, connections to program implementation and achievement can be made.

Teaming up with community partners and parent volunteers can foster administrative support as well. Community members, especially parents with children in the schools, can use power in numbers to demand greater support from within the school for wellness program activities. Community partners can also provide additional resources for program implementation, which might make school administration more receptive to adopting wellness activities.

Creating a structure for financial responsibility

The 2009-2011 Game On! project placed program funding in the hands of UCONN and the Project Coordinator. The Project Coordinator was responsible for ordering and delivering program materials and incentives for students and schools. During the first 1-2 years of program implementation, direct management of program funds by a third party may be necessary while schools become acclimated to program implementation. However, to create a sense of accountability and sustainability within schools, a plan to gradually place project funds directly in the hands of schools should be established.

Based on findings from the 2009-2011 Game On! project, program funds should be handled by AFHK or partnering Project Coordinator while a structure for wellness is being created. Beyond the second year of program implementation, schools should be required to submit an implementation and evaluation plan in order to receive funds. The School Wellness Investigation could be completed annually to evaluate change in wellness environment. If schools complete their wellness plan and see an improvement in wellness environment, then they could be eligible to receive a certain percentage of project funds. As the program progresses, schools could be eligible to receive a greater percentage of funds until they are completely responsible for managing program finances.

Providing schools with direct funding and requiring them to report on program activities would create a greater sense of accountability. Schools would be more likely to complete wellness activities if they were required to submit an evaluation. Schools might also become more invested in wellness program activities if they were able to purchase

their own materials. By gradually increasing direct funding, schools will be adequately trained and oriented to program implementation over time. Maintaining AFHK and university program support will ensure schools are properly prepared to take on wellness activities themselves. AFHK and university partners should be available even after schools receive full funding for troubleshooting and support.

Providing schools with a best-practices guide for getting started may help schools in overcoming initial barriers to wellness policy implementation. The following white paper is a resource to be distributed to schools interested in enforcing wellness policies, especially low-income, high-need urban schools. It provides guidance and structure for school wellness programs through a model utilizing Action for Healthy Kids and university, community partners. Its creation was based off of findings from the 2009-2011 Game On! project.

Overcome challenges to school wellness policy implementation with Action for Healthy Kids!

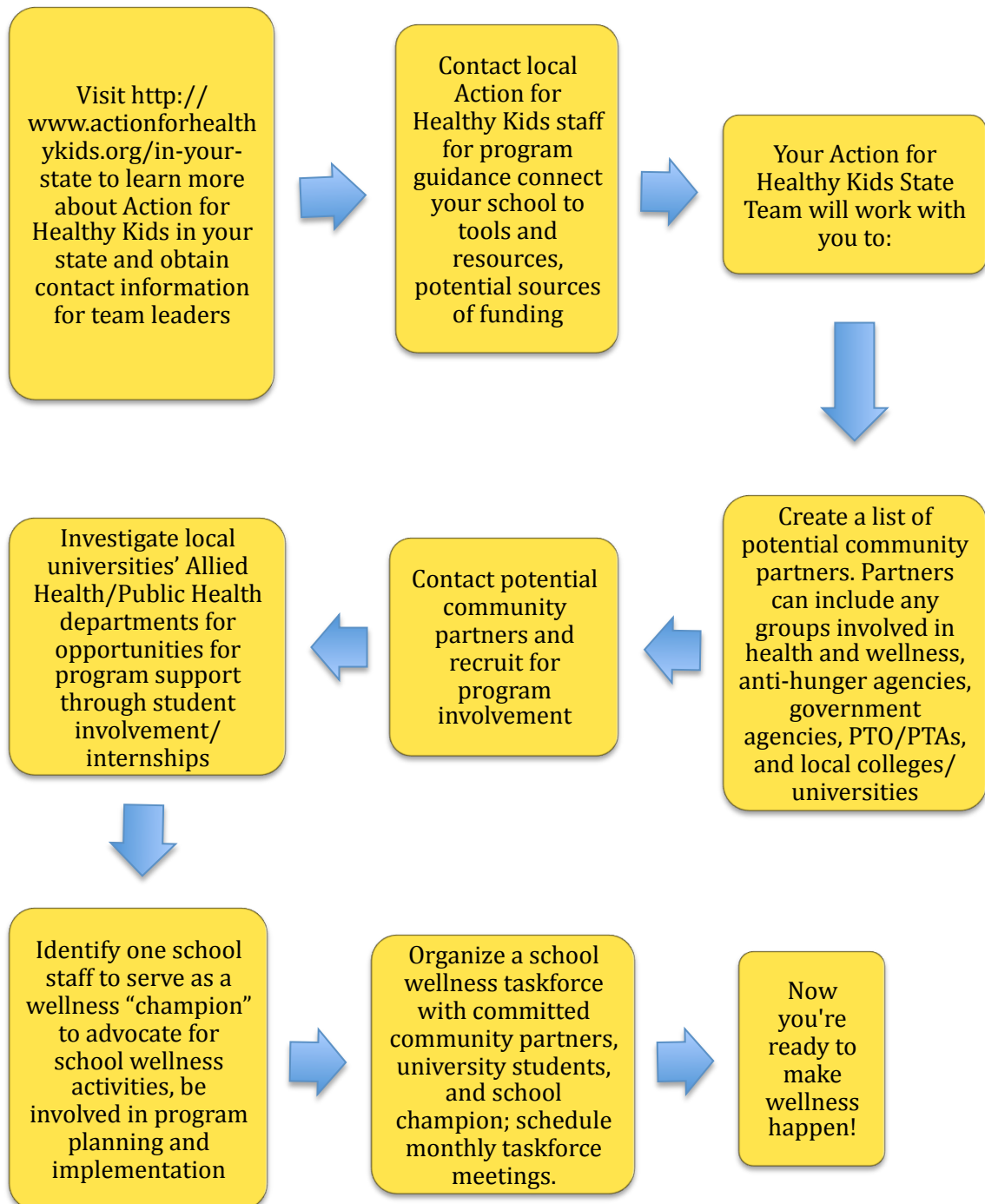
Action for Healthy Kids (AFHK) is a national non-profit organization and the nation's largest volunteer network working to end childhood obesity. Action for Healthy Kids' volunteers work with schools to promote wellness through increased awareness of improved nutrition and increased opportunities for physical activity.

Background

As childhood obesity and chronic disease become an increasing concern, schools are being called to promote students' health and wellness. Under the Child Nutrition and WIC Reauthorization Act of 2004, all public schools are required to have a local wellness policy in place. However, wellness policy implementation can often be a challenge. Limited resources and demanding staff schedules can discourage schools from getting involved with wellness programs. Action for Healthy Kids makes it possible for schools to bring hands-on nutrition and physical activity education to children of all ages.

The 2009-2011 Game On! study pilot-tested Game On! implementation in Title I high-need, low-income, urban schools. Pilot study findings were used to create the following step-by-step guide for making wellness programs happen in diverse school environments. Get started today with Action for Healthy Kids!

Getting Started: Creating a structure for wellness



Next Steps: It's Easy as ABC to work with AFHK!

ASSESS AND TAKE ACTION! Connect with university students!

Once you and your Action for Healthy Kids team have established a partnership with university students, students will work with your wellness taskforce to complete the following:

- ❖ Assess the Need: Complete Fuel Up to Play 60's School Wellness Investigation (school.fueluptoplay60.com/swi/instructions.php) to determine where your school stands in overall wellness environment

BE AWARE OF COMMUNITY AREAS IN NEED OF IMPROVEMENT!

- ❖ Identify areas in need of improvement: The lowest-scoring areas of the School Wellness Investigation are where your school has the greatest room for improvement. Identify these areas and rank them as top priorities to be addressed with a wellness program
- ❖ Choose one high-need area as first priority for wellness programming (i.e. nutrition, physical activity, or community/parent involvement)
- ❖ Visit www.actionforhealthykids.org to review school wellness programming (Game On!, Students Taking Charge, Fuel Up to Play 60) and choose an age-appropriate program

CCOUNT ON RESOURCES ALREADY IN PLACE!

- ❖ Once a program has been selected, review potential nutrition/physical activities and select an activity that addresses the area of highest need
- ❖ Select an activity that fits with the current wellness environment i.e. an activity that can be fully implemented given the school's current staff, resources, attitudes, etc.
- ❖ Utilize resources and support provided through community partnerships. Identify taskforce members who can support in planning and activity implementation
- ❖ Implement planned activity
- ❖ Evaluate pre and post-program wellness environment using Fuel Up to Play 60's

School Wellness Investigation

- Identify areas of improvement and weakness based on module scores
- Choose target area for improvement
- Plan next activity around improving weakest area

Appendix A

Programs: Hispanic Family Nutrition Program/Game On!

Type of Activity: Direct Education, Indirect Education, Social Marketing and Train-the-Trainer

Report Period: **2009-10-01 - 2010-09-30**

Actual Counts of SNAP-Ed PARTICIPANTS by Age

		A	B	C	D	F
		> 5 Yrs	5-17 Years Grades K-12	18- 59 Years	≥60 Yrs	All Ages Combined
1	Number of SNAP Recipients in SNAP-Ed	0	36	0	0	36
2	Number of All Other Participants in SNAP-Ed	0	305	0	0	305
3	Total Number of SNAP-Ed Participants	0	341	0	0	341

Actual Counts of SNAP-Ed CONTACTS by Age

		A	B	C	D	F
		> 5 Yrs	5-17 Years Grades K-12	18- 59 Years	≥60 Yrs	All Ages Combined
1	Number of Contacts with SNAP Recipients in SNAP-Ed	0	36	0	0	36
2	Number of Contacts with All Other Persons in SNAP-Ed	0	1460	0	0	1460
3	Total Number of Contacts of SNAP-Ed Participants	0	1496	0	0	1496

Actual Counts of SNAP-Ed PARTICIPANTS by Gender

		A	B
		Female	Male
1	Number of SNAP-Ed Participants	167	174

Actual Counts of SNAP-Ed CONTACTS by Gender

		A	B
		Female	Male
1	Number of SNAP-Ed Contacts	749	747

Actual Counts of SNAP-Ed PARTICIPANTS by Race and Ethnicity

		A	B	C
		Number of Hispanic or Latino SNAP-Ed Participants by Race	Number of Non-Hispanic/Latino SNAP-Ed Participants by Race	Total by Race
Individuals Reporting <u>ONLY ONE RACE</u>	1. American Indian or Alaska Native	0	0	0
	2. Asian	0	4	4
	3. Black or African American	0	9	9
	4. Native Hawaiian or Other Pacific Islander	0	0	0
	5. White	25	2	27
Individuals Reporting <u>MULTIPLE RACES</u>	6. American Indian or Alaska Native and White	0	0	0
	7. Asian & White	0	0	0

	8. Black or African American and White	0	0	0
	9. American Indian or Alaska Native and Black or African American	0	0	0
	10. All Others Reporting More than One Race	0	0	0
	11. TOTAL by ethnicity	25	15	40

Estimate Counts of SNAP-Ed PARTICIPANTS by Race and Ethnicity

		A	B	C
		Number of Hispanic or Latino SNAP-Ed Participants by Race	Number of Non-Hispanic/Latino SNAP-Ed Participants by Race	Total by Race
Individuals Reporting <u>ONLY ONE</u> RACE	1. American Indian or Alaska Native	0	0	0
	2. Asian	0	0	0
	3. Black or African American	0	74	74
	4. Native Hawaiian or Other Pacific Islander	0	0	0
	5. White	203	28	231

Individuals Reporting <u>MULTIPLE RACES</u>	6. American Indian or Alaska Native and White	0	0	0
	7. Asian and White	0	0	0
	8. Black or African American and White	0	0	0
	9. American Indian or Alaska Native and Black or African American	0	0	0
	10. All Others Reporting More than One Race	0	0	0
	11. TOTAL by ethnicity	203	102	305

SNAP-Ed Delivery Sites by Type of Setting

Type of Setting	Number of Different Sites/ Location	Type of Setting	Number of Different Sites/ Location
Adult Education & Job Training Sites	0	Libraries	0
Adult Rehabilitation Centers	0	Churches	0
Worksites	0	Public/Community Health Centers	0
Community Centers	0	Public Schools	4
Elderly Service Center	0	Head Start Programs	0
Emergency Food Assistance Sites	0	Other Youth Education Sites (includes Parks and Recreation)	0

Extension Offices	0	Shelters	0
Farmer Markets	0	WIC Programs	0
SNAP Offices	0	Other:	0
Food Stores	0		
Public Housing	0		
Individual Homes	0		

Direct Education Programming Format

		A	B	C
	Format	Number delivered	Time range per session (in minutes)	% delivered by interactive multimedia
1	Single session	13	30-120 minutes	0%
2	Series - 2 to 4 sessions	0	0-0 minutes	0%
3	Series - 5 to 9 sessions	0	0-0 minutes	0%
4	Series - 10 or more sessions	0	0-0 minutes	0%

Primary Content of Direct Education

CODE: I –Phys. Act.	CODE: H –MyPyramid	CODE: A –FF & Low Fat Milk	CODE: E –Fruits & Veggies
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Types of Materials Distributed

	Number	Percent
Fact sheets/pamphlets/newsletters	8	15.38%
Posters	9	17.3%
Calendars	0	0%
Promotional Materials with nutrition messages (pens/pencils/wallet reference cards/magnets/cups/etc)	6	11.54%

Website	0	0%
Electronic (Email) materials/info distribution	0	0%
Videos/CD Rom	0	0%
Other	29	55.76%
Total	52	100%

Estimated Size of Audiences Reached through Communication and Events

	Estimated No. of target population reached				
	Source of Data: Commercial market data on audience size	Source of Data: Survey of target audience	Source of Data: Visual estimate	Source of Data: Other	All Source of Data Combined
Nutrition Education Radio PSAs	0	0	0	0	0
Nutrition Education TV PSAs	0	0	0	0	0
Nutrition Education Articles	0	0	0	5250	5250
Billboard, Bus or van Wraps, or Other Signage	0	0	0	0	0
Community Events/Fair -- in which Participated	0	0	425	0	425
Community Events/Fair -- Only Sponsored	0	0	0	0	0
Other	0	0	4960	0	4960
TOTAL	0	0	5385	5250	10635

Appendix B

Programs: UConn School & Fam/Game On!

Type of Activity: Direct Education, Indirect Education, Social Marketing and Train-the-Trainer

Report Period: **2010-10-01 - 2011-09-30**

Actual Counts of SNAP-Ed PARTICIPANTS by Age

		A	B	C	D	F
		Less than 5 Years	5-17 Years Grades K-12	18-59 Years	60 Years or More	All Ages Combined
1	Number of SNAP Recipients in SNAP-Ed	0	60	0	0	60
2	Number of All Other Participants in SNAP-Ed	0	200	0	0	200
3	Total Number of SNAP-Ed Participants	0	260	0	0	260

Actual Counts of SNAP-Ed CONTACTS by Age

		A	B	C	D	F
		Less than 5 Years	5-17 Years Grades K-12	18-59 Years	60 Years or More	All Ages Combined
1	Number of Contacts with SNAP Recipients in SNAP-Ed	0	380	0	0	380
2	Number of Contacts with All Other Persons in SNAP-Ed	0	335	0	0	335
3	Total Number of Contacts of SNAP-Ed Participants	0	715	0	0	715

Actual Counts of SNAP-Ed PARTICIPANTS by Gender

		A	B	C
		Female	Male	Total
1	Number of SNAP-Ed Participants	108	92	200

Actual Counts of SNAP-Ed CONTACTS by Gender

		A	B	C
		Female	Male	Total
1	Number of SNAP-Ed Contacts	391	394	785

Actual Counts of SNAP-Ed PARTICIPANTS by Race and Ethnicity

		A	B	C
		Number of Hispanic or Latino SNAP-Ed Participants by Race	Number of Non-Hispanic/Latino SNAP-Ed Participants by Race	Total by Race
Individuals Reporting <u>ONLY ONE</u> RACE	1. American Indian or Alaska Native	0	2	2
	2. Asian	0	2	2
	3. Black or African American	0	34	34
	4. Native Hawaiian or Other Pacific Islander	0	0	0
	5. White	77	40	117
Individuals Reporting <u>MULTIPLE RACES</u>	6. American Indian or Alaska Native and White	0	0	0
	7. Asian and White	0	0	0
	8. Black or African American and White	0	0	0
	9. American Indian or Alaska Native and Black or African American	0	0	0
	10. All Others Reporting More than One Race	0	0	0
	11. TOTAL by ethnicity	77	78	155

Estimate Counts of SNAP-Ed PARTICIPANTS by Race and Ethnicity

		A	B	C
		Number of Hispanic or Latino SNAP-Ed Participants by Race	Number of Non-Hispanic/Latino SNAP-Ed Participants by Race	Total by Race
Individuals Reporting <u>ONLY ONE</u> RACE	1. American Indian or Alaska Native	0	0	0
	2. Asian	0	0	0
	3. Black or African American	0	33	33
	4. Native Hawaiian or Other Pacific Islander	0	0	0
	5. White	72	10	82

		A	B	C
		Number of Hispanic or Latino SNAP-Ed Participants by Race	Number of Non-Hispanic/Latino SNAP-Ed Participants by Race	Total by Race
Individuals Reporting <u>MULTIPLE RACES</u>	6. American Indian or Alaska Native and White	0	0	0
	7. Asian and White	0	0	0
	8. Black or African American and White	0	0	0
	9. American Indian or Alaska Native and Black or African American	0	0	0
	10. All Others Reporting More than One Race	0	0	0
	11. TOTAL by ethnicity	72	43	115

SNAP-Ed Delivery Sites by Type of Setting

Type of Setting	Number of Different Sites/Location	Type of Setting	Number of Different Sites/Location
Adult Education & Job Training Sites	0	Churches	0
Adult Rehabilitation Centers	0	Public/Community Health Centers	0
Worksites	0	Public Schools	8
Community/Family Centers	0	Head Start/School Readiness Programs	0
Elderly Service Center	0	Other Youth Education Sites (includes Parks and Recreation)	0
Emergency Food Assistance Sites (Food Pantries/Soup Kitchens)	0	Shelters	0
Extension Offices	0	WIC Programs	0
Farmer Markets	0	Community Agencies	0
SNAP Offices (DSS Offices)	0	Parks	0
Food Stores	0	Non-Public Schools	0
Public Housing	0	Health Fairs	0
Individual Homes	0	Mobile Market Van	0
Libraries	0	Other	0

Direct Education Programming Format

		A	B	C
	Format	Number delivered	Time range per session (in minutes)	% delivered by interactive multimedia
1	Single session	12	5-60 minutes	0%
2	Series - 2 to 4 sessions	0	0-0 minutes	0%
3	Series - 5 to 9 sessions	0	0-0 minutes	0%
4	Series - 10 or more sessions	0	0-0 minutes	0%

Primary Content of Direct Education

CODE: E	CODE: H	CODE: I	CODE: L
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Types of Materials Distributed

	Number	Percent
Fact sheets/pamphlets/newsletters	18	25.71%
Posters	0	0%
Calendars	0	0%
Promotional Materials with nutrition messages (pens/pencils/wallet reference cards/magnets/cups/etc)	7	10%
Website	0	0%
Electronic (Email) materials/info distribution	0	0%
Videos/CD Rom	0	0%
Other	45	64.28%
Total	70	100%

Estimated Size of Audiences Reached through Communication and Events

	Estimated No. of target population reached				
	Source of Data: Commercial market data on audience size	Source of Data: Survey of target audience	Source of Data: Visual estimate	Source of Data: Other	All Source of Data Combined
Nutrition Education Radio PSAs	0	0	0	0	0
Nutrition Education TV PSAs	0	0	0	0	0
Nutrition Education Articles	0	0	0	11170	11170

Billboard, Bus or van Wraps, or Other Signage	0	0	0	0	0
Community Events/Fair -- in which Participated	0	0	0	0	0
Community Events/Fair -- Only Sponsored	0	0	0	0	0
Other	0	0	8103	29330	37433
TOTAL	0	0	8103	40500	48603

Appendix C

Hartford Schools Pre/Post Survey Results:						
School	Hartford		Parkville		SAND	
	Kinsella					
Module						
I. Nutrition						
.1 SBP/SLP	A	A	A	A	A	A
.2 healthy foods	B	B	A	A	B	B
.3 healthy ala carte	C	C	A	A	C	C
.4 healthy vending	N/A	N/A	N/A	N/A	N/A	N/A
.5 healthy vending 2	N/A	N/A	N/A	N/A	N/A	N/A
.6 healthy food mark	C	C	A	A	C	C
.7 10 min meals	A	A	A	A	A	A
.8 20 min meals	A	A	A	A	A	A
.9 food variety	B	B	B	B	B	B
.10 taste tests	D	A	A	A	D	A
.11 SBP offering	B	B	A	A	B	B
.12 nutritional info	D	D	B	B	D	D
.13 promote healthy	D	B	A	A	D	B
Nutrition Score	17	21	31	31	17	21
II. Physical Ed/Activity						
.1 has PE courses	A	A	A	A	A	A
.2 minutes PE	C	C	C	C	C	C
.3 prohibit PE sub	N/A	N/A	A	A	N/A	N/A
.4 50% participation	A	A	A	A	A	A
.5 Daily PA	D	D	C	B	D	D
.6 PA integration	D	D	D	D	D	D
.7 PA engagement	A	A	A	A	A	A
.8 PA accessible	B	B	A	A	B	B
.9 walk/bike it	D	D	A	A	D	D
.10 promote PA	D	D	A	A	D	D
Physical Ed/Act Score	27	27	23	24	27	27
III. Family/Community						
.1 Share info	A	A	A	A	A	A
.2 F/C engagement	C	C	C	C	C	C
.3 Use facilities outside	D	D	A	A	D	D
.4 Food feedback	C	C	A	A	C	C
.5 Promote Comm PA	D	C	A	A	D	C
.6 Student Wellness Input	C	B	B	B	C	B
Family/Community Score	8	11	15	15	8	11

Appendix D

Windham Schools Pre/Post Survey Results:												
School	Windham	WMS	Natchaug	WHS	N. Windham	Windham Ctr.						
Module												
I. Nutrition												
.1 SBP/SLP	A	A	A	A	A	A	A	A	A	A	A	A
.2 healthy foods	A	B	A	A	A	A	A	A	A	B	B	A
.3 healthy ala carte	N/A	A	N/A	A	A	A	A	A	A	A	A	A
.4 healthy vending	N/A	A	N/A	A	N/A	N/A	N/A	N/A	N/A	D	D	D
.5 healthy vending 2	N/A	B	N/A	B	N/A	N/A	N/A	N/A	N/A	D	D	D
.6 healthy food mark	C	B	A	A	C	B	C	B	B	A	A	A
.7 10 min meals	A	A	A	A	A	A	A	A	A	A	A	A
.8 20 min meals	A	A	A	A	A	A	A	A	A	A	A	A
.9 food variety	B	A	A	A	A	A	A	A	A	A	A	A
.10 taste tests	D	A	D	A	A	A	A	A	A	A	A	A
.11 SBP offering	A	A	A	A	A	A	A	A	A	A	A	A
.12 nutritional info	D	C	C	A	C	C	C	C	C	D	C	C
.13 promote healthy	A	B	A	A	A	A	B	A	A	A	A	A
Nutrition Score	22	26	34	25	28	38	26	30	28	32		
II. Physical Ed/Activity												
.1 has PE courses	A	A	A	A	A	A	A	A	A	A	A	A
.2 minutes PE	C	B	C	C	C	C	C	C	C	C	C	C
.3 prohibit PE sub	A	N/A	N/A	A	A	D	D	D	D	D	D	D
.4 50% participation	N/A	N/A	D	A	A	A	A	A	A	A	A	A
.5 Daily PA	B	C	A	D	C	C	A	A	A	A	A	A
.6 PA integration	D	D	A	D	D	D	D	D	D	A	A	A
.7 PA engagement	A	A	D	A	A	A	A	A	A	D	D	D
.8 PA accessible	A	A	D	A	A	B	A	A	A	D	D	D
.9 walk/bike it	D	A	D	A	A	A	A	A	A	D	D	D
.10 promote PA	A	A	D	A	A	A	A	A	A	A	A	A
Physical Ed / Act Score	18	18	18	10	13	22	21	22	13	13		
III. Family/Community												
.1 Share info	D	A	A	A	D	D	A	A	A	A	A	A
.2 F/C engagement	D	B	C	C	D	D	C	C	C	C	C	C
.3 Use facilities outside	D	C	D	N/A	N/A	N/A	C	C	C	D	D	D
.4 Food feedback	D	B	A	A	B	B	A	A	A	A	A	A
.5 Promote Comm PA	A	A	B	A	A	A	A	A	A	B	A	A
.6 Student Wellness Input	D	C	A	A	A	A	C	C	C	A	A	A
Family/Community Score	3	7	13	12	12	10	13	13	12	12	15	

Appendix E

Norwich School Pre/Post Survey Results:		
Norwich - Kelly Middle School		
Nutrition Score	79	92
Physical Ed/Act Score	88	92
Family/Community Score	22	30



School Wellness Investigation



MODULE 1: Nutrition Services

Instructions: Carefully read over the questions and circle the most appropriate answer in the columns to the right of the question. **IMPORTANT:** Remember to answer and score these questions honestly. You may find that your school may have a low score, but knowing this will help you plan for improvement. Work with adults in your school to collect the information you need to accurately answer the question (e.g., the school nutrition manager, school nurse, school wellness coordinator, etc.).

(Work with your Program Advisor to enter your Investigation and calculate your score online at www.FuelUpToPlay60.com.)

#	Question	A	B	C	D
1.1	Does your school offer breakfast and lunch programs?	Yes	It offers one but is currently starting the other program	It offers one but not the other	No
1.2	How many of the following does your school offer? <ul style="list-style-type: none"> • Cold flavored and unflavored low-fat and fat-free milk with each meal • At least two healthy entrees (hot food) daily for lunch • Five foods containing whole grains offered weekly • Two choices of fruit (or 100% fruit juice) daily • Two choices of vegetables daily 	All	Three or four	One or two	None
1.3	Do a la carte offerings (foods that are sold individually in the lunch line) include low-fat dairy product(s), fresh fruit, vegetable(s) and whole grain food(s) every day?	Yes, all four are offered daily	Two or three of these are offered daily	One of these is offered daily	None of these is offered daily
1.4	Do school vending machines, stores, and concession stands offer low-fat dairy products, fruits, vegetables and whole grain foods?	Yes, all four are offered	Two or three of these are offered	One of these is offered	None of these is offered

#	Question	A	B	C	D
1.5	How many of the following items are available in the vending machines or at the snack bar in your school? <ul style="list-style-type: none"> • Low-fat dairy products • Fruits • Vegetables • Water • 100% fruit juice • Whole grain products (i.e., whole wheat bread, whole wheat crackers and cereals) 	5-7 of these items	3-4 of these items	1-2 of these items	None of these items is offered
1.6	Your school tries to promote healthy food and beverage choices by how many of the following ways? <ul style="list-style-type: none"> • Placing healthy foods in prominent positions • Displaying nutritional information • Offering nutritious food at better prices than food of less nutritional value • Advertising healthy foods through menus or posters 	4 ways	3 ways	1-2 ways	None
1.7	In the past two weeks, did the majority of students have at least 10 minutes to eat breakfast at school?	Yes			No
1.8	In the past two weeks, did the majority of students have at least 20 minutes to eat lunch at school?	Yes			No
1.9	Are most foods served in your school of high quality (fresh, attractive) with a good variety?	Yes, most foods are of high quality with good variety	Some foods are high quality with good variety	Few foods are high quality and variety is limited	Most foods are not of high quality and there is little variety
1.10	Do students participate in taste tests (or other food tasting events) to help select youth -appealing foods and beverages for school meals?	Yes			No
1.11	Is school breakfast offered at a time(s) and in a way(s) that is appealing to most students?	Yes, the timing and way breakfast is offered appeals to most students	The timing and way in which breakfast is offered appeals to some but not most students	The timing and way in which breakfast is offered appeals to few students	No, neither the timing nor the way in which breakfast is offered appeals to students
1.12	Is nutritional information (about nutritional content of food) available for foods served in school meals to help students make healthful eating choices?	Yes, nutritional labeling is regularly available	Nutritional labeling is sometimes available	Nutritional labeling is rarely available	No

#	Question	A	B	C	D
1.13	Does your school promote the benefits of consuming low-fat/fat-free dairy products, fruits, vegetables and whole grains to students?	Yes, the school promotes all 4 of these types of foods	The school promotes 2-3 of these types of foods	The school promotes 1 of these types of foods	No, the school does not promote these types of foods
	ADD TOTAL number of answers circled in each column A, B, and C				No points
	Multiply the total number from each column by the points shown to find the subtotals	X 3	X 2	X 1	X 0
	Add all subtotals to calculate the Nutrition Services GRAND TOTAL	GRAND TOTAL =			
	<u>MODULE SCORE:</u> Divide your GRAND TOTAL by 39 and multiply by 100 to calculate your score for Nutrition Services. Enter this score in your Overall Score Card in the next section.	(GRAND TOTAL / 39) X 100 =	%		



School Wellness Investigation



MODULE 2: Physical Education / Physical Activity

Instructions: Carefully read over the questions and circle the most appropriate answer in the columns to the right of the question. **IMPORTANT:** Remember to answer and score these questions honestly. You may find that your school may have a low score, but knowing this will help you plan for improvement. Work with adults in your school to collect the information you need to accurately answer the question (e.g., a physical education teacher, school nurse, school wellness coordinator, etc.).

(Work with your Program Advisor to enter your Investigation and calculate your score online at www.FuelUpToPlay60.com.)

#	Question	A	B	C	D
2.1	Does your school have required physical education courses? <i>If no, skip questions 2.2 and 2.3. Count each of the skipped questions as 0.</i>	Yes			No
2.2	On average, how many minutes per week do students receive physical education class (not substitution of participation in a sports team)?	200 or more minutes	135-200 minutes	45-135 minutes	0-45 minutes
2.3	Does your school prohibit the substitution of other courses or activities, such as interscholastic sports or band, for physical education?	Yes	Yes, but occasional exceptions are made	No, but there are plans to start prohibiting substitution	No
2.4	Do at least 50% of boys and 50% of girls in your school participate in extra-curricular physical activity (e.g., intramurals, physical activity clubs, dance clubs, and interscholastic sports)?	An equal number of boys and girls participate	More boys participate than girls – or vice versa	School-sponsored physical activities are not offered for boys, but are offered	There are no school-sponsored physical activities

#	Question	A	B	C	D
2.5	Do students have the opportunity to participate in physical activity breaks (short breaks that involve physical movement) in school on a daily basis?	All students participate in physical activity breaks on a daily basis	Most students participate in physical activity breaks on a daily basis	Some students participate in physical activity breaks on a daily basis for girls – or vice versa	No students participate in physical activity breaks on a daily basis
2.6	Does your school integrate physical activity into most subject areas?	Yes			No
2.7	Does your school offer a range of non-competitive physical activity opportunities aimed at engaging students in fun, recreational, and life-long learning opportunities before or after the school day (e.g., walking clubs, in-line skating, jumping rope, water aerobics, weight-training, yoga, fitness clubs, etc.)?	Yes			No
2.8	Are the physical activity opportunities mentioned in the previous question easily accessible (i.e., no overcrowding in programs, low or no cost involved, etc.)?	All physical activity opportunities are easily accessible	Most physical activity opportunities are easily accessible	Some physical activity opportunities are easily accessible	No physical activity opportunities are accessible
2.9	Does your school have a plan in place to promote safe walking and biking to school?	Yes			No
2.10	Does your school promote the benefits of getting adequate daily physical activity to students?	Yes			No
ADD TOTAL number of answers circled in each column A, B, and C					No points
Multiply the total number from each column by the points shown to find the subtotals		X 3	X 2	X 1	X 0
Add all subtotals to calculate the Physical Education/Physical Activity GRAND TOTAL		GRAND TOTAL =			
MODULE SCORE: Divide your GRAND TOTAL by 30 and multiply by 100 to calculate your score for Physical Education/Physical Activity. Enter this score in your Overall Score Card in the next section.		(GRAND TOTAL / 30) X 100 =	%		



School Wellness Investigation



MODULE 3: Family and Community

Instructions: Carefully read over the questions and circle the most appropriate answer in the columns to the right of the question. **IMPORTANT:** Remember to answer and score these questions honestly. You may find that your school may have a low score, but knowing this will help you plan for improvement. Work with adults in your school to collect the information you need to accurately answer the question (e.g., the school nutrition manager, physical education teacher, principal, school nurse, school wellness coordinator, etc.).

(Work with your Program Advisor to enter your Investigation and calculate your score online at www.FuelUpToPlay60.com.)

#	Question	A	B	C	D
3.1	Does your school send home materials or give opportunities for families to learn about promoting healthy eating and promoting physical activity?	Yes			No
3.2	Do parents and other community members help plan and implement school nutrition and physical activity programs (e.g., volunteering in the cafeteria, classroom, or at special events)?	Yes, they help with all of the programs	They help with most of the programs	They help with some of the programs	No, they do not help with any of the programs
3.3	Can all students use your school's indoor and outdoor physical activity facilities outside school hours?	Yes	Yes, but the hours of access are somewhat limited	Yes, but hours of access are very limited OR there is access to indoor or outdoor facilities but not both	Students do not have access to school physical activity facilities outside school hours
3.4	Do students and parents have opportunities to give suggestions for school meals and feedback on the meal program?	Yes, they can give both feedback and suggestions	Either students or parents – but not both – can give feedback and	Students and parents have very little opportunity to give feedback and	There are no opportunities to give feedback or suggestions

#	Question	A	B	C	D
3.5	<p>Does the physical education program promote student participation in a variety of community/outside-of-school physical activity options through three or more methods?</p> <p><i>Examples of community/outside-of-school physical activity options include clubs, teams, recreational classes, special events such as community fun runs, and use of playgrounds, parks, and bike paths.</i></p> <p><i>Examples of methods include:</i></p> <ul style="list-style-type: none"> • class discussions • bulletin boards • public address announcements • guest speakers who promote community programs • take-home flyers • homework assignments • newsletter articles • academic credit for participating in community physical activities and programs 	Yes, through 3 or more methods	suggestions Yes, but only through 1 or 2 methods	suggestions The program promotes only one type of community physical activity option	The program does not promote participation in community physical activity options OR there is no physical education program
3.6	Do students have the opportunity to provide input into the development and implementation of school health and wellness activities?	Yes	Students have some opportunities for input, but it is not a regular practice	Opportunities for student input are very limited	No
ADD TOTAL number of answers circled in each column A, B, and C					No points
Multiply the total number from each column by the points shown to find the subtotals		X 3	X 2	X 1	X 0
Add all subtotals to calculate the Family and Community GRAND TOTAL		GRAND TOTAL =			
MODULE SCORE: Divide your GRAND TOTAL by 18 and multiply by 100 to calculate your score for Family and Community. Enter this score in your Overall Score Card in the next section.		(GRAND TOTAL / 18) X 100 =	%		



School Wellness Investigation



OVERALL SCORE CARD

For each Module, mark an X in the column that corresponds with its Module Score, which you calculated at the end of each Module.

Module	Low	Medium			High
	0-20%	21-40%	41-60%	61-80%	81-100%
Module 1: Nutrition Services Physical Education / Physical Activity					
Module 2: Physical Education / Physical Activity					
Module 3: Family and Community					

(Work with your Program Advisor to enter your Investigation and calculate your score online at www.FuelUpToPlay60.com.)

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