

# Effective Leadership to Alter School Food Environments and Improve Public Health

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## ABSTRACT

*Multiple studies show that many children and adolescents in the United States are overweight or at risk for overweight; moreover, the numbers are still rising. Contributing to the problem is the fact that schoolchildren, on average, are eating too much fast food and well below the recommended amounts of fruits and vegetables. From a public health perspective, these are severe problems, as they have been associated with diseases such as heart stroke and heart disease. Not surprisingly, school food environments, which are often saturated with low-nutrient energy-dense foods, are not helping matters and need to be altered. Interventions involving nutrition education or environmental changes have yielded positive outcomes overall, but more innovative and multifaceted approaches are needed. School gardens may be one such approach. Most importantly, to overcome funding concerns and other obstacles, schools need strong and effective leadership, and they need to follow the eight steps delineated by John Kotter. By doing this, public health educators and school staff can change school food environments and enhance the lives of millions of children nationwide.*

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## Background

Multiple studies show that many U.S. children and adolescents are overweight or at risk for overweight, and the numbers are on the rise (Hedley et al., 2006; Ogden & Carroll, 2010; Ogden et al., 2006). Contributing to this problem is the fact that schoolchildren, on average, are eating too much fast food and well below the recommended amounts of fruits and vegetables (Bowman, Gortmaker, Ebbeling, Pereira, & Ludwig, 2004; Krebs-Smith et al., 1996; Guenther, Dodd, Reedy, & Krebs-Smith, 2006). From a public health perspective, these are severe problems, as they may be associated with numerous diseases including heart disease, stroke, and cancer (Dauchet, Amouyel, Hercberg, & Dallongeville, 2006; He, Nowson, & Macgregor, 2006; Riboli & Norat, 2003; Van Duyn & Pivonka, 2000).

Given that children and adolescents spend so much time at school—and that some of this time is spent eating—public health educators, teachers, school administrators, dieticians, and others need to provide effective leadership and creatively craft school food environments that do the following: encourage, through education and environmental changes, the adoption of healthy eating habits; and remove unhealthy foods from schools (see e.g., Cullen et al., 2007; French & Wechsler, 2004; Gortmaker et al., 1999; McAleese & Rankin, 2007). In so doing, they can help children live longer, more fulfilling lives. This present paper elaborates upon the assertions already made and is divided into three sections: (1) explanation as to why school food environments in the U.S. are in need of change (i.e., why it is a significant problem); (2) interventions and factors related to the problem; and (3)

implications for leadership, with a particular focus on John Kotter's (1998) eight steps. Ultimately, a collaborative yet aggressive effort is needed to push aside short-term interests (e.g., money) and promote long-term well-being.

## Significance of the Problem

To reiterate, US schoolchildren are not eating well, and school environments—which are often saturated by vending machines, french fries, and the like—are not helping matters (Krebs-Smith et al., 1996; Guenther et al., 2006; Finkelstein, Hill, & Whitaker, 2008). Moreover, rates of overweight and at risk children continue to increase despite attempts to curb the problem (Ogden & Carroll, 2010). In this section, the significance of the school food problem is explicated, aided by the inclusion of content from the literature. Specifically, information regarding weight, fruit and vegetable consumption, linkages to other diseases, and relationships with school food environments is provided.

Using data from the U.S.' National Health and Nutrition Examination Survey (NHANES), Ogden and Carroll (2010) concluded that rates of overweight children (i.e., those above the 95<sup>th</sup> percentile for BMI) have dramatically increased since the 1970s. Only 6.5% of children between 6 and 11 years old were overweight during the 1976-1980 timeframe, whereas 19.6% fit the overweight category for the 2007-2008 NHANES (Ogden & Carroll, 2010). For the 12 to 19 age group, the percentages were 5.0% and 18.1%, respectively (Ogden & Carroll, 2010). Thus, even though there has not been a clear trend over the past decade—and even though BMI is not a perfect measure of weight status—childhood obesity has certainly become an

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urgent public health concern. Even more alarming, for the 2003-2004 NHANES, 16.6% of children between 6 and 11 years old were at risk for overweight (but not actually overweight) (Ogden et al., 2006); the percentage was 18.5% for those between 12 and 19 years old (Ogden et al., 2006). In other words, nearly two-fifths of children in the U.S. are not carrying a healthy weight (Ogden et al., 2006). U.S. Schools and the people who work in them are largely responsible for the welfare of the country's children, and they cannot ignore this issue.

Whereas physical activity and other factors (e.g., genetics) undoubtedly play a role also, weight status and diet are obviously related, and, thus, it should be no surprise that the eating habits of U.S. schoolchildren leave much to be desired. One study by Bowman and colleagues (2004) found that nearly one-third (i.e., 30.3%) of U.S. school children ate fast food on an almost daily basis, and such consumption was associated with other indicators of a poor diet, including low fruit and vegetable intake. Guenther et al. (2006) examined fruit and vegetable consumption and discovered that in the 9-13 age group only 17.6% of males and 19.8% of females ate five or more combined servings of fruits and vegetables per day. An older study yielded similar results (Krebs-Smith et al., 1996). In summary, children and adolescents in the U.S. need to eat more fruits and vegetables and fewer fast foods. Drastic alterations in school food environments, as well as in curriculums, can produce constructive changes to this end.

Stroke, heart disease, and cancer are among the diseases potentially associated with fruit and vegetable intake, and the former two have the greatest amount of supporting evidence (Dauchet et al., 2006; He et al., 2006; Riboli & Norat, 2003; Van Duyn & Pivonka, 2000). Meta-analyses suggest that eating more fruits and vegetables may lead to reduced rates of heart disease and stroke (Dauchet et al., 2006; He et al., 2006). Therefore, eating healthier is not simply important for readily observed reasons (e.g., looking healthier, increased mobility); rather, environments that promote healthy eating can lead to declines in disease-related mortality. Public schools should take notice; the lives of schoolchildren are literally at stake.

Although the data presented up to this point of the paper have been startling, one important question remains: What, in concrete terms, do obesity and fruit and vegetable consumption have to do with public schools? Multiple researchers have sought and provided answers. For example, one cross-sectional study found associations between particular aspects of elementary and middle school food environments (e.g., vending machine content and availability, dessert and french fry offerings) and student weight status, that is, BMI (Fox, Hedley

Dodd, Wilson, & Gleason, 2009). Interestingly, there were no significant findings for high schools. Moreover, while most of the relationships were predictable, à la carte offerings of low-nutrient energy-dense foods was actually associated with lower BMIs, perhaps due to a confounding variable (Fox et al., 2009). School food environments have also been connected to food purchasing and diet quality (Briefel, Crepinsek, Cabili, Wilson, & Gleason, 2009; Neumark-Sztainer, French, Hannan, Story, & Fulkerson, 2005). As might be expected, reduced access to sugar-sweetened drinks at school seems to correspond to a drop in their consumption and purchasing (Briefel et al., 2009; Neumark-Sztainer et al., 2005).

In terms of the food environments themselves, there is variation across school types, with high schools and middle schools being more likely to have vending machines, the majority of which possess unhealthy options (Finkelstein, Hill, & Whitaker, 2008). Even so, low-nutrient energy-dense foods are sold à la carte at the majority of schools, regardless of school type (Finkelstein et al., 2008). Thus, schools nationwide desperately need strong leaders to help improve their food environments and, in the process, advance the public's health and quality of life.

### **Factors Related to the Problem and Interventions**

When it comes to food choices among schoolchildren, social factors should not be underemphasized. Peer and parent modeling, as well as attitudes towards unhealthy foods, are among the countless such factors that may be influential (Van Der Horst et al., 2008). Still, one factor is paramount—money. In general, school principals and administrators wish to enhance the nutritional intake of schoolchildren, but budget cuts have made supplementing funds (e.g., through vending machines) appealing and seemingly necessary (e.g., Crooks, 2003; French, Story, & Fulkerson, 2002). Unfortunately, changing national, state, and local political climates (i.e., increasing education budgets) is not a viable option, particularly in the short-term. Therefore, individuals must use creativity, vision, and strength of will to overcome financial obstacles and effectively enrich school food environments. This section describes interventions that have been attempted, along with the results. Since they are unique, multifaceted, and less obvious than others, school gardens receive special attention.

Multiple school-based nutrition interventions have focused on reducing the availability of and access to unhealthy foods. For example, for one six-week pilot study conducted at six schools, thirteen environmental goals were set, many of which called for healthy menu enhancements (e.g., greater variety

of fruits and vegetables) (Cullen et al., 2007). The majority of goals were met, but the results—while generally positive—were somewhat mixed, with the total amount of fruits and vegetables consumed declining at two schools (Cullen et al., 2007). (The amount remained about the same at another.) Furthermore, some individuals expressed concerns about revenue loss (Cullen et al., 2007). In summary, changing school food offerings may eventually prove beneficial, but there is a clear need to go beyond that. Individual and interpersonal factors must be addressed—through, for instance, health education programs.

One two-year education-based program called Eat Well and Keep Moving aimed to reduce unhealthy fat intake and increase the consumption of fruits and vegetables among schoolchildren (as well as to increase physical activity and reduce time watching television) (Gortmaker et al., 1999). Children were taught by their regular schoolteachers, and they completed 24-hour food recalls at baseline and after approximately two years. Fruit and vegetable intake increased from 1.41 (per 4184 kJ) to 1.78, but, again, results were not overwhelming (Gortmaker et al., 1999); the impact on saturated fat intake, for example, was barely statistically significant. Thus, taken together, the two aforementioned interventions illustrate a critical point: To drastically alter the diets of US schoolchildren, multifaceted interventions are necessary. Focusing exclusively on education (i.e., knowledge, beliefs, and attitudes) or on food access and availability will inevitably result in failure.

Notably, school gardens—while they take many forms and require time, effort, and resources—can provide a location for physical activity, academic instruction, and learning about healthy foods (Graham, Beall, Lussier, McLaughlin, & Zidenberg-Cherr, 2005; Graham & Zidenberg-Cherr, 2005). Several studies have found a significant relationship between fruit and vegetable consumption and school gardens (Hermann et al., 2006; McAleese & Rankin, 2007; Parmer et al., 2009). McAleese and Rankin (2007) discovered that intake for those students participating in nutrition education and gardening increased from 1.93 daily servings to 4.50 daily servings—that is, by 133%. Additionally, knowledge and taste ratings can be positively altered by school gardens (Parmer et al., 2009). In short, school gardens are inherently comprehensive, supplying foods and educational opportunities. Health educators and school administrators alike should consider gardens to be worthwhile endeavors.

### Implications for Leadership

As mentioned earlier, Kotter's (1998) eight steps to effective transformation provide valuable insights into how school food environments can be changed

by health educators and other individuals. This section elaborates upon these steps and their relevance to the problem. Whereas schools are different than for-profit corporation, the same leadership principles still apply.

The first step demands that leaders “establish a sense of urgency”, taking the time upfront to recognize the need for—and the barriers to—change (Kotter, 1998, p. 29). This step is especially applicable within the context of schools, as individuals can (understandably) become singularly focused on academics or finances, and other pressing issues can be overlooked. To reiterate, considering the relationships between fruit and vegetable consumption and deadly diseases, the management of school food environments may be a matter of life and death (Dauchet et al., 2006; He et al., 2006). Leaders must passionately underscore this point.

Next, leaders should “form a powerful guiding coalition”, bringing together people to collectively effect change (Kotter, 1998, p. 29). In other words, leaders—whoever they may be—should not act like tyrants; rather, they should be simultaneously confident and meek, recognizing the value of collaboration. Again, such leadership is necessary to enhance school food environments. Teachers, lunchroom managers, administrators, parents, and health educators are among the many individuals that can assist in the effort, and no person can do it all alone; a leader must foster teamwork.

The third step is straightforward but significant: “create a vision” (Kotter, 1998, p. 29). There are numerous ways to affect school food environments, some of which seem to work well and some of which do not (Cullen et al., 2007; French & Wechsler, 2004; Gortmaker et al., 1999; McAleese & Rankin, 2007). But, regardless of the chosen approach, someone—preferably a health educator—must cast a clear vision, with clear goals and objectives. Creativity is also an asset.

The fourth step is related to the third and is “communicate the vision” (Kotter, 1998, p. 29). Conveying information to school staff may not be difficult, but parents also possess vital roles and yet are more difficult to contact. Thus, an effective leader must figure out clear—and perhaps innovative—ways to inform parents about the school's vision.

“Empower others to act on the vision” is the fifth step to transformation (Kotter, 1998, p. 29). Interventions to promote healthy eating among schoolchildren are not without their drawbacks. School gardens consume time, effort, and resources; education-based interventions take time away from other academic subjects; and limiting access of vending machines results in a loss of discretionary funds (Crooks, 2003; French et al., 2002). Therefore, to successfully change school food environments,

individuals must feel empowered to make sacrifices and put the health of schoolchildren first.

Sixth, leaders must “plan for and create short-term wins” (Kotter, 1998, p. 29). It would not be reasonable to expect all children to immediately meet the recommendations for fruit and vegetable consumption. A more realistic short-term goal might be to increase students’ ability to identify certain foods. When short-term goals are met, the team can celebrate the accomplishments.

The seventh step is to “consolidate improvements and produce still more change” (Kotter, 1998, p. 29). The outcomes of programs are sometimes much different than anticipated, and, thus, there is a need to continuously evaluate and build upon what has already been done. In some cases, a facet of a program may need to be completely abandoned.

Finally, leaders must “institutionalize new approaches” and ensure that success is sustained. Specialized knowledge (e.g., about gardening) must be passed on to other potential leaders, and funds must be available long-term. Otherwise, transformation will be incomplete, and policies and practices will revert to the way they were initially.

## Conclusion

To conclude, overweight and inadequate diet—which have been associated with increased risk for heart disease and stroke—are dire problems among US schoolchildren, and an inspired public health response is required (Dauchet et al., 2006; Guenther et al., 2006; He et al., 2006; Ogden et al., 2006). Too many schools provide easy access to unhealthy foods such as french fries, sodas, and cookies, and this likely has a deleterious effect on the well-being of students (Briefel et al., 2009; Finkelstein et al., 2008; Neumark-Sztainer et al., 2005). Peer and parent modeling, subjective norms, and attitudes toward particular foods are also significant determinants of child eating behaviors, and, thus, health educators and school staffs also need to address these factors (Van Der Horst et al., 2008). Past interventions have generally yielded positive but underwhelming results, and future programs need to be more multifaceted, incorporating an educational component along with changes to the school food environment (Cullen et al., 2007; French & Wechsler, 2004; Gortmaker et al., 1999). Most importantly, to overcome funding concerns and other obstacles, effective leadership is essential, and Kotter’s (1998) eight steps provide a valuable guide. Leaders must instill a sense of urgency and a desire to work together; they must create a vision and cast it clearly; they have to embolden and energize; they have to create realistic and observable short-term goals; and they must promote reflection and sustainability (Kotter, 1998). By following these

eight steps, public health educators, in conjunction with public schools, can alter school food environments and enhance the lives of millions of children.

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