
Community Gardens: Interactions between Communities, Schools, and Impact on Students

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Abstract

Considering over one-third of the United States' population is now considered obese, childhood obesity has become a highlighted public health concern. Educators and health professionals have spent a significant amount of time examining how to approach the obesity epidemic, specifically childhood obesity, yet there is still no clear solution. An alternative that could prove to be effective is the collaboration of community gardens and schools. Community gardens are indirectly organized to address public health agendas through community engagement and used for a broad spectrum of community needs ranging from enhanced food security,

improved nutrition, increased levels of physical activity, heightened community desire for better social-economical relationships, and enriched psychological wellbeing. Community gardens are effective and the integration within schools could prove to be an effective means to promote health. The direct impacts of community gardens potentially provide a unique route to address childhood obesity through skill-based learning. This manuscript provides a commentary to advocate for the collaboration between community gardens organizations and local schools (elementary and middle) as an avenue to promote health.

Introduction

As school days lengthen and extracurricular activities continue to absorb free time, people, especially young children, need to create space and time to interact with the outside world of nature (Driessnack, 2009; Louv, 2008). Over one-third of the United States' population is now considered obese and obesity remains a public health concern due to its impact on individuals (e.g., cardiovascular health), intrapersonal relationships, social influence, and economic burden (Flegal, Carroll, Kit, & Ogden, 2012; Flegal, Graubard, Williamson, & Gail, 2005; Ogden, Carroll, Curtin, McDowell, Tabek, & Flegal, 2006). The efforts of health educators have focused on behavior change techniques to alter food choices and promote an active lifestyle. However, nutrition and physical activity are often treated as independent concepts in school and community health initiatives, instead of coupled constructs (Morgan et al., 2010; Morris & Zidenberg-Cherr, 2002; Ratcliffe, Rogers, & Goldberg, 2011; Sallis et al., 1997; Story, Nannery, & Schwartz, 2009). Obesity is based on the imbalance of energy (improper nutrition and lack of physical activity) combined with numerous influences that alter the homeostatic mechanisms within the bodily systems. The authors believe the process of growing your own food allows individuals the ability to draw parallels with energy balance (proper nutrition and physical activity) and their own health.

In addition, positive effects (e.g., better mental and emotional well-being as well as increased healthy eating habits) from increased time spent in nature have been extensively noted in previous research for adults and kids (McCurdy et al., 2010; Morris & Zidenberg-Cherr, 2002; Wells, 2014). Even though this research exists, many educators may find it difficult to allocate time for children to be in nature. Children spend the majority of their days in school, but opportunities to be outside are limited due to the increasing pressures of academia filling the majority of time (Pate & Hohn, 1994). This comes at a great detriment to school aged children as the time spent in an

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indoor environment can yield uncertain effects on motor skill development, activity adherence, and general health outcomes (Dale, Corbin, & Dale, 2000). School is a favorable setting for children to have the opportunity to experience nature because schools can reach almost all children and adolescents, provide an area to practice skills, and are surrounded by educators who already promote learning.

Further, nature has been found to provide an additional option that decreases the amount of time in front of a screen (i.e., television, tablet, and/or gaming device) (Rosen et al., 2014). Technology has highly influenced a child's learning environment. Innovative forms of education become necessary in schools in order to stay on track with academic demands. As technology continues to evolve as an important tool for learning, its use in the classroom rises as well. This poses a risk for children's health as these newly generated forms of technology can be sedentary in nature. These forms of technology may further disconnect children from their outdoor spaces, environments, and often from physical activity. Efforts are needed to engage children in outdoor activities that can help them to attain healthy habits away from sedentary forms of technology.

There has been considerable interest in the development of skills pertaining to healthy nutrition and physical activity behaviors in early, middle, and late childhood education (Soga, Cox, Yamaura, Gaston, Kurisu, & Hanaki, 2017). Skill acquisition is vital as it allows individuals to learn from each other (role-modeling) and build behavior efficacy. Role modeling as well as building healthy lifestyle skills and behaviors has shown to influence children to adults (Alaimo, Packnett, Miles, & Kruger, 2008). In turn, gardening has become an increasingly popular movement because it allows participation from all age groups and can contribute to healthy behaviors directly impacting both individual and community health (Parmer, Salisbury-Glennon, Shannon, & Struempfer, 2009). The combination of health education (knowledge) with the mastery of skill attainment and reinforcement is crucial for helping individuals establish lifelong health habits and skills. Community gardens may be an ideal avenue for achieving these outcomes.

Community gardens are pieces of land gardened by citizens to produce fruit and vegetables. In most cases, community gardens are open to the public and serve as a place for congregation, agricultural education, and recreation. Community gardens are becoming more popular and present various opportunities that could positively enhance the health of our nation. Community gardens (CG) can be used as a public health instrument in efforts to improve communities through means of food security, nutrition, physical activity, psychosocial wellbeing, and social relationships (Irvine, Johnson, & Peters, 1999; Twiss et al., 2011; Wakefield, et al., 2007). This commentary seeks to examine the past and current literature on the influence of CG on public health education. The manuscript aims to (a) examine the influence of CGs on community health, (b) how community gardens have evolved as a public health intervention, and (c) how CGs can be integrated within schools.

While numerous school health programs exist, how community gardens can be integrated within schools has not been discussed within the literature. Providing a broad overview of what encompasses CGs and types of CGs will thus provide

important information for educators as they seek unique strategies for partnerships and future collaborations. Further, this manuscript provides a commentary to advocate for the collaboration between CGs and local schools (elementary and middle) as an avenue to promote health.

Types of Community Gardens

Within urban communities, CGs tend to be present more frequently in comparison to rural communities due to the greater demand and societal organizations in a city (Armstrong, 2000). CGs provide a much-needed green space for inner city neighborhoods to take back and cultivate land (Armstrong, 2000; Irvine, Johnson & Peters, 1999). Urban agriculture removes the barriers that prevent neighborhood members from reaching optimal health status by increasing immediate and affordable access to fresh produce, improving psychosocial wellbeing, and offering opportunities to engage in physical activity (Alaimo et al., 2008; Blair, Giesecke, & Sherman, 1991; Litt, Iannotti, & Wang, 2011). Urban neighborhoods are in conflict with ever expanding cityscapes, which take away free space and create further food insecurities. CGs stand between the daily politics of an urban environment and neighborhood sustainability.

In urban communities, there are several popular types of CG practices. There are (a) leisure gardens, (b) privately owned or entrepreneurial gardens, and (c) school gardens, located in areas of available space.

Leisure Gardens. Leisure gardens are typically located in the center of neighborhoods with easy access to all community members (Contento, Manning & Shannon, 1992). These types of gardens offer a social and ecological space for people to gather often by collaborative efforts without specific policies.

Private or Entrepreneurial Gardens. Privately owned or entrepreneurial gardens are typically offered in largely urbanized areas where there is a call to reduce social exclusion and alleviate poverty (Contento, Manning & Shannon, 1992). This kind of CG provides opportunities for education on cultivation techniques and the advancement of business practices (Contento et al., 1992).

School Gardens. CGs, owned and run by schools or educational facilities, are most often found directly onsite and are paired with varieties of classroom instruction that expand traditional learning spaces to promote not only academic success but also fruit and vegetable consumption, physical activity, and the development of social and leadership skills (Ozer, 2007; Ratcliffe et al., 2011). CGs show a unique opportunity to improve public health as they possess not only the ability to address initiatives such as increasing fruit and vegetable consumption and physical activity in children, but also being able to influence the community members inside and outside the educational system (Twiss et al., 2011). Historically, CGs have been found in the United States since the late 19th century and have recently become a topic of interest in the schools again. A pilot study of a school in Nevada showed that the school garden's success is dependent on the educators' motivation, attitude, and knowledge of the positive impacts of the school garden on their students' lives and wellbeing (Murakami, Pharr & Bungum, 2016).

Community Gardens and Public Health

CGs are organized to address public health agendas through community engagement and are used for a broad spectrum of community needs ranging from enhanced food security, improved nutrition, increased levels of physical activity, heightened social-economical relationships, and enriched psychological wellbeing (Irvine et al., 1999; Twiss et al. 2003, Wakefield et al., 2007). In many cases CGs are built upon health initiatives with links between various public health disciplines making efforts ubiquitous and understood across a broader audience (Twiss et al., 2003).

CGs can provide a multitude of health benefits. Most notably in the area of nutrition. CGs offer immediate accessibility to fresh and local fruits and vegetables. Additionally, they can reduce costs associated with obtaining produce (Contento, Manning, & Shannon, 1992). CGs have been shown to increase community consumption of fruit and vegetables and can even influence a person's attitudes and preferences for healthy foods (Somerset & Markwell, 2009; Ratcliffe et al., 2011). CG's pose to be a valuable public health tool in elevating community nutrition now and in the future.

Not only can people gain fresh produce, but GCs offer an opportunity also for physical activity and exercise through gardening activities (Wakefield et al., 2007). Gardening typically consists of activities like watering, walking, gathering, planting, cultivating, mowing, and raking. These types of physical activities can range from 1.5 to 6.0 METs according to a metabolic equivalent scale (Ainsworth et al., 1993). Moderate activity is considered to fall between 3.0 and 6.0 METs. Anything greater than 6.0 METs is considered vigorous activity. Gardening offers a variety of moderate-intensity activities such as planting seeds, laying sod, and clearing land (Ainsworth et al., 1993). Current recommendations set by ACSM suggest adults get a minimum of 30 minutes of moderate-intensity physical activity each day (Pate et al., 1995).

Further, successful CGs have social-economical relationships present to support and overcome the challenges in gardening allowing for all members of the community to benefit from its presence (Carney et al., 2012). Due to collaboration between community members and the connectivity to natural environments, CGs have also been shown to improve mental well-being (Hale et al., 2011; Okvat & Zautra, 2011; Teig et al., 2009). CGs specifically can improve ambulatory blood pressure (Hartig et al., 2003). CG's can also heighten emotions and influence the restoration of stress (Groenewegen, Berg, DeVries, & Verheij 2006; Hartig et al., 2003). This kind of noted impact on mental health supports the notion that the outdoor environment can be a multifaceted tool in health promotion.

CGs are distinct in how they are constructed and supported by communities (Twiss et al., 2011). For example, most gardens are founded with agendas to elevate access to fresh produce and increase fruit and vegetable consumption in local communities (Litt et al., 2011; Alaimo, Packnett, Miles, & Kruger 2006). On the other hand, there are CGs in urban environments to serve as sustainable green space for people to be involved with nature. Thus, these are two unique spaces with different goals organized and sustained by members in the community and or by public health officials (Hartig et al., 2003). Importantly, every CG program is shaped by its

city, prevailing rules and regulations, people involved, and community that it supports.

Influence on Community Nutrition

Improper caloric balance contributes greatly to the rising trends of obesity in the United States (Flegal, 2005). Many individuals consume a diet of energy dense and poor nutritional quality foods due to cost, accessibility, taste preferences developed, as well as the convenience of these foods. Further, many adults do not meet the recommended five servings of fruits and vegetables each day (Patterson, Block, Rosenberger, Pee, & Kayhle, 1990; Tsai, Williamson & Glick, 2011). Fresh fruits and vegetables are high in nutritional quality and the lack of consumption of these foods can and does contribute to the caloric imbalance in the average American diet. Predictors of fruit and vegetable intake include food accessibility, attitude, preference, and even socioeconomic standing (Resnicow et al., 1997; Shaikh et al., 2008). Imbalanced energy intake is partly due to the increased consumption of unhealthy foods by adults which influences the rising trends in national obesity. Healthy diets high in fruit and vegetable consumption are important in changing behavior and reducing obesity's prevalence.

CGs have been utilized in many public health interventions to increase fruit and vegetable consumption in communities, as well as to lower the many barriers to their consumption (Heim, Stang, & Ireland, 2009; Ratcliffe et al., 2011). For example, in communities that are in food deserts, places that rarely have access to fresh produce, CGs can immediately increase the availability of fresh foods and provide food security (Blair, Giesecke & Sherman, 1991). By decreasing the distance between crops and consumers, this helps individuals in food deserts overcome issues such as inaccessibility of fresh produce and inadequate transportation to receive fresh produce (Irvine, Johnson, & Peters, 1999).

CGs have also been used as nutritional interventions in many research studies. Research has provided evidence that involvement in CGs can change a person's attitudes towards and preferences for fresh fruits and vegetables (Blair et al., 1991; Ratcliffe et al., 2011; Castro, Samuels, & Harmon, 2013). CGs can increase the number and variety of fruit and vegetables consumed in a diet (Blair et al., 1991; Heim, Stang & Ireland, 2009). The inclusion of CGs may also influence the simultaneous decrease in the frequency of unhealthy foods, such as sugary beverages, pre-packaged candy bars and deep-fried processed foods consumed by school aged children (Alaimo et al., 2006; Blair et al., 1991). As CGs influence community nutrition, public health policy makers have an opportunity to utilize community green space (i.e., public, open space reserves in urban areas) to change nutrition behaviors and improve community health. CGs provide communities the freedom to utilize such greenspace to take back control of their health through their diets.

Influence on Community Physical Activity

In addition to nutritional and psychosocial change, CGs offer an additional public health opportunity in the constituent of physical activity in garden cultivation. Much like nutrition deficits, many struggle to meet the recommended physical activity levels required for life long health benefits (Blair, Giesecke, & Sherman, 1991; Heim, Stang, & Ireland, 2009; Litt, Iannotti & Wang, 2011). Adults should get at least 150

minutes of moderate-intensity exercise each week while children should obtain at least 60 minutes of moderate to vigorous physical activity each day (United States Department of Health and Human Services, 2008). Gardening can be viewed as a mode of physical activity and help individuals reach these physical activity recommendations (Armstrong, 2000; Twiss et al., 2011).

Gardening offers an array of tasks and chores to begin, flourish, and cultivate fresh produce. According to Ainsworth et al. (1993), even leisure gardening activities such as gathering tools, walking, and collecting fruits and vegetables can be considered moderate intensity. When clearing land, tilling, raking or picking weeds is involved, the gardening activities increase in intensity to the vigorous category. Even though CGs are indirectly related to physical activity through gardening maintenance activities, limited research exists on the direct influence of community physical activity. However, increasing physical activity in a neighborhood alongside of promoting healthier eating habits can become part of the initiative when starting, developing, and sustaining a CG (Armstrong, 2000). Because nutrition and physical activity share a common product of increased health and wellbeing, a CG is a promising influencer on physical activity.

Influence on Community Psychosocial Wellbeing

In addition to CG's nutritional implications, CGs also offer a unique benefit to psychosocial wellbeing. A person's interaction with the natural environment has notable positive health benefits (Greenleaf, Bryant & Pollock, 2014; Pretty et al., 2007). How a person interacts with and treats his or her environment has large implications on positive and negative mental health states (Kaplan, 1973). Presumably, there is a negative relationship between emotional health and urban communities where members have no control on the surrounding environment (Brogan & James, 1980). This has been shown in the results of using horticultural therapy as treatments for counseling patients (Greenleaf et. al., 2014). The time spent in the green space and garden provided positive impacts on mental health and wellbeing as the interaction and work in a green space increased a person's self-esteem, mental concentration, and social integration. Further, this provides a foundation for creating a sense of community around a CG as well as a sense of accomplishment and pride for growing produce to be consumed (Greenleaf et. al., 2014; Saldivar-Tanaka & Krasny, 2004).

Green space in larger cities has been shown to improve short term mental health such as the restoration of stress (Groenewegen et al., 2006; Pretty et al., 2007). Those living in larger cities with little access to nature typically report higher levels of stress (Ormel & Neeleman, 2000). Research has shown that green spaces, such as CGs, do have a positive effect on lowering stress and improving attention (Groenewegen et al., 2006; Hartig et al., 2003). There is also evidence to suggest that the percentage of nature in a person's living environment has a positive association in general health (Maas, Verheij, Groenewegen, De Vries & Spreeuwenberg, 2006). Yet, there remains to be an issue with urban development not including the spatial planning required to keep things green (De Vries et al., 2003). Rapid urbanization continues to lessen the green space available to people living in large cities and CGs offer the needed green space that enhances psychological well-being.

When a community has the space and capability to create

a CG, there are positive health effects that occur collectively in the community members' emotional well-being (Twiss et al., 2011). CGs have been shown to reduce isolation by bringing people together in a collaborative network of effort to cultivate food and share knowledge, friendship, and produce (Wakefield et al. 2007). CGs offer an opportunity for continued social contact that happens not only physically but virtually, as well. This two-way, social network communication further serves to enhance community ties, yielding stronger communities that enhance psychosocial well-being (Okvat & Zautra, 2011). In fact, the communal gardening activities that happen in CGs have been shown to not only decrease social isolation, but also shield against stressors (Milligan et al., 2004). CGs empower individuals by giving back a sense of control in the environment as well as increasing levels of pride and purpose as members of a community through this tight-knit social network (Okvat & Zautra, 2011). The impact that CGs have on psychological wellbeing is a critical component to influencing all aspects of community health (Twiss et al., 2011).

School Garden's Influence on Childhood Obesity

As many of today's obese children will remain obese in adulthood, obesity prevention is a critical issue that needs attention. Energy balance fostered by healthier foods and more physical activity is an important lifestyle habit that should be developed in children to prevent obesity in adulthood. Schools are an ideal place for this kind of obesity prevention as a large proportion of the average child's diet consists of food from the school environment (Gleason & Suiitor, 2001; Schanzenbach, 2009). Though recent policy changes have been underway to change the nutritional value of school lunches to meet higher nutritional standards, they can remain calorie dense and lacking in fresh fruit and vegetable (Johnson, Podrabsky, Rocha, & Otten, 2016). When foods low in nutritional value and high in caloric content are available in schools, there tends to be less consumption of fresh fruits and vegetables (Cullen & Zakeri, 2004).

Current food production and distribution technology supports the physical divide between food and table. Children are not always offered that opportunity to be involved in the cultivation and cultivation processes of obtaining food. Incorporating tools like CGs in schools are an emerging form of obesity prevention (Buscemi, Beech & Relyea, 2011; Robinson-O'Brien, Story & Heim, 2009). These CGs can increase available fruit and vegetables offered in school lunches and have been shown to improve nutrition in school lunches (Buscemi, Beech & Relyea, 2011; Robinson-O'Brien, Story & Heim, 2009). For example, a recent study found that increasing the amount of fresh fruits and vegetables available in a child's diet is necessary in addressing the specific behavior changes required to change national obesity trends (Hong & Piaseu, 2017; Porter et al., 2017).

Community Gardens in the Classroom

Garden based education in academic systems creates a number of opportunities for children. Working in a garden with hands-on learning drives home important messages with children and creates a new and fun environment for learning (Alaimo, et al. 2008; Blair, 2009; Heim, Stang & Ireland, 2009). Children are exposed to nutritional skills like learning about and tasting new fruits and vegetables, as well as how to

cultivate them (Heim, Stang & Ireland, 2009). Children are able to work in an outdoor environment, which can influence affinity to nature as well as increase daily physical activity (Twiss et al., 2011). The use of CGs in schools provides educational opportunities for learning academic, social, and health related skills (Ozer, 2007).

This form of academic education shows promise in changing unhealthy behaviors seen in communities and can be utilized to promote healthy lifestyle behaviors not only in children, but their families, schools, and the academic institution that surrounds them. In the following sections we will review how garden based classes can help students eat more nutritious foods, be more physically active, and improve their health.

Influence on School Community Nutrition

Garden based nutritional education shows promise in its ability to affect nutritional change in children. CGs show a positive influence on elementary and middle school children's nutritional knowledge, fruit and vegetable preference, and food choice (Conti, Heckman & Pinto, 2016; Heim, Stang & Ireland, 2009; Morris & Zindenburg-Cherr 2002; Ratcliffe et al., 2011). Additionally, involvement in CGs may be a better predictor of behavior change in nutrition than simple nutrition education alone (McAleese & Rankin, 2007; Morgan et al., 2010; Parmer, Salisbury-Glennon, Shannon & Struempfer, 2009).

CGs have shown to promote numerous healthy behaviors in students including: increasing student's exposure and consumption of a variety of fruits and vegetables, improving their attitudes and preferences of a variety of foods, increasing the number of servings of fruits and vegetables a day, increasing their ability to work with others, creating a positive attitude toward the environment, and an increasing knowledge of the benefits of eating healthy foods (Heim, Stang, & Ireland, 2009; Morgan et al., 2010; Morris & Zidenberg-Cherr, 2002 & Ratcliffe et al., 2011). CGs also have been reported to increase student engagement and confidence, provide opportunities for experiential and integrated learning environments, increase students' social skills, and build connections between schools and communities (Block et al., 2012). The literature on community gardening is growing but more research is needed. Further research is required to understand if involvement in community gardening can create lasting behavior change in children; however, current evidence supports CGs as a tool for nutrition education.

Influence on School Community Physical Activity

Physical education is associated with better physical fitness and lower body mass in children (Johnson et al., 2016). However, providing the recommended allotment of physical activity a day to students takes away from available time required for other academic classes such as reading, science and math. The ACSM recommends 60 minutes of physical activity a day for all school-aged children (Pate et al., 1995). State mandates regulate the prioritization of physical education and activity at the school level. Each state has a different policy that influences the amount of time spent in physical education classes and recess. Some of these policies are put in place to improve physical activity minutes throughout the school day, but many schools find no such luck due to the demands of other academics (Johnson et al., 2016).

Extracurricular activities are often promoted for children

to achieve the daily physical activity recommendations. Yet these can be expensive and still demand unavailable time. Recent developments in research show that physical activity can be integrated into school curriculum without negatively impacting academic performance (Story, Nannery & Schwartz, 2009). This way of instruction comes in the form of utilizing physical activity as a tool to supplement another academic prospect. Yet, many school policies do not require teachers to use curricula integrated with physical activity in the classroom.

School CGs offer a unique opportunity for teachers to integrate physical activity into a classroom setting (Rees-Punia, Holloway, Knauff, & Schmidt, 2017). Opportunities may present themselves in academic areas such as science, math, environmental studies, and health education (Graham et al., 2005). This collaboration brings students away from the traditional classroom setting and into a natural space that increases motivation and is more conducive to hands-on learning. In addition to this, garden maintenance and upkeep involve activity levels of moderate to vigorous physical activity.

Influence on School Community Psychosocial Wellbeing

Children in urban and suburban communities have less opportunity to connect with the natural environment than children in rural developments. CGs in schools hold a great potential to increase psychological wellbeing in schools, children, and their families because the natural environment has a powerful connection with positive emotional health (Pretty et al., 2007). A young child's disconnection from the outdoor environment is detrimental to their sense of place (Blizard & Schuster, 2007; Min & Lee, 2006). This sense of place is important, especially when considering that people have a strong desire to protect and nurture the environment to which they feel a deep connection (Sobel, 2004). Thus, a young child's connection between sustainability and nature becomes extremely important for their own generation and future generations' survival. However, if our natural environment is to be protected and sustained, we must start this process with the experiences and education of our youth.

The use of CGs shows promise in not only improving psychosocial wellbeing, but also improving important classroom skills. Garden programs have a positive influence on increased life skills in the areas of working with others and self-understanding (Robinson & Zijcek, 2005). Early educational interventions can positively influence the continuation of healthy behaviors into adulthood as well as returns to society for the investment in these interventions (Reynolds et al., 2007). As CGs allow for the development of healthy lifestyle behaviors in nutrition, psychosocial wellbeing, and physical activity they may play an important role in increasing public health (Parmer, et al., 2009).

Bringing Community Gardens into the Classroom

Gardening has become very popular and schools can use these trends to enhance education through skill-based learning (competency based) as well as to enhance the health of students. CGs may serve as a great avenue to teach students science components that are already taught in classrooms across the country, learn agricultural techniques necessary to grow food that promote/reinforce health-enhancing behaviors, and provide an interactive route to learning. The cooperative

learning activated in an environment like that of the CG is also important. Career scientists and technologists no longer work in separately defined silos, but instead work with an array of disciplines. As such, there is a high need for multidisciplinary, skill-based curriculum in schools, particularly in the areas like CGs that can bridge academic disciplines such as science and technology with other disciplines such as physical activity, nutrition and overall well-being. In addition, such curriculum approaches may increase student learning related to science topics as well as related disciplines (Hovland et al., 2013)

Even though many educators are well aware of the positive effects of nature, educators must first meet national and state classroom standards, as well as a host of other demands. However, if our natural environment is to be protected and sustained, we must start this process with the experiences and education of our youth. Thus, a challenge emerges with attempting to intertwine nature and sustainable experiences into the classroom in a way that is efficient, meets national standards, and does not increase the already overwhelming load placed on today's educators.

Many schools lack a dedicated nutrition curriculum, leaving children ill equipped to make healthy decisions and contributes to potential energy imbalances. Additionally, in many cases, nutrition is only taught to certain grade levels during short periods of an individual's educational career (Jaenke et al., 2011). Further, students lack the opportunity to practice skills that are associated with health related behaviors. Skill acquisition is important because it allows students to learn from each other (role modeling) and build behavior efficacy. Knowledge along with the mastery of skill attainment and reinforcement is crucial for helping individuals establish lifelong health habits and skills. Incorporating CGs in schools can be difficult, however if available, health educators should take advantage of the positive interest generated around CGs to promote student health.

Conclusion

The usefulness of CGs to influence both community and student health, thus serving as an overall potential public health intervention has been thoroughly discussed. CGs provide people with a sense of connectedness to one another and nature and can serve to help greatly contribute to healthier behaviors. As educators, we all want our students to remain viable throughout the length of their careers. With the push for more academics and integrated sedentary technological activities, students may not be allowed time to exercise both their minds and their bodies. Bringing CGs into the classroom can have multifaceted benefits: students learn through a multidisciplinary approach; students are exposed to healthier behaviors and nature and community partnerships can potentially develop allowing students continual gardening interaction with nature and professionals in the field. Successful CGs will provide students with a broadened, deeper understanding of multidisciplinary subject matter as well as hands-on practical experiences in health, science, and even business. As a side effect, students may also acquire much needed soft skills when working in a community with the growing environment. The proposed strategies bring to light how a CG can improve health overall throughout the community, its members, and down through students. Looking to the future of health, CGs remain an

important factor and deserve special consideration.

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