

## What are the Impacts of School Gardens on Food Justice, Access, and Knowledge?

### 1. Socioeconomic Disparities in the Provision of School Gardens in Santa Clara County, California

by Iris T. Stewart, Elizabeth K. Purner, and Patricia D. Guzman (2013)

<http://ezproxy.library.nyu.edu:2116/stable/pdf/10.7721/chilyoutenvi.23.2.0127.pdf?acceptTC=true>

#### Article Details

- The study authors were concerned with the lack of natural and environmental access and experiences among children:
  - School settings are increasingly seen as locations in which improvement of nutrition, education, interactions with nature, and life-skills development can be carried out, especially through the use of school gardens.
  - Additionally, the authors state that “As far back as the early 1900s, school gardens were implemented to nurture children’s natural instincts, provide an antidote to low-income urban living conditions...” suggesting the benefits of school gardens in areas in which children do not have access to “nature” (i.e. because of urban and low-income specific settings) (pg. 129).
- California has made efforts in advocating for gardens in every school due to their widespread positive impacts (academic, social, behavioral, etc.), although many schools in California have still yet to see these gardens:
  - “In 2002, only 41 percent of the approximately 5,800 elementary schools in California had an established school garden according to a government survey” (pg. 130).
  - The inability to create or maintain school gardens often revolves around issues of funding, expertise, and support, which is why higher-income neighborhoods frequently see more school gardens than their lower-income counterparts (i.e. they often have more funding and parent/volunteer support and involvement) (pg. 130).
    - Further, higher obesity rates and lower academic achievements are seen among these lower-income children – gardens, as seen in previous literature reviews, can help address and attempt to mitigate these issues.
- Additionally, immigrants and ethnic minorities experience “food desert” situations in which they have high concentrations of fast food/convenience stores rather than access to healthy food in comparison to the rest of the population.

#### Program Outcomes

- Surveys and Geographic Information Systems (GIS) were used in this study to see the links between school gardens (in elementary schools) and neighborhoods based on socio-economic and ethnic composition in Santa Clara County (SCC), California, which has great economic and ethnic diversity, which “represents an excellent place to study questions of access disparity” (pg. 131).
  - Surveyed a representative sample of the school’s population to assess the relationship between disadvantaged/lower socio-economic neighborhoods, “economic, racial, and academic performance indicators” and the presence of school gardens.

- SCC demographic snapshot (pg. 131):
  - 35% White
  - 27% Hispanic/Latino
  - 33% Asian
  - 3% Black
  - 37% foreign-born
- A survey was sent to schools that were identified as having a school garden, and asked questions about school garden maintenance, needs, characteristics, and access to “natural areas” on or near school property (pg. 136).
- Study results (pgs. 137-139):
  - A large portion of schools without gardens were located in economically disadvantaged or lower socio-economic neighborhoods with high percentage of non-white residents (northern & eastern San Jose).
  - “No school gardens were located in census tracts where more than 15 percent of the neighborhood households were classified as low income, while 67 percent (26/39) of school gardens are established in neighborhoods with less than 10 percent low income households,” indicating lack of access.
  - Schools were 4x more likely to have gardens if a lower than average (44 percent) percent of students were receiving governmental food assistance (Free/Reduced Price Meals Plan).
  - Garden funding was identified as coming largely from community support (donations, parents, volunteers, grants) – this might suggest that children attending schools in lower-income neighborhoods may not be able to create or maintain gardens because of lack of funding within the community itself: “school gardens are very dependent on the time and monetary contributions of the school community” (pg. 144).
  - However, despite the fact that school gardens can often times be created and maintained with a relatively low budget, it is still difficult for the volunteers or those running the garden to obtain the resources necessary for the garden.

### Main Findings

- The authors conclude that the study’s main finding was that “elementary school gardens are more prevalent in the wealthier and ethnically less diverse western and northern communities of SCC, with fewer school gardens in the less well-off and more ethnically diverse areas surrounding downtown San Jose” (pg. 146).
- Furthermore, the authors identify the following characteristics common to wealthier neighborhood schools with gardens (pg. 147):
  - School support
  - Community and family support
  - Larger outdoor space availability
  - Regular volunteer groups/garden expertise
  - Better funding
- Finally, the authors suggest that governmental agencies should create policies or practices to recognize school garden benefits, provide grants to supporting and funding these garden projects, assist through providing garden expertise, and provide educational/informational tools to students, school staff/administrators, and parents (pgs. 147-148).

## 2. Designing Nature for Learning: School Gardens for Youth and Child Education

By Sarah A. Moore, Morgan Apicella, Sallie A. Marston, and Moses Thompson (2012)

<http://ezproxy.library.nyu.edu:2116/stable/pdf/10.7721/chilyoutenvi.22.1.0250.pdf>

### Program Details

- This study focused on how to develop, maintain, and teach within school gardens, particularly in low-income, diverse schools in which access to time, funding, experienced garden educators, and access are frequent challenges faced.
- The program involves university students working as interns in these schools in partnership with the Community Food Bank of Southern Arizona (CFBSA) who trained the interns in gardening and provided materials/resources.
- A school of focus was Manzo Elementary School, located in a low-income, mixed race neighborhood (particularly Hispanics and Native Americans) (pg. 252).
- The authors mention that “Because of our partnership with the CFBSA, all of the schools with which we work have a high percentage of students who qualify for free or reduced lunch— indicating a need for improved access to quality food” (pg. 252).
- More specifically, 93% of the Manzo School’s students qualify for free or reduced lunch, 96% are Hispanic, and the students received 30 min. of gardening lessons weekly.
- An important aim of the program was to expand the gardening training/experience *past* the school and its students and into the communities where adults could also participate and get access to healthier foods (pg. 254).

### Program Outcomes

- A positive outcome mentioned from the program’s implementation was greater access to the scientific communities in Arizona through the interns affiliated with these communities that worked with the students.
- The school garden program also helps address larger community-wide issues such as food access in food-desert neighborhoods, food-insecurity, hunger, and lack of nutritious foods:
  - Since it is difficult to access healthy, fresh foods in these areas, gardens can provide fresh foods *and* increase preferences for fruits and vegetables.

### Main Findings

- Some challenges frequently associated with school garden programs include (pgs. 256-257):
  - Lack of staff or only having one individual lead the program:
    - Leadership was addressed through the creation of school garden committees that help involve the community.
  - Funding as grants are a timely process:
    - Funding seems to be a common problem for most gardening programs.
  - Integrating school garden programs into the school’s curriculum:
    - The Manzo School managed to reinforce education through use of its gardens and being supported by the whole school and community.
- The study expanded beyond the students to the adults in that parents worked together with children, supported them in the implementation of the garden, and holding seasonal celebrations in the garden in which parents could also participate.

- The garden committee also meets with parents, volunteers, and teachers to encourage community-wide support in order to expand the benefits of the program to students *and* adults in the neighborhood.
- The authors conclude that “This school garden program, through its partnership with the Community Food Bank of Southern Arizona, attempts not just to orient student palettes toward healthier options, but also to make fresh, local food available to previously neglected populations (pg. 258).”

### 3. Creating Healthy Food and Eating Environments: Policy and Environmental Approaches

by Mary Story, Karen M. Kaphingst, Ramona Robinson-O'Brien, and Karen Glanz (2007)

<http://www.annualreviews.org/doi/pdf/10.1146/annurev.publhealth.29.020907.090926>

#### Article Details

- This study focuses on ways in which individuals' environments can help shape their eating habits and help them make healthy choices in regard to food.
- They focus on key settings in which this can occur, such as the home, schools, restaurants, and even at the policy level (in particular for low-income communities or those that face food access issues).
- The authors identify the following environments that impact health, nutrition, and food behaviors (pgs. 254-255):
  - *Individual*: biological and demographic characteristics, cognition, food choices and behaviors.
  - *Social*: family, friends, peers, community members who impact food choices in the form of creating norms or support for certain food behaviors.
  - *Physical*: where individuals actually eat, such as the home, school, at work.
  - *Macro-level*: food marketing, social norms, food production and distribution systems, agriculture policies, and economic price structures.
- Out of the different environmental settings they reviewed, they discussed the school setting, stating that it can have a very large impact on children's food behaviors because children spend a significant amount of time at school where they eat most of their meals.

#### Study Outcomes

- They suggest that "competitive foods" like those found in vending machines or high-fat/high-sugar foods should be replaced with fruits, vegetables, and more nutritious foods.
- Furthermore, local or federal efforts should focus on fruit/vegetable intake particularly among schools that have more low-income students; this can be achieved, they propose, through vegetable pilot programs, farm-to-school programs (connecting school lunch and gardening programs with local farmers), and finally, curriculum that focuses on nutrition (pgs. 256-257).
  - They emphasize that there is a "growing importance of the federal child nutrition programs in providing nutrition to children in low-income families and the need to ensure that the foods served through these programs are consistent with the Dietary Guidelines for Americans."
- In addition to focusing on other environmental settings that mostly impact adults (e.g. worksite, supermarkets), they discuss how communities with the highest obesity rates correspond with often having the highest poverty rates. This is in part due to the existence of food deserts and lack of access to healthy, nutritious, affordable food in impoverished neighborhoods.
- Ways in which this can be addressed, the authors suggest, are through (pg. 261):
  - Increasing the amount of supermarkets in these areas that are accessible by these populations (which can be facilitated through partnerships with nonprofit organizations).

- Supporting farmers' markets in these neighborhoods.
- Developing community gardens.
- Community support of farmers by purchasing their locally grown produce.

### Main Findings

- They argue that since it is often difficult to change food behaviors individually considering the environmental context in which those who suffer from lack of food access or choices develop these behaviors, we need to focus on these broader contexts in which changes can be made to facilitate access to and education of healthier foods both for adults and children.
- Finally, they conclude that “initial, significant steps are needed to make healthful food choices available, identifiable, and affordable to people of all races and income levels and in all types of geographic locations” (pg. 266).