

SUSTAINING SCHOOL GARDEN CLUBS

**Sustaining School Garden Clubs Through Extra Curricular Clubs:**

**Evaluating Master Gardeners' Lessons Learned**

Evangelista, J. A.

University of Florida

Graduate Committee

Dr. John Diaz

Dr. Matt Bengé

Dr. Victor Harris

## SUSTAINING SCHOOL GARDEN CLUBS

### **Abstract**

*School gardens have been an important educational tool for well over 100 years. As the benefits of school gardens have become well documented, more and more schools aim to implement them into their programming. Though the challenges of starting and sustaining school garden clubs have been heavily researched, many still struggle to see their school gardens thrive in order to provide maximum benefits to their students, school, and local community. The purpose of the current project is to formulate a School Garden Handbook to be used by garden leaders. By using past experiences to determine best practices for beginning and sustaining school garden clubs, garden leaders can forge path to increased success. Since much of the research that exists is focused on gardens being used during the day by students, this study focused on extracurricular clubs. By interviewing Master Gardener volunteers who were actively involved in school garden clubs, we gained an entryway into the challenges facing those seeking to implement successful school garden programs. Overall, we found there were six main components to consider when thinking about the functionality of a garden club: 1) timing of the meeting; 2) rhythm of the meeting; 3) funding of the club; 4) garden leader skills; 5) successful factors of a club; and 6) negotiating challenges. These preliminary findings can provide leaders with ideas, structure, and solutions to common issues faced in the development of successful school garden programs. With a School Garden Handbook in hand, garden leaders will be better equipped to operate a successful garden club by learning from the experiences of others and anticipating potential problems ahead of time, which can serve to enhance the overall student and school experience with the garden club.*

# SUSTAINING SCHOOL GARDEN CLUBS

## **Introduction**

School gardens provide children with amazing benefits. It helps with learning, nutritional habits, and emotional aspects, such as being self-efficacy. While it is known that gardens are beneficial and there seems to be a growing number of schools adopting gardens, there is a lack of knowledge on how exactly to formulate a garden club. Because many gardens are utilized during the school day, the focus of this project is specific to before and after school clubs as that is how many students interact with gardens and these clubs have a different set of challenges and considerations than gardens being used during school hours.

In my work with the Family Nutrition Program, I have helped install gardens at schools and community sites. Some thrive, and some do not. This study was conducted to find what makes successful school garden club specifically. Partnering with Regional Specialized Agent Susan Webb who works for UF/IFAS, we asked volunteers about their clubs to discover what does and does not work. In-depth interviews were conducted with local Master Gardeners involved with school gardens. When the interviews were completed, we analyzed what were common themes said amongst the experienced volunteers. These common themes created an outline to be used by garden leaders as a resource for when they want to start a club or are trying to sustain a club. The input of teachers and faculty who are involved with school gardens will also be included in the final resource. The teachers and faculty will be interviewed when the current pandemic subsides, and teachers are more available. The responses will be analyzed, and the two sets will be combined and reviewed to create a well-rounded School Garden Club Handbook, that serves as a compilation of best practices and a “how-to” guide for garden leaders.

## SUSTAINING SCHOOL GARDEN CLUBS

### **Literature Review**

School gardens have been around in the United States since the late 1800s and early 1900s, meaning the value of outdoor learning has long been known (Wells et al., 2015). Though there was a lull in the utilization of school gardens, the recent resurgence has become a global trend, as it is no longer limited to the United States and Britain like before (Wells et al., 2015). With school gardens being as common as they are, research on their effectiveness is easy to come by. (Williams & Dixon, 2013). Multiple studies using a variety of methods such as questionnaires, pre/post analysis, and even synthesis of existing research have looked at both the effectiveness of gardens as well as the observed challenges associated with them. The overwhelming majority of the research supports the notion that students benefit from school gardens in various ways.

Researchers have found elementary students interactions with school gardens led to increased students test scores (Cutter-Mackenzie, 2009; Burt et al., 2018; Wells et al., 2015), emotional wellbeing (Blair, 2009; Chawla et al., 2014), improved nutritional behaviors (Robison-O'Brien, 2009), and promoted inclusion (Kincy et al., 2016). While most studies were observational, one study conducted by Wells et al. (2015), was experiential. Using a control group and study group, the team gave a group of students a garden kit along with lessons from extension personnel and they conducted pre/post-test to determine knowledge gain. Researchers found that students interacting with a school garden tested higher than those who were only learning conceptually. However, the personnel that was able to follow the program with the most fidelity had the most significant increases (Wells et al., 2015).

Researchers have also repeatedly covered a long list of obstacles that school gardens face, including: time, staff, resources, funding, curriculum connection to state standards, lack of

## SUSTAINING SCHOOL GARDEN CLUBS

administrative support, and lack of training for teachers to feel comfortable teaching in the garden (Blair, 2009; Burt et al., 2018; Diaz et al., 2019; Hazzard et al., 2011). Kincy et al. (2016) studied one school with an exemplary school garden in Athens, Georgia to identify what kinds of teachers are likely to use a school garden based on theory of planned behavior change. They found that likelihood of utilizing the garden for instruction went up when teachers had experience gardening/farming, but also that the teachers feelings would not matter if they believed that others thought they should be using the garden; meaning intentional encouragement from administration should not be overlooked when teacher involvement is low (Kincy et al., 2016).

While school gardens come with a hefty set of challenges, there are school gardens that thrive. Success can be arbitrary, but Burt et al. (2018) defined a successful garden as one that “fosters meaningful educational experiences for students and is valued as part of the school’s culture” (p.1543). The study by Hazzard et al. (2011) discussed solutions to many of the common barriers associated with the gardens, such as having a garden committee, applying for all grants related to education, hiring a garden coordinator (can be a volunteer), and utilizing local Master Gardeners.

Overall, while many of these studies have taken in-depth looks at school gardens across the country, and a few across the globe, none have reviewed or studied before/after school garden clubs, specifically. The focus of this paper will be a review of qualitative interviews with Master Gardeners in the Southwest region of Florida, who have participated in the management of local elementary school garden clubs before and after school. Their experience and knowledge have been used to determine what factors contribute to a successful school garden club and

## SUSTAINING SCHOOL GARDEN CLUBS

guided the creation of this handbook on garden management, procedures, and structures in hopes that it can be a resource for struggling or new school garden clubs.

### **Purpose and Objectives**

The purpose of the study was to examine past experiences from garden club leaders to determine what led to successful school garden clubs. The Handbooks overall purpose is to ensure that school gardens are as successful and sustainable as possible so that students, schools, and the community can receive the maximum benefits. The examination of background information was important because it emphasized what common obstacles were and allowed for these topics to be included in our qualitative interviews and identify how garden leaders worked through these, if they faced the same challenges.

- **Objective 1:** To analyze the experience of garden leaders and record best practices and important factors to consider for a club.
- **Objective 2:** To develop a School Garden Club Handbook that will be a guide for garden leaders.

### **Methods**

Agriculture has shaped my life in many ways. I grew up in South Florida, near a town dubbed “Muck City” because of its prosperous soil and my family comes from a long line of migrant farm workers. My grandmother instilled the love of gardening into my mother who passed it on to me. I believe the way in which we grow and consume our food impacts our health, is closely tied to social justice and will determine the health of our planet. Our food system has disconnected us from a lot of realities, and because of my past and passion, I wanted

## SUSTAINING SCHOOL GARDEN CLUBS

to research how to make school gardens more effective so that children enjoyed the garden experience and were empowered to think critically about how their food comes to their plate and what they decide to consume.

This project was made possible through a collaboration with Susan Webb, the Southwest District Regional Specialized Agent for community gardens. Susan was able to tap into the Master Gardener volunteer network to gather participants. An email was sent to Master Gardener Coordinators within the district to inform their Master Gardener volunteers about the project once it had received all necessary Institutional Review Board approval.

This study was qualitative because the focus was on learning from trial and error and had a focus on getting to more information than the previous studies had offered. This approach gave the participants the proper platform to offer insight to their lived experiences. Interviews allowed for the participants to elaborate on what they have tried and not tried, and “gave context to the numbers” (Stofer, 2019) that repeatedly showed the major obstacles to the gardens in the literature review.

The School Garden Handbook will be a compilation of best practices that have been proven through expert experience. To gather this qualitative data, participants, whom were all Master Gardeners were interviewed. Master Gardeners are volunteer experts who undergo extensive trainings to be of service to their local community and work closely with gardens and landscaping. To be eligible to participate, the Master Gardeners had to be involved with before or after school Garden Clubs. Due to their being 1-3 volunteers that met this eligibility, the average was 2 per county, and with a total of 12 counties, the maximum number of participants that met the criteria was at most 24. In total, we conducted 6 interviews, giving us a participation rate of 25%. Of the 6 participants, 2 had been working with garden clubs for over 4 years and 3

## SUSTAINING SCHOOL GARDEN CLUBS

participants had been involved in garden clubs for over 2 years. There was only 1 participant who had worked in a garden club for less than one year. 5 of the participants became involved in their gardens through the Master Gardener program and all participants worked at least one school location, with 2 participants helping at more than 1 site.

It should be noted that the methods of this study were solely focused on Master Gardeners. While the School Garden Handbook will have input from both teachers and volunteers, due to the pandemic, teachers were overwhelmed with the back and forth with face to face and virtual teaching, so as an entryway into the topic, the focus was placed on Master Gardener volunteers. Master Gardeners are not only very knowledgeable in gardening, the volunteers we interviewed had very relevant experience with our topic as they were currently involved with gardens.

All participants were asked the same 10 questions in a semi-structured format (Stofer, 2019), which were on a variety of topics. After all interviews were conducted, the interviews were transcribed and analyzed. Overall, 6 common themes were influential for the garden clubs: timing of meetings, the rhythm of meetings, funding of the club, garden leader skills, important factors of successful clubs, and challenges.

### **Findings**

#### **Timing of Meetings**

The timing of the garden clubs is what sets our study apart from what was widely available in the literature. The focus of this study was on before/after school clubs while the other research has primarily been about gardens used during the school day. This difference is

## SUSTAINING SCHOOL GARDEN CLUBS

important to note because as one interviewer who had experience with both during school and extracurricular gardens noted “during school doesn't really offer any advantages.” In our analysis, 5 of the 6 clubs we analyzed were held after school, with the last one being held before school. Though after school clubs are the most popular, the heat can be seen as an obstacle. As for morning clubs, the biggest obstacle is that the kids may arrive at staggered times due to parents, buses, and other outside factors.

The timing of your club can impact the sessions in various ways; it affects the length of sessions, frequency, and duration of the club. Overall, the biggest benefit was that the clubs were not as limited to the length of sessions are, they were during the school day, which was often rushed into 40-minute lessons. In an after-school setting, the time can be made to accommodate the site and leadership. These clubs typically ranged from 45 minutes to an hour and 15 minutes, with one-hour sessions being the standard. All of the clubs ran during the duration of the academic school year; August to April/May. There was one club that broke the Fall and Spring terms into 9-week periods, but the rest remained with meeting about once a week for the whole year.

Of the 6 clubs we interviewed, 4 met once a week. The exceptions were one club held at a community center that used the garden 2-3 times a week, and one club at a school that meets on Wednesdays and every other Friday, however, the Friday lessons were more for maintenance than teaching. Also, there was one school that had 2 garden clubs, one that met Wednesdays and another on Thursdays so that the groups were limited to 15 students. This idea was also being considered by another club, who in its second year was hoping to meet twice a week, once with younger learners (grades K-2) and once with older learners (grades 3-5). With adequate support, clubs can meet more than once a week.

## SUSTAINING SCHOOL GARDEN CLUBS

Therefore, when forming your club, a major contribution to timing will be the availability of your leaders. The leadership will be able to determine when you will meet, for how long, and how often. It is also important to consider age groups and the number of students you will be allowing in the club. When determining the duration of the club during the academic year, it is important to consider the workload of the garden leader and volunteers as well as school and student responsibilities that can interfere with the garden activities (i.e. testing).

### **Rhythm of Meetings**

The leadership of the club and their overall goals for the group set the routine for how meetings are conducted. The goals of the garden could be to use the time and space as exploration for students and a way to give them a mental break, or it could be used to teach students about agriculture and/or nutrition. In the analysis, clubs could be categorized as structured or unstructured, sometimes clubs use a mix of both. Both structured and unstructured clubs involve planning, but it looks very different for each.

For structured approached planning can be intense and is done well in advance. The planning may happen anywhere from a few weeks in advance to months. More formal planning will allow for the use of more project-based learning, and there was an emphasis to establish a month to month guide for clubs to follow and incorporate holidays and school breaks within the format. When having a more formalized plan, there can be more communication among the team as to what they will be contributing, as well as more promotion of the activities. However, there should be some room for leeway as to the weather, grant money release or the arrival of supplies may not always fit the scheduled window.

An unstructured approach could be wide-ranging, this could mean planning the day before or even the day of. There was one club that planned the overall topic of the meeting about

## SUSTAINING SCHOOL GARDEN CLUBS

one week before and then decided more informally how the meeting would run and what exactly the kids would do a few minutes before the club started. A mixed-method approach was not self-identified, but when analyzing the club operations some fell in the middle of both structured and unstructured. In particular, there was a club that actually set time aside for an unstructured portion, giving this time for the kids to have fun and explore the space. There was another club that only had one leader for about 10 kids, so the leader would have a structured beginning and educational portion where the objectives and tasks were explained and let the kids work from there, keeping an eye on the students. Though an unstructured approach was common, these clubs mentioned that something they would like to improve on was planning and having more of a structured approach.

Despite the method of operation, the garden leadership choose, there were a few consistent practices: walkthroughs and task delegation. A walkthrough is key and should be done before any garden meeting. Leaders noted that this walkthrough was a great way to determine what tasks the kids would be able to do and get ideas as to what to mention during the lecture portion. For example, if there was an insect in the garden, one could talk about the benefits/harm of certain insects and pest management techniques.

Task delegation was very popular among the functioning of the clubs, being used in 5/6 clubs. The club that did not have task delegation had less than 10 students and only one volunteer to oversee the students, so it was not possible as there was no other adult to share the students with. Because garden spaces are small, and kids need to be closely monitored for safety and to ensure they are fulfilling their responsibilities correctly and learning, the kids are often separated into smaller groups. In some clubs, the garden leaders inform the kids of what tasks there are and let them volunteer for a group. The kids sometimes remain in that group for the whole time, and

## SUSTAINING SCHOOL GARDEN CLUBS

in some clubs, all kids rotate. In other formats, all activities are explained, and the kids have an adult at every station they rotate through.

While snacks are not a requirement, for after-school clubs it is highly suggested. The students are often hungry and if they are outside for a long time, it is best to ensure they are well fed and hydrated. 2 of the 6 clubs offered the students snacks. Snacks can be eaten when giving the educational talks to students or when arriving as a way to help them transition. The snacks can also be a way to guide the conversation for the day. For example, in one club the volunteer would bring in a snack related to the lesson, the students would get to taste what they were planting or some form of it, such as potato chips if they were planting potatoes.

In all, it is very important to consider the purpose when determining what kind of club structure is best, to ensure the purpose is being met. A walkthrough and task delegation will be important to a meeting rhythm no matter the style that is being used. Use the leadership goals and objectives to decide the most suitable routine for your learners.

### **Funding of Garden Clubs**

To begin and sustain garden clubs, funds are needed to purchase garden supplies at the very least. A garden club can have both internal and external sources of revenue for their clubs from school and district sources to outside donations from local organizations and donations. In our analysis, we found funding varied by site, but all clubs on a school ground had help from the school itself.

Four of the garden clubs were interviewed applied and received grants to help maintain their gardens, Though Master Gardner volunteers, could not always apply to grants because they were not teachers or administrators, they noted that the faculty would utilize this resource and

## SUSTAINING SCHOOL GARDEN CLUBS

sometimes the Master Gardeners would help them apply. Two garden club leaders donated money or plant materials to their clubs. Lastly, getting donations from local organizations was extremely successful but only utilized by one club. There was a garden leader who had the task of starting the club from scratch and went out to the neighborhood associations to raise as much money as possible. The volunteer spoke of the benefits of school gardens to the kids, community, and property values and gathered more than enough funds to sustain the club for more than 2 semesters. There was only one club that utilized a participation fee, and this was also the only club that had paid for the teacher's aide for the club, which could have made the club more money to have. This could be a barrier to students who do not have funds to spare and is not a common source of revenue. The biggest determinant about funding relied on the inputs the leadership of the garden and administrative support. Because funds are needed year-round, the more planning done ahead of time can ensure there is enough for the whole year.

### **Important Factors of Successful Factors Garden Clubs**

Even though there is no secret recipe for making a successful garden club, there were a few popular attributes that garden club leaders believed helped or hindered their success. The most popular factors were administration support and buy-in, having a faculty sponsor, being an organized team, and having diversity in the garden space.

In our interviews, both clubs had lots of administrative support and some that were adequate, however, no club existed without any administration support or buy-in. Their approval is what allows a club or garden to exist on the campus, so buy-in must happen on some level. The key is to have the most buy-in as possible, so you receive maximum support. In one interview, the leader was approached to start a garden club by the administration and from the start was able to coordinate major garden activities with the school calendar to get parent help

## SUSTAINING SCHOOL GARDEN CLUBS

and participation. This was a major success and they were able to get lots of parents to help build their garden by making the build right after a parent event at the school.

Another factor was having a faculty sponsor. Faculty members differ from the administration because they are more so on the ground level and have more time with the students being that they are teachers. These members can provide their classrooms for the lectured portions of the club and have the proper background clearance to coordinate more with the students and school. They also are better equipped with classroom management skills and have the advantage of regularly seeing the kids and garden, since they go to the school every day. In every garden club on school grounds had a faculty sponsor. For the large majority, the faculty member was there as support and a resource and the Master Gardeners were the leaders. For teachers, this issue will not be the same because they are faculty members themselves.

Successful clubs also had a clear delegation of tasks, and this is highly reflective of the communication happening among the leaders. Knowing who was doing the instruction, who was gathering the supplies, and whose input was needed when making decisions with the club was very important. This communication and task delegation allowed every adult to have a certain role to play and helped the club meetings flow. One leader explained that they began the overall club with clearly defined roles and organizational setups. On the other hand, another volunteer noted that even though there were several adults in charge of the club, there was no task delegation or role setting apart from the garden leader, which resulted in a very unstructured club.

Lastly, many of the volunteers noted having fun and diverse garden. Because the students are all elementary age, it is really important to have different things in the garden to keep them engaged. This can be in the form of having different types of gardens. Gardens can be made to

## SUSTAINING SCHOOL GARDEN CLUBS

include plants for harvest as well as a have a sensory area, a tea garden, or pollinator garden. The garden can also have diversity in the way it is used. For example, the art teacher can use as well as the garden club, this makes the kids more familiar with the garden. Diversity can also happen in the form of garden activities, some ideas include compost turning, raking, planting.

### **Garden Club Leader Skills**

When interviewing volunteers on the skills a garden leader should have there were 3 main characteristics that the answers could be categorized in. These characteristics were knowledge, passion and attitude, and organization. The benefit of having both teachers and volunteers was highly here as each was able to bring their own expertise.

Garden knowledge was the first attribute. In many of the discussions, the volunteers noted how they would conduct the teaching of the lessons in the garden because the teachers did not feel confident enough to. One volunteer had over 40 years of experience in gardening and was able to share the information but noted that volunteers also need to learn or be familiar with how to teach that knowledge to a younger audience. This knowledge set also comes into play in terms of confidence. The more experience you have in the material your teach the more confident you will be teaching and the more a learner finds you credible. This can also impact one's willingness to experiment within the garden, those with more experience and knowledge are more willing to try out new techniques and methods.

A love for gardening and a positive attitude towards it was also pivotal. In one interview the participant said, "as long as you enjoy planting and going outside, I think you got it made." This enthusiasm the leader has is contagious and so remaining positive and engaging is great to model for the students to behave similarly. So, when it is a hot day outside, rather than letting the

## SUSTAINING SCHOOL GARDEN CLUBS

heat be the focus of your feelings and thoughts, putting emphasis on the what is sprouting and bugs you see, and the students will also focus on that and stay interested.

The last common skill was organization. This is important because it is linked to the structure of the club which is the foundation of the club. The organization of the leaders impacts the way meetings will run as well. One leader would prepare clubs for students to give them more time to do important work. For example, the leader would take the transplants out of the trays and place the plants in the appropriate spot in the bed so the students would be able to easily plant them. The organization also impacts the delegation of tasks amongst the leaders, with more organization providing a purpose for all involved. This skill also helped secure and ensure proper use of funds. And, most importantly, proper organization led to having back up plans for rainy days and schedule mishaps. For example, one club had students plan their ideal garden when supplies didn't arrive on time.

### **Challenges**

The challenges associated with garden clubs have been highly documented, and many were mentioned in our interviews. The most important to before and after school garden clubs in particular was time, garden maintenance and relationship with maintenance staff.

Concerning time, the challenges differed by the club. There were some clubs in which the issue was the ability of the volunteer and garden leadership to meet more, for some it was the time it took for other entities to deliver money or materials, and for others, it was the ability to find projects to do within their designated time frame. Though these challenges are widespread, a helpful solution is to have a handbook that will provide solutions to these issues.

## SUSTAINING SCHOOL GARDEN CLUBS

Garden maintenance was also a challenge because of repetitive in nature. For any garden to truly thrive, it needs consistent inspection of pests, watering, and sunlight. Watering, specifically, can be a huge burden with gardens who do not have irrigation and or trouble accessing the water source. Without easy access or a system built-in, the other garden leaders and students will be less likely to upkeep with the watering needs. Students will only find these fundamental tasks fun for so long so regular reminders of their importance may help them upkeep their responsibilities.

A relationship with maintenance staff may also be a challenge, one that is likely volunteer specific because they are not able to easily make connections to the staff. The maintenance staff is a secret weapon of successful gardens and can be the missing piece of the puzzle for the gardens that are not thriving. The custodial crew is not only the ones who can oversee the garden when school is not in session, but they have access to much of the knowledge and tools a garden may need. For example, in one club, the students were hand watering the plants and they were not growing well, so the teacher suggested getting an irrigation system. However, though the irrigation system was installed the water pump was needed for it to be used and this was done by asking the crew to leave it on for the garden; after this, the plants were healthy and constantly growing.

### **Conclusion**

In all, what was learned by Master Gardeners provided an entry into the topics to discuss with teachers and discuss in a fully comprehensive School Garden Club Handbook. The struggles many of these garden leaders faced were not similar to the common challenges found in the literature. Because the gardens that have been researched are used during the school day,

## SUSTAINING SCHOOL GARDEN CLUBS

the challenges are related to state standards, teachers being comfortable with gardening, time and support from the school administration (Blair, 2009; Burt et al., 2018; Diaz et al., 2019; Hazzard et al., 2011). Extracurricular clubs did also note administrative support was critical for success, but many did not cite this a major obstacle but instead placed time, resources, attitude of the leader and organization as bigger determinants of success.

For now, this early outline will serve as a guide of considerations for leaders starting or continuing their school garden clubs once it is published online. From the analysis of the interviews, the most important themes were timing of the meetings, rhythm of the meetings, funding of the club, important factors for success, garden leader skills, and challenges. Master Gardeners, teachers, school staff and volunteers working with garden clubs can use these findings to properly form their own school gardens. For example, knowing that attitude is a critical factor may impact who Master Gardener Coordinators ask to work within the school garden clubs and how teachers interact with the gardens. Learning from the mistakes of others and mimicking successful tactics can enhance the experience students have in the garden and cause them to reap the benefits the research has proven.

The experiences from the interviews enabled this outline, but it should be stated that there is no one size fits all approach to what will work for your site. Trial and error with some of the strategies that interviewees implemented can be a great starting point but may need to be tweaked to your particular circumstances. The intention is for people to use the outline as a source of ideas, determining their structure, and to anticipate common challenges. The School Garden Club Handbook intends to provide a guide on how to formulate a club based on best practices. This handbook will include the perspectives of teachers, something not in the outline

## SUSTAINING SCHOOL GARDEN CLUBS

because of their workload during the COVID-19 pandemic. When teachers are more accessible, they will be asked the same questions and then the handbook can be published.

**References**

- Blair, D. (2009). The child in the garden: an evaluative review of the benefits of school gardening. *The Journal of Environmental Education*, 40(2), 15–38.  
<https://doi.org/10.3200/joe.40.2.15-38>
- Burt, K. G., Luesse, H. B., Rakoff, J., Ventura, A., & Burgermaster, M. (2018). School gardens in the united states: current barriers to integration and sustainability. *American journal of public health*, 108(11), 1543–1549. <https://doi.org/10.2105/AJPH.2018.304674>
- Chawla, L., Keena, K., Pevec, I., & Stanley, E. (2014). Green schoolyards as havens from stress and resources for resilience in childhood and adolescence. *Health & Place*, 28, 1–13. doi: 10.1016/j.healthplace.2014.03.001
- Cutter-Mackenzie, A. (2009). Multicultural school gardens: creating engaging garden spaces in learning about language, culture, and environment. *Canadian Journal of Environmental Education*, 14(1), 122–135. <https://doi.org/10.1107/s0108768107031758/bs5044sup1.cif>
- Diaz, J. M., Warner, L. A., Webb, S., & Barry, D. (2018). Obstacles for school garden program success: Expert consensus to inform policy and practice. *Applied Environmental Education & Communication*, 18(3), 195–206. <https://doi.org/10.1080/1533015x.2018.1450170>
- Hazzard, E. L., Moreno, E., Beall, D. L., & Zidenberg-Cherr, S. (2011). Best practices models for implementing, sustaining, and using instructional school gardens in california. *Journal of Nutrition Education and Behavior*, 43(5), 409–413.  
<https://doi.org/10.1016/j.jneb.2011.05.005>

## SUSTAINING SCHOOL GARDEN CLUBS

Kincy, N., Fuhrman, N. E., Navarro, M., & Knauft, D. (2016). Predicting teacher likelihood to use school gardens: a case study. *Applied Environmental Education & Communication*, 15(2), 138–149. <https://doi.org/10.1080/1533015x.2016.1164096>

Robinson-O'Brien, R., Story, M., & Heim, S. (2009). Impact of garden-based youth nutrition intervention programs: A Review. *Journal of the American Dietetic Association*, 109(2), 273–280. doi: 10.1016/j.jada.2008.10.051

Stofer, K. A. (2019, August). Preparing for one-on-one qualitative interviews: Designing and conducting the interview. Retrieved October 18, 2020, from *Electronic Data Information Source of UF/IFAS Extension*.

Wells, N. M., Myers, B. M., Todd, L. E., Barale, K., Gaolach, B., Ferenz, G., ... Falk, E. (2015). The effects of school gardens on children's science knowledge: a randomized controlled trial of low-income elementary schools. *International Journal of Science Education*, 37(17), 2858–2878. <https://doi.org/10.1080/09500693.2015.1112048>

Williams, D. R., & Dixon, P. S. (2013). Impact of garden-based learning on academic outcomes in schools: synthesis of research between 1990 and 2010. *Review of Educational Research*, 83(2), 211–235. <https://doi.org/10.3102/0034654313475824>