

A Place for Seed Libraries in Higher Education: Setting the Stage for New Outreach and Engagement Initiatives

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Abstract:

Seed libraries are community-based programs providing access to free open-pollinated seeds (usually fruit, vegetables, and flowers), and related information resources. They strengthen local biodiversity, support local food systems, and facilitate food access, as well as social justice conversations through supporting resources and outreach and engagement initiatives. While seed libraries have been around for many years there is little evidence of research on seed libraries in higher education, including their potential to affect social change. This article will provide context for seed libraries in higher education through examination of the relevant literature available on food insecurity among college students, health impacts of gardening activities, and civic engagement opportunities. Garden-based pedagogy will be discussed, as well as home gardening and general benefits of gardening. Understanding community and greater societal needs can guide new outreach and engagement initiatives, such as seed libraries in higher education, leading to social change and enhanced student learning.

Keywords: *academic libraries, social environmental change, experiential learning, food security, food access, community engagement, student engagement, higher education, seed libraries*



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What is a seed library?

Seed libraries are community-based programs providing access to free open-pollinated seeds (usually fruit, vegetables, and flowers), and related information resources. They strengthen local biodiversity, support local food systems, and facilitate food access, as well as social justice conversations. Users borrow seeds for personal gardening and then harvest seeds from a few select plants to return to the collection, enabling the creation of a sustainable local collection. Seed libraries differ from seed banks whose primary objective is seed preservation, though seed preservation may also be a part of a seed library's mission. Seed libraries play an active role in strengthening communities through shared knowledge and experiences, increase food access, and can foster a sense of belonging and purpose among its users.

Public libraries have led the charge in creating seed libraries across the country, providing free access to seeds and related programming for their communities. While seed libraries in the public sphere have been around for nearly 20 years there is little current literature, however, looking at the role of seed libraries in higher education and the impact they can have on student communities. This article will provide context for seed libraries in higher education through examination of the relevant literature available, including food insecurity among college students, and impacts gardening activities can have on health as well as civic engagement. Garden-based pedagogy will be discussed, as well as home gardening and general benefits of gardening. An examination of these elements supports the relevancy and benefits of seed libraries in higher education.

Seed Libraries in Higher Education

Seed libraries in higher education can create new educational opportunities for users, libraries, and the institution as a whole. Through programming facilitated by academic seed libraries, faculty and other experts within the institution can share their knowledge with students, staff, and other faculty across academic disciplines, building connections among people who might not otherwise have interacted. Additionally, opportunities to create learning communities can arise.

Ingalls (2017) explains that shared knowledge between expert and inexperienced gardeners furthers community building, and boosts local knowledge—which can be preserved through the seed library. Events such as workshops on seed starts, organic gardening, composting, seed saving, etc. engage the community while raising awareness of the seed library. Seed libraries facilitate conversations around where our food comes from, social justice issues, and encourages local gardening which can reduce impacts on the environment. As with seed banks, seed libraries are an effective way to increase local biodiversity of plants and food, and facilitates education and understanding of various growing regions.

Student Food Insecurity

The US Department of Agriculture (USDA) defines food insecurity as the limited or uncertain availability of nutritionally adequate and safe foods or the limited or uncertain ability to acquire acceptable foods in socially acceptable ways (2018). In their 2016 survey on food security of U.S. households, the USDA found that about 12.3% of households were food insecure during the 12 month period of 2016; with 4.9% having very low food security at some time during that year (USDA, 2016). That's 41.2 million people who lived in food-insecure households in 2016. "Very low" food security, as defined by the USDA (2018), is when one experiences reduced food intake at times due to limited

resources, with “low” food security encompassing reduced quality, variety, or desirability of diet with little or no indication of reduced food intake.

With this in mind, as well as recent increases of first generation students and initiatives targeting returning students, higher education institutions have begun wondering what percentage of their student populations are food insecure. In 2014, the president of the University of California along with ten chancellors launched the UC Global Food Initiative. As a part of this initiative, two surveys were administered to a random sampling of 66,000 students across all ten of UC’s campuses. These surveys yielded a 14 percent response rate, encompassing 8,932 students. The survey prompted students to answer questions about instances of skipped or reduced food consumption, or times when they lacked money to pay for food during the prior 12 month period (Ritchie & Martinez, 2016).

The survey revealed that 42% of respondents experienced food insecurity during this time, with 19% having experienced “very low” food security, and 23% having experienced “low” food security. Additionally, the study revealed that 57% of students who reported experiencing food insecurity during this time period also reported this as their first time experiencing food insecurity. These findings suggest that students who are on their own for the first time may lack financial literacy and awareness of food access resources, financial aid, and other related knowledge. Additionally, UC’s study revealed that 29% of respondents had difficulty studying as a result of hunger, and many reported lower grades or suspended study as a result of food insecurity (Ritchie & Martinez, 2016).

The prevalence of food insecurity among college students is not unique to the University of California system. Similar studies conducted across US and Australian universities and colleges also revealed high levels of food insecurity among their student populations. A student-led study at the

University of Alaska Anchorage revealed that 31% of the survey respondents reported food insecurity (Lindsley & King, 2014). The University of Hawaii at Manoa showed a 21% rate of food insecurity, with an additional 24% of students at risk (Chaparro et al., 2009). CUNY found that 39.2% of their respondents experienced food insecurity (Freudenberg, et al., 2011), and at a rural university in Oregon an astounding 59% of their respondents were food insecure (Patton- -López et al., 2014).

Similar surveys conducted at universities across Australia reported consistently higher percentages of respondents experiencing food insecurity, with numbers ranging from 46-48%. Deakin University in Australia, additionally reported that of those who experienced food insecurity, 60% lived independently from their families (Micevski, et al. 2014; Hughes, et al., 2011). This brings us back to the University of California's assessment that financial literacy and awareness of food access resources may help to address the issue of food insecurity among college students.

Through programs such as seed libraries, universities have the opportunity to change the way we think about food security and open doors for discussions and experiential learning surrounding issues of food insecurity. In this way, seed libraries act as a catalyst for change. Partnerships with other campus initiatives tackling food insecurity, such as food banks and campus gardens, further strengthens this mission.

At the 2009 World Summit on Food Security, the Food and Agriculture Organization declared four pillars of food security: availability, access, utilization, and stability. Seed libraries provide access to seeds and information resources, freely available to their community. Utilization and stability of seed libraries are facilitated through outreach and engagement activities such as workshops and

course-integrated pedagogy, and through community partnerships- within and outside of the academic institution (Food and Agriculture Organization, 2009).

Garden-based Pedagogy and Civic Engagement

Integrating seed libraries into course-based pedagogy provides opportunities for experiential learning across the curriculum from the biosciences to humanities. Aftandilian and Dart (2013) explain that garden-based pedagogy and service-learning provide an effective strategy for emphasizing a hands-on approach to social justice education. Additionally, garden-based pedagogy creates opportunities for discussions on inclusivity and ecological justices; connecting individuals across differences in race, class, gender, and culture (Jagger & Inwood, 2016).

Community food security projects are designed to alleviate issues of food insecurity by strengthening communities and facilitating local food production, also known as civic agriculture. At Texas Christian University, Aftandilian and Dart (2013) studied three garden-based undergraduate service-learning projects designed to examine food justice and increase student understanding of related issues, and to strengthen campus-community ties. These projects include the Fairmount Community Garden, the North Side Garden Survey, and the Como Community Garden. The 2011 Economic Research Report on Household Food Security ranked the state of Texas as having the second highest levels of food insecurity in the nation. This report motivated these studies after discovering that 18.8% of Texas residents were living in food insecure households.

For their study, Aftandilian and Dart (2013) focused on increasing food security in the Fort Worth community. Additionally, their mission included boosting student understanding of the overlying issues of food insecurity, economic diversity, and the benefits of local sustainable food systems. Based on service-learning literature, they divided gardening pedagogical practices into four

categories which they used to guide these projects: K-12 education, psychology, environmental science, community/ developmental, and food/agriculture/nutrition.

Through these projects, students gained professional skills, first-hand knowledge, good citizenship and community-building skills by applying what they learned in the classroom to become active members in their community. In the case of the Fairmount Community Garden, students of an anthropology course, “Environmental Justice, Human Rights, and Agriculture,” worked with the community partner to install garden beds and to publicize the new garden to its residents—an ethnically diverse, mixed income community. For the North Side Garden project, students from the same anthropology course assisted their community partner in the development of a survey administered to understand the type of garden the community desired. In the third service-learning project, the Como Community Garden, students enrolled in a dietetics course developed, taught, and evaluated an educational after-school gardening and nutrition program for elementary school children. This project was a part of a larger goal of the community partner to expand food assistance and educational programs within the Como community.

At the Ontario Institute for Studies in Education (OISE), a campus community garden was established to engage the educational community in environmental learning. Designed for theoretical and practical exploration of garden-based pedagogy, the garden enabled them to understand its impact on university students, educators, and the community as a whole. Jagger, Sperling, and Inwood (2016) examined the growth of the garden, individual experiences, and the effect of the garden over the first year of the program. They explained that learning gardens provide the opportunity for crucial pedagogy and place-based education; together, these “afford the revitalization of inherent connections between the classroom, cultural politics and environment” (p. 273).

The goal of this community garden was to foster active participation in critical pedagogy of place as well as decolonization and rehabilitation of cultures. This included the revitalization of traditional cultural patterns, such as ways of knowing and caring for people and places. Exchanges of stories, understanding, knowledge, and food were encouraged. Jagger, Sperling, and Inwood (2016) argue that place-conscious education can challenge learners to consider different cultural groups and perspectives, fostering a greater sense of community.

Additionally, an emotional affect can take place through the established connection with the environment. Students at OISE shared their emotional connections—childhood memories, nurturance of plants, gratification in helping something grow, shared expressions of joy, relaxation, and peace. Their experiences foster human-human connections as well as human-nature connections, and enhanced students' understanding during discussions on inclusivity, ecological and social justices.

In the K-12 education system teaching in school gardens has shown to enhance student skills in learning and acquisition across the curriculum, while fostering the development of social skills. These same attributes can apply to higher education (Jagger & Inwood, 2016). In regards to environmental education, garden-based learning increases environmental knowledge and attitudes, and encourages a sense of environmental responsibility. Garden-based pedagogy at any grade level can be used to encourage social and environmental activism, increase understanding of food systems and production, and expose students to the healing benefits of gardening and being in nature (Jagger & Inwood, 2016).

In each of these instances, seed libraries can play a role by connecting the students enrolled in these courses with the necessary information resources and research skills to understand the overarching issues. Additionally, they provide seeds and other resources to carry their projects to

fruition. Access to seeds for personal gardening and learning further enhances their understanding of food systems and the environment, and shared knowledge among users facilitates inclusivity. The building of social capital can additionally occur through interdepartmental campus partnerships. Pedagogical opportunities may include learning communities within culinary arts, health sciences, social sciences, agriculture, biosciences, and environmental sciences.

Impact of Gardening on Students

Gardening projects can increase understanding of biological and ecosystems, generating more positive attitudes about the environment, as well as strengthening communities through shared knowledge and experiences. Research exploring the benefits of gardening additionally shows improved dietary habits, increased physical activity, and mental health among participants. Gardeners have reported reductions in stress levels, increased self-esteem and confidence, and expanded social networks. Mecham and Joiner (2012) draw on experiences from students at a small private college in Kentucky, where students participated in gardening activities and shared their reflections through interviews. In this study, the benefits examined include nutritional, psychological, physical, and sociological.

Mecham and Joiner (2012) sent an electronic survey to the entire student body, about 1500 students. Following participation in the survey, students were offered garden space at a community garden under the agreement that the students would tend a garden plot for three or more months. Additionally, these students would agree to participate in interviews regarding their experiences.

Five students participated in the study in its entirety. Participants lived in a mix of student housing, including an on-campus ecovillage, college dormitory, and nearby apartment complex. The majority of students reported experiencing reduced levels of stress and increased self-esteem as a

result of their efforts in the garden. Frustrations were also reported by participants, due to lack of time, experience, and knowledge about gardening.

Despite frustrations, all participants reported their experiences as beneficial. Seed libraries can address some of the frustrations felt during this study, by providing information resources and hands-on workshops to student gardeners. While Mecham and Joiner's study represented only a small fraction of their student population, it provides a glimpse into the potential benefits of garden-based projects and pedagogy on student experiences and success. Further examination of these types of programs is recommended.

Home Gardening

Home gardens can be sites of transformative action, connecting people to their communities, strengthening family bonds, increasing understanding of food systems, and empowering individuals in relation to social justice. In their study of home garden programs for low-income residents, Gray et al. (2014) found increased access and consumption of fresh fruit and vegetables by participants; as well as increased physical activity due to time spent tending gardens. Financial savings were also reported by participants.

Similar findings were reported in a study on backyard gardens in Toronto, Canada. Home gardeners explained that the act of gardening changed the overall way they eat as well as their approach to food—leading them to become more mindful of choosing seasonal and organic produce (Kortright & Wakefield, 2011). Kortright and Wakefield (2011) explain that gardening impacts food security in a variety of ways, including a dimension of food access, nutrition, self-reliance, cultural acceptability, environmental sustainability, and safety.

Food, and the act of gardening, has a way of connecting people through the sharing and preservation of cultural traditions and knowledge. Gray, et al. (2014) reported that residents who participated in home gardening programs experienced increased connections with neighbors through the sharing of produce and knowledge, as well as increased time spent outside their homes. Similar connections have been made among immigrant, migrant, and refugee populations with home gardens—enabling them to maintain cultural identities, and share cultural traditions and knowledge (Gray et al, 2014; Kortright & Wakefield, 2011).

In some circumstances, the building of community around home gardeners lead some gardeners to become participants or leaders in local food initiatives and organizations. Others were drawn to establish neighborhood-based groups, or guilds, holding regular meetings, sharing resources, and reaching out to new neighbors (Gray et al., 2014).

Student Belonging and Community Building

The concept of belonging is a critical component of student success and retention. While students may have the grades, the desire, and the ability to succeed in higher education often those students who do not feel like they belong, or lack a community at their institution, struggle to succeed. A study conducted at Stanford looking at the psychology of education revealed that negative thoughts hindering student success were typically centered on two common themes: belonging and ability. As Tough (2014) explains, doubts about belonging and one's ability often feed off each other creating a sense of helplessness, which often prevents students from taking steps to change their situation.

Programs which reduce concerns about belonging have the ability to reduce achievement gaps among students (Romero, 2015). In their review about student's social capital, engagement, and sense of belonging, Soria and Stebleton (2013) explain that short-term academic outcomes-- such as student

performance on assignments and exams, and long-term outcomes-- such as persistence to graduation, can be influenced by student's academic engagement within and outside of the classroom.

Programs such as seed libraries have the ability to engage students through active learning both in and outside the classroom. In their coursework students may study seed germination, food pathways, biodiversity, or social justice issues such as food access. When paired with time spent in a community garden with their peers, or gardening at home, these lessons have the ability of greater impact on student learning.

These activities create community among peers who learn and experience concepts together and lead to greater understanding and applicability of these concepts. This can provide purpose and meaning, and ultimately lead to the establishment of community and belonging among everyone involved. As seen in Sumner, et. al's (2010) study of civic engagement and community, agriculture in early European farming was seen as the connection of two things—*agri* and *cultura*, as food is a vital part of culture and community.

Conclusion

We can see in the literature the role that seed libraries can play in higher education, as well as the public and community sphere. Through engaged programming, the benefit of seed libraries in higher education are two-fold. They have potential to improve food security among students, staff, and faculty, as well as create increased understanding of global and societal issues. Both have the potential to lead to greater civic engagement among participants. Baba Dioum, a Senegalese naturalist and conservationist stated that, "In the end we will conserve only what we love. We will love only what we understand. We will understand only what we are taught" (1968). This same principle can be applied to garden and experience-based pedagogy, which can ignite passions to lead to social change. The

literature indicates seed libraries are effective tools in these areas, providing a strong case for increased implementation and evaluation of seed libraries in higher education.

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