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Leslie A. Duram

Southern Illinois University Carbondale, duram@siu.edu

Laura L. Williams

Kauai Community College, LauraLW@hawaii.edu

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Growing a Student Organic Garden within the Context of University Sustainability Initiatives

Authors:

Leslie A. Duram

Geography & Environmental Resources; Environmental Studies

Southern Illinois University

Carbondale, Illinois, USA

Laura L. Williams

Environmental Services;

Ho‘ouluwehi-The Sustainable Living Institute of Kaua‘i

Kauai Community College

Lihue, Hawaii, USA

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Abstract:

Purpose- The purpose of this paper is to examine the evolution of a student organic garden at a large public university, as an example of student initiatives that promote both campus sustainability and student-focused sustainability education on campus.

Design/ Methodology/ Approach- The authors conducted quantitative and qualitative analysis to document the evolution of the university’s Local Organic Gardening Initiative of Carbondale (LOGIC), which is the student initiated and operated organic garden.

Findings- The student organic garden evolved in three stages, each of which had specific goals and accomplishments. Stage I (establishment): students in Geography courses took action to get the garden established; key components included funds from a sustainability scholarship and the student initiated campus Green Fund, dedicated undergraduate students, negotiating campus bureaucracy, and motivating broad support. Stage II (evolution): a high tunnel was added to the original garden, a graduate assistant position was filled to manage the garden, additional funds were secured, a Permaculture demonstration site was added, the volunteer base was established, and LOGIC began being included in campus and community events. Stage III (future) challenges include: consistent leadership, long-term funding, guarantee of land availability, student graduation/turnover, and increasing student involvement.

Originality/ Value- This paper provides a longitudinal perspective on the evolution of student-led sustainability efforts which require progressive, inclusive action from multiple stakeholders across campus and in the community. Several replicable

practices include student leadership in sustainability initiatives, actions for promoting local food in the university structure, and methods of negotiating complex institutional settings.

Key Words- Local Food, Organic Garden, Student Initiatives, University Sustainability, Multiple Stakeholders

Article Classification- Research Paper/Case Study

1. Introduction

Sustainability in higher education is a complex and sometimes daunting endeavor. The inherent problems within university structures (e.g., funding, bureaucracy, conflicting goals, and changing personnel) make the implementation of sustainability a challenge (Sharp, 2002; Velazquez *et al.*, 2005; Barth *et al.*, 2007; Shephard, 2010; Bacon *et al.*, 2011;). No matter the obstacles encountered, the fact is that higher education has the responsibility to lead the sustainability movement (Moore, 2005; Alshuwaikhat and Abubakar, 2008; Edwards, 2012). Philosophical shifts must occur before campus policies will change, and institutional statements regarding sustainability are only viable if supported by tangible actions (Shumaker 1973; Velazques *et al.*, 2006).

Campus sustainability often begins with several small projects, rather than a sudden, complete institutional shift. While faculty and staff members may lead these initial projects, often students are the agents of change. There is, however, an inherent barrier because “students usually have no resources, limited understanding of how the university itself is managed and no immediate access to decision-making processes that they could directly influence.” (Sharp, 2002, p. 137).

Overcoming these numerous obstacles, students at Southern Illinois University (SIU) Carbondale initiated and led a campus sustainability movement, by calling for a sustainability plan and new Sustainability Coordinator position, which were eventually created. Perhaps most important, in 2008, SIU students passed a referendum in a campus wide vote that created a Green Fee and Sustainability Council. The Green Fee increased student fees by \$10 per semester, and now generates over \$300,000 annually. This money is pooled into the “Green Fund” and is distributed by the Sustainability Council, which consists of elected students, faculty, and staff. Each semester, the Sustainability Council accepts proposals requesting Green Funds for projects and research that promote campus sustainability (Southern Illinois University- Carbondale, 2013).

One of the projects supported by the Green Fund is a student organic garden. This garden, the Local Organic Gardening Initiative of Carbondale (LOGIC), begun by dedicated undergraduate students, has grown into a space that hosts community and university tours, had a nationally recognized blog, and is invited to numerous campus fairs and community outreach programs. Student leaders from LOGIC have attended and spoken at conferences and field days throughout the state. Overall, then, LOGIC exemplifies student sustainability initiatives present on campuses across the US.

2. Background

Sustainability of our current food system is of fundamental concern, as food travels an average of 1500 miles from farm to plate in the US (Pirog and Benjamin, 2003). Our society is thus at the mercy of distant weather patterns, variable water resources, and the availability of cheap oil in order to receive one of the most basic necessities of life (Pollan, 2006). The development of agroecological systems and technologies that emphasize conservation and regeneration of soil, water, and biodiversity are needed in order to offset growing socioeconomic and environmental challenges (Altieri, 1999; Francis *et al.*, 2003). Furthermore, local food systems can reduce environmental impact from food distribution systems and help connect people to food and farming (Duram, 2010).

There is a need to connect people to their food source, to nature, and to emphasize the role food plays in the overall health of people and the environment (Shumaker, 1973; Francis *et al.*, 2003; Duram, 2005; Gomiero *et al.*, 2008). To promote the adoption of sustainable agriculture on a wide scale, educating people about these connections is crucial.

Food is “our most fundamental connection with our environment yet modern conveniences and an industrialized food system have created a culture of cheap food while alienating people from the landscapes that sustain them” (Hale *et al.*, 2011, p. 1853). Additionally, modern lifestyles within and outside of the university are high stress and heavily digitized, making the art and science of growing food even more important. Students benefit from getting their hands dirty and understanding what real food looks, grows, and tastes like (Meinen *et al.*, 2012). Indeed this is a meaningful and tangible way for a university to demonstrate its commitment to sustainability (Sayre, 2011).

Campus gardens and farms are sometimes linked to specific courses and programs, independent studies, or student projects (Barton *et al.*, 2010; Coker *et al.*, 2010; Kobayashi *et al.*, 2010). The gardens and farms often promote responsibility and technical expertise of both students and faculty (Rojas *et al.*, 2007; Albrecht, 2010; Scoggins, 2010). Most importantly, campus gardens and farms bring important benefits to the campus community such as applied education and research, service learning, unique educational projects, integration of separate disciplines, and opportunities for community involvement (Rojas *et al.*, 2007; Komisar *et al.*, 2009; Albrecht, 2010; Kobayashi *et al.*, 2010; Scoggins, 2010; Waliczek and Zajicek, 2010; Ahonen *et al.*, 2012).

Furthermore, allowing students to help solve local issues and provide local solutions to the community instead of feeling overwhelmed by global political and environmental problems helps them to feel pride that they can do something about “ecological dismay, food insecurity, and corporate excess” (Bramwell *et al.*, 2011, p. 93). A student garden can help students develop an ethic for their own local environment (Francis *et al.*, 2013; Biedenweg *et al.*, 2013). Further, “an educational farm is a medium for teaching sustainability via experience” which enables students to put textbook facts into practice (Slotnick, 2011, p. 233-234).

This paper investigates one student garden and outlines the evolutionary stages of LOGIC, from inception, to current status, to future goals. This research

describes the specific, essential components that lead to a successful student-initiated campus organic garden. Additionally, it provides an overview of the interactions among multiple campus stakeholders who are integral to campus sustainability efforts.

3. Methodology

This three-year study employed a mixed-method approach to assess LOGIC, the student organic garden at SIU. Three research questions guided this study: 1) How and why was the LOGIC student garden established? 2) What were the various key stages in the evolution of the LOGIC garden? 3) What long-term factors should be addressed in order for LOGIC to continue into the future?

Beginning in early 2009, data were collected from public sources and univariate quantitative analysis of budget information and volunteer data was undertaken to provide a baseline understanding of the garden. Interviews with nine key participants were conducted (Fontana and Frey 2008) and analyzed to develop an understanding of the past, present, and future of LOGIC (Table 1). Qualitative analysis (coding and content analysis) was conducted on the interview transcript data (Boeije, 2002; Silverman and Marvasti 2008). Initial analysis included coding of themes developed from the literature (Creswell 2007). These initial themes provided the first stage of discovery, then sub-themes were connected and organized into constructs that pulled ideas together into a coherent structure (Miles et al., 2014).

Table 1. Characteristics of Interview Participants

Position	Involvement/ Expertise	Active Phase
Staff	Dining Services	establishment, evolution
Staff	Student Life	establishment, evolution
Faculty	College of Agriculture	evolution, future
Faculty	Sustainability Teaching	establishment, evolution
Alum	Sustainability initiatives/ Garden	establishment
Alum	Sustainability initiatives/ Garden	establishment
Student	Garden volunteer	evolution, future
Student	Sustainable Farm	evolution, future
Student	Sustainability Council, Green Fund	evolution, future

4. Findings

Analysis of quantitative data shows there are distinct phases in the garden's funding, volunteer hours, and personnel. Likewise, the qualitative analysis of the in-

depth interviews indicates similar patterns, which fit the gardening analogy of: seedlings, plants, harvest. Specifically these stages are outlined as 1) Seedlings: Establishment of the garden and overcoming initial barriers to simply get approval to dig in the dirt. 2) Plants Growing: the Evolution of LOGIC entails finding its path within the university structure and discovering its niche within the university. 3) Harvest: Future growth describes the necessary resources the garden will require to succeed for the next generations of students.

4.1. Establishment

The LOGIC garden was created on SIU's campus because there was a core group of students who wanted to produce food for the university (Table 2). Participant 2 explained:

The original goals were really simple: to provide local produce to the dining halls. There is an acknowledgment of our far-flung food distribution system . . . the intention to reduce our carbon footprint associated with food and all the other resource inputs therein. So there's a localization component and then there's the organic component. We want to provide local food to reduce our [carbon] footprint but there was also the desire to reduce all the other hazards associated with food production through growing organic (2011).

Table 2. Key Steps in Establishment of the Student Organic garden

Action/Motivation	By whom
Rally/Organize campus-wide effort to call for Green Fee	Concerned students in Geography (College of Liberal Arts) and Environmental groups
Established university Green Fee	Concerned students in Geography (College of Liberal Arts) and Environmental groups
Student desire to produce food for the university	Geography Students (College of Liberal Arts)
Planned student garden and won Sustainability Award -\$500	Geography Field Methods class project
Collaboration/Networking	Students/ Staff/ Faculty from multiple Colleges/Departments
Permission to build the garden	University Physical Plant, College of Agriculture

An existing environmental student group (Registered Student Organization or RSO) originally came up with the idea for a campus garden, but Geography undergraduate students were the ones who took over the process and saw it through to completion (Participant 1 and 2). An upper-level undergraduate Geography course on “Local Food and Organic Farming” brought together students with similar interests. Then the “Geography Field Methods” class was the catalyst for the students to complete a professional proposal for the garden, which won a \$500 sustainability prize from a departmental supporter. The students donated this money directly to building the LOGIC garden (Participant 2 and 3, 2011), so their plans turned into action.

One of the biggest problems in establishing the garden was its location. The students navigated through numerous university bureaucratic levels to get the necessary approvals to build the garden, but fortunately one student in particular “knew a lot about the school politics and . . . was able us help us really organize our thoughts” (Participant 4, 2011). With the help of a few key people and the professional plan developed during their geography class, the students were able to obtain permission to build an organic garden, provided that it was functional, looked nice, and “fit a specific purpose which was to deliver food to the dining hall” (Participant 4, 2011).

Originally, the students wanted the garden to be located on the main campus. However, the Plant and Services Operations Director did not approve this. Eventually, the Recycling Coordinator (an employee of the Plant and Service Operations) suggested the campus’ Vermicomposting Center’s site off campus. This center takes food waste from the dining halls and uses worms to turn it into compost to be used for research on College of Agriculture lands (Participant 2, 2011). The students accepted the new proposed site:

We started thinking about it and realized that actually, this is a great spot for the garden to be because it is right next to the vermicomposting. We could do this closed loop system in theory...the potential was there (Participant 2, 2011).

Overall, during this initial phase, Geography students (from the College of Liberal Arts) formed relationships with the university’s Plant and Service Operations staff, Dining Services, and the College of Agriculture, who had authority over the land where the LOGIC garden would be located (Participant 2, 2011). There was also community support given by a local, organic farmer, the community food cooperative, and a local non-profit organization (Participant 2, 2011).

4.2. Evolution

The students who initiated the garden soon realized their small garden beds would only provide the dining halls with a limited amount of food, not the volume needed to localize the campus food system the way they desired. Over the four-year period since the initial garden beds were established, an evolution of LOGIC has taken place (Table 3).

Table 3. Evolution of the Student Organic Garden

How?	What?
Registered Student Organization status	<ul style="list-style-type: none">• Garden group able to participate in various events on campus• Volunteer Faculty Advisor provides consistency
University Green Fund grant	<ul style="list-style-type: none">• Add a high tunnel to lengthen growing season• Graduate assistant position to manage the garden
Recognition	<ul style="list-style-type: none">• Graduate Assistant invited to speak at various conferences, field days, host classes, and tours
College of Agriculture	<ul style="list-style-type: none">• Begin 1 acre of 'local food' produce for campus dining halls• Allows LOGIC student garden to shift focus
University Green Fund grant	<ul style="list-style-type: none">• Add a Permaculture site• Graduate Assistant funding extended
Incentives for student volunteers	<ul style="list-style-type: none">• Increase number of volunteers for Garden• Earn "carrots" for free veggies
University Green Fund	<ul style="list-style-type: none">• Student workers• Equipment, hand tools, seeds
Geography Department (College of Liberal Arts)	<ul style="list-style-type: none">• Student interns• Department listserv announcements
University Green Fund	<ul style="list-style-type: none">• 3 years funding for graduate assistant, student workers, supplies• On-campus farm stand• Participate in Community Farmers' Market

First, the founding members of LOGIC applied for funding from the student initiated Green Fund to build a high tunnel. This allowed the garden to expand production and extend the growing season. They also created the official LOGIC RSO group, so as to gain recognition on campus. They applied for funding for a graduate assistant to manage the newly expanded garden and the many volunteers (Participant 2, 2011).

During the next year, the graduate assistant and the garden's faculty advisor (a Geography Professor) wrote for additional grants to expand the garden again to include a Permaculture demonstration site and also additional graduate assistant funding. The RSO remained active, and its status as a registered organization allowed members to participate in campus green fairs, nutrition and health fairs, and other campus activities. The graduate assistant was also active in recruiting volunteers. This was aided by the university's Center for Service Learning and Volunteerism agreement that volunteer hours spent at LOGIC could be included as a part of the Environmental Ambassador Award, which is listed on a student's transcript. Additionally, required service hours for various classes helped increase the number of volunteers at the LOGIC gardens.

LOGIC began to be recognized during this time, and the graduate assistant was invited to speak at Field Days and conferences, hosted class tours for the university and community, and was an integral part of a summer graduate-level class. Volunteers and unpaid student interns who gained course credit for their work at LOGIC accomplished much of the garden work. Additionally, the RSO hosted farm tours of local, organic farms for interested students and offered two workshops.

Also during this time, faculty from the College of Agriculture's Plant and Soil Science department applied for funding from the Green Fund to begin producing food for the university as well. A graduate student and a faculty member headed this project and oversaw paid student workers to grow food for the university dining halls. They began with one acre and the goals were to "keep it productive." (Participant 8). Indeed, because they had access to tractors and are trained in agronomy, they were easily capable of tilling up an acre of land and successfully producing food that same year. The following year, this College of Agriculture graduate student position became a permanent staff position and the site expanded to two acres and produced a large amount of food for the dining halls.

Although this is distinct from the student LOGIC gardens, it is relevant, because it allowed LOGIC to evolve into different marketing avenues. The founding members of LOGIC had hoped for a larger, permanent farm to evolve out of the tiny original LOGIC beds (Participants 1, 2, and 4).

There was a lot of ambition from the people that founded LOGIC. We wanted to start localizing food. We wanted to maximize that effort and so eventually having a campus farm with a farm manager (that was paid salary) was commonly discussed. The idea of a large-scale operation—that was the vision—to really, truly make a dent into the percentage of local food coming into the dining halls (Participant 2, 2011).

It appears that the small student-led LOGIC garden helped stimulate the College of Agriculture's decision to begin growing produce for the campus dining halls, on a larger scale. LOGIC also evolved in the wake of this, and is finding its niche as a smaller scale, volunteer-based garden that provides sustainability education.

It doesn't seem like the amount of food that we grow is doing enough to make a difference in the dining halls. If we could sell it at a Farmer's Market or even on campus; raise money for the club . . . we could put that towards more activities and then bring more people in (Participant 5, 2011).

In 2012 the LOGIC students initiated a weekly on-campus farm stand, to sell their produce directly to the campus community. Since Summer 2013, the LOGIC students also set up a booth at the weekly Community Farmers' Market in town. These efforts are successful because they are a good fit for the modest amounts of produce the garden yields.

Another important part of LOGIC's recent evolution was a large grant from the Green Fund that provided three years of funding for a graduate assistant, hourly student workers, and necessary gardening supplies. With LOGIC's rapid growth, one part-time manager was spread too thin. With consistent workers, the graduate assistant can focus on volunteer recruitment and management, environmental education and outreach, while still working to plan, plant, weed, harvest, and market.

4.3 Future

In order to make the garden viable well into the future, certain long-term issues need to be addressed (Table 4). Funding is a key issue noted in the expert interviews and has been a constant concern for the graduate assistant and faculty advisor. Even the faculty advisor is simply volunteering her time and energy, with no compensation besides the satisfaction of guiding a successful student project.

Table 4. Actions Needed for Long-term sustainability of Student Garden

Future Goals	Actions
Long-term funding	<ul style="list-style-type: none">• Paid, permanent garden manager position (Graduate Assistant)• Continue to seek funding from internal sources• Seek external grants• Build relationships on campus and in community• Maintain support of administration• Gain acknowledgement for volunteer Faculty Advisor
Productive garden with trained workforce	<ul style="list-style-type: none">• Graduate assistant take Master Gardener courses• Concise “guides” with instructions for volunteers• Involve community experts for workshops• Need guaranteed land availability and possibility for expansion
Increase visibility on campus and in community	<ul style="list-style-type: none">• Public relations campaign• Social Media presence• Contact more faculty for involvement in classes
Maximize student involvement	<ul style="list-style-type: none">• Network with student organizations and relevant departments• Create student initiatives and rewards for garden participation• Encourage faculty to use the site for hands-on learning
Develop broader Center for Sustainable Farming	<ul style="list-style-type: none">• Collaborative work among students/faculty across Departments/Colleges

Participant 6 noted, “We are trying to do this grass roots thing, but we’ve got to have money coming in from somewhere to start the whole process. Manpower is

important. We have to have funds to pay people” (2011). Although based on volunteers, LOGIC’s future depends on more than goodwill.

You have to have money to do anything. I don’t think any students are going to do all that work for nothing. And I don’t really even think you want a complete volunteer force. I think you need a paid garden manager because if it’s something that somebody’s not getting paid for, then they really don’t have any responsibility for it. So there’s always going to be money in this equation (Participant 3, 2011).

The university’s Green Fund has been fundamentally important for LOGIC and the entire local food movement on campus, but this funding is not guaranteed. The selection committee changes annually, and sometimes members have the notion that Green Funds should be awarded to begin new projects rather than maintain established projects. Therefore, the leaders of LOGIC must constantly reassess where their next “paycheck” is going to come from. This could be found in outside grants, but this takes time away from coordinating volunteers, planting, weeding, harvesting and distributing crops. Participant 3 suggested university administration support was key, “If we had real strong administration support we could probably have the money” for graduate assistants, seeds, materials, and equipment (2011). But with tight budgets in higher education, there is little hope for additional funding of sustainability projects.

Another key issue is LOGIC’s need for guaranteed land availability. During Fall 2012, other university employees submitted a Green Fund proposal for a large open-aired composting facility—to be built on top of the LOGIC gardens! Through communication between many stakeholders across campus, this crisis was averted and the compost facility received approval and funding to build down the road from the LOGIC gardens. However, this problem caused months of stress for leaders of LOGIC because they had planned to double the garden’s planted space directly where the proposed building was to be located. Long-term land availability is not guaranteed because the College of Agriculture has authority over the site, so LOGIC students do not know whether to invest their time in expansion of a space that could be taken away from them. This causes delays and even halting of LOGIC’s progress. Over the past few years, as LOGIC has evolved, significant time and resources have been dedicated to this specific garden area. With no guarantee for this space and permission to expand in the future, all of this work could be in vain.

One other crucial component for LOGIC is the volunteer garden needs a trained, dedicated workforce in order to be productive. Specifically, leaders must be responsible for the site, and these leaders need to be trained to effectively guide and teach volunteers (Participants 3, 6 and 9, 2011). In order to increase volunteerism, awareness, and overall support, the leaders need to expand LOGIC’s scope. Because of its location away from the main campus, many people (students, faculty, and staff) are simply unaware of LOGIC, therefore a public relations campaign and constant networking is needed (Participant 9, 2011). Likewise, student participation with LOGIC also needs to increase. The turnover due to graduation of

the student population, means LOGIC must constantly work on advertising. Students are busy and in order for them to spend their free time volunteering for the garden, incentives are helpful. Thus LOGIC works to link with class service hour requirements, earning “money” they can then spend at the LOGIC farm stand, faculty using the site for hands-on learning, and networking with large student groups that need or want volunteer hours (Participant 1, 2, 4, 7 and 9, 2011).

In the future, LOGIC can play a role in a broader initiative to showcase sustainability efforts on campus. Thus the students are working to develop the site in unison with other campus departments to turn the entire area of the LOGIC gardens and the sustainable farm into SIU’s Center for Sustainable Farming. If this succeeds, it would increase LOGIC’s recognition, but perhaps most importantly could signify that SIU is becoming a university with comprehensive sustainability goals. This collaboration was, indeed, the vision of original student organizers: “departments working together to raise food for the students, to make students aware of where their food comes from and how it’s grown . . . is just a really good educational opportunity for the university” (Participant 1, 2011).

5. Conclusion

Higher education has the responsibility to provide systemic, interdisciplinary teaching, research and outreach to educate students and the public about sustainability (Cortese, 2003; Clark, 2005; Velazquez et al., 2006; Alshuwaikhat and Abubakar, 2008). Universities and colleges must encourage students to see the connections between personal choices and the environment in order to train future sustainability leaders (Shriberg and Harris, 2012; George, 2012).

This research provides a detailed description of a student initiative that had far-reaching impacts. It shows that when students are committed to an idea, tangible change can come from small projects that evolve into institutional commitment. Undergraduate students realized that campus-wide sustainability projects were needed, so they stimulated and organized student demand for such initiatives. This then gave rise to the university’s local food movement, which was driven by students and supported by multiple stakeholders across campus. Once the students embraced an official role as a registered student organization, they formalized the university’s sustainability movement and built on their earlier “activist” success.

Findings from this Case Study can be generalized to help guide other sustainability initiatives at campuses across the US. Indeed, student initiatives must be particularly cognizant of these potential challenges: consistency in their volunteer workforce, stability of funding sources, visibility and marketing themselves on campus, and collaboration among broad stakeholder groups to encourage long-term success. These typical obstacles, while challenging to negotiate, can be overcome by well-organized student initiatives, as exemplified by LOGIC. Appropriate timing and training of new student leaders helps manage the transition times after graduation more seamlessly. A consistent leadership base can overcome numerous challenges and hold together the students’ core goals. Indeed, students should be mentored and taught to take a project from the idea phase to implementation, creating a long-term, institutionalized program.

Students who are motivated to address real world problems are key to solving critical sustainability issues, particularly in a world which desperately needs more “earth-literate leaders” (Martin and Jucker, 2005; Clark and Wallace, 2012). The students described in this research were given a valuable opportunity: to see a problem and learn how to work within a bureaucratic system to solve it. The students who work on such initiatives learn leadership, organizational and action skills (Whiteman and Powers, 2012; AASHE, 2013).

The current generation of students is inheriting a complex world. Thus they need multiple skills to adequately put their classroom learning into action and solve complicated local, national, and global issues. Student initiatives such as this one provide a relevant example for sustainability education. LOGIC students are learning how to maintain a project for the long-term, which increases their capacity to bring about even more change. After graduation, each generation of students will influence sustainability in their local communities well into the future.

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About the Authors:

L.A. Duram is Professor of Geography and Director of the Environmental Studies Program at Southern Illinois University Carbondale. Her research focus is local food and organic farming and grassroots environmental action. She has published four books and 25+ articles on these topics. She enjoys mentoring enthusiastic undergraduate and graduate students.

L.L. Williams is a Sustainable Living Instructor at Kauai Community College in Lihue, Hawaii. She develops curriculum and programming for the College's sustainable living courses and certificates. She also promotes linkages between campus and Ho'ouluwehi- The Sustainable Living Institute of Kaua'i. She has a talent for building successful collaborative projects through hard work and dedication.