

DOWN ON THE FARM: A QUALITATIVE STUDY OF
SUSTAINABLE AGRICULTURE AND FOOD SYSTEMS EDUCATION AT
LIBERAL ARTS COLLEGES AND UNIVERSITIES

By

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ABSTRACT

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At U.S. liberal arts colleges and universities, students in biology, environmental studies, and philosophy are setting down their laptops and notepads to grab shovels, tillers, and hoes. In recent years, sustainable agriculture and food systems (SAFS) education – previously an activity solely of land-grant universities (LGUs) - has entered the discourse at liberal arts schools often through environmental and interdisciplinary studies. Though little consensus exists on how these programs are fostered and supported, the fact that they are increasing in number is undeniable. This study seeks to understand the motivation, development, and organization of these initiatives. This is important and useful to contribute to the larger dialogue on the importance of student farms and other SAFS initiatives, and to broaden the conversation about the historical bifurcation of vocational and liberal arts educational models. Research of 16 liberal arts schools conducted in the spring of 2012 sought to understand and deconstruct the organizational relationships and mechanisms leveraged to develop these programs. This author discovered a diversity of institutional motivations including an emphasis on pedagogical techniques such as experiential education and service-learning in addition to the wide influence of sustainability. It furthermore revealed a number of institutional barriers and wide variation of emerging SAFS models.

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CHAPTER 1: INTRODUCTION

In recent years, U.S. liberal arts colleges' and universities food and agriculture educational initiatives have rapidly increased in both number and scope (Cohen, 2010; Grossman, Patel, & Drinkwater, 2010). These endeavors include urban gardens for graduate students in education, cooperatively-run dining services, and fully-functioning student farms. The organizational structure and support for these initiatives runs a spectrum from formal and institutionalized departments of agroecology to informal, grassroots and student-led initiatives. While varying in their depth and goals, these efforts collectively contribute to an emerging discussion of evolutions in pedagogical techniques and disciplinary boundaries. This thesis will utilize Parr and Trexler's (2011) phrase "sustainable agriculture and food systems" (SAFS) to encompass the various initiatives and endeavors analyzed here.

The 2011 publication of *Fields of Learning* (Sayre & Clark, 2011) is a testament to this trend both in and out of traditional agricultural colleges. An account of 15 student farms, this book chronicles their nascence, development, challenges and successes. This work suggests that while historically associated with agricultural colleges alone, SAFS education now has its place in a variety of institutions to serve as both a training field for future career opportunities as well as many of the intangible educational benefits derived from it. The most compelling aspect of this volume is the number of non-land grant universities (LGUs) with student farms. Though land-grant institutions are still responsible for the majority of SAFS teaching and research, this shift justifies an inquiry into understanding the growth of student farms and other SAFS activities at non-LGUs in the last 30 years (Parr & Trexler, 2011). This emergence of SAFS education

appears to demonstrate an increased interest in farming and agricultural systems, yet the motivations are often much more complex and multi-layered. Dr. Sayre suggests that objectives and realized benefits for these endeavors are “much messier than people expect when they get started” (personal communication, April 26, 2012).

Often primary among these varied objectives is a commitment to sustainability, now a central theme among U.S. colleges and universities (Bartlett, 2011). Despite its ubiquity, this idea of sustainability is considered less a static concept and more a composite, dynamic reality. Beyond the label of sustainability, the drivers for liberal arts schools’ SAFS education appear to be as diverse and complex as the institutions themselves. This study seeks to understand the development of those initiatives at liberal arts colleges and utilize the available literature to foreground and position research conducted by the author in the spring and summer of 2012.

With newly minted agriculture and food coursework in environmental studies or liberal studies, the question often arises of why these issues matter now. Some scholars contend that the flaws and failures of the industrial food system are more evident to the public now. This is largely a result of the various social, environmental and public health concerns regarding conventional agricultural production (Bartlett, 2011). Additionally, recent releases of popular books including *Animal, Vegetable, Miracle*; *The Omnivore’s Dilemma*, and documentaries including *Fast Food Nation* and *Supersize Me* have contributed to increasing students’ interest in engaging in SAFS at their respective educational institutions.

LAND GRANT SYSTEM AND SUSTAINABLE AGRICULTURE

A review of the literature on agricultural education and the land-grant system is beyond the scope of this study. However, a cursory analysis of the recent land-grant

system criticisms and its relationship to SAFS is warranted. Celebrating its sesquicentennial in the year of this writing, the Morrill Act was originally passed to provide a “liberal and practical education” environment for society’s non-elite who might not otherwise have access to education (Harl, 2003). Further expanded by the Smith Act (1887) and the Hatch-Lever Act (1914), the Land-Grant framework has come to prominence over the past 150 years and now is widely regarded as the storehouse and purveyor of all food and agriculture related activities (Harl, 2003).

In the 21st century, the relevance of Land-Grants and their role in sustainable agriculture has occasionally been in question due to some of the challenges embedded in their institutional affiliations (Borsari, 2001). Some critics maintain that the land-grant system has moved away from addressing local and regional issues and has become more invested in specialized training (Colasanti, Wright, & Reau, 2009). This critique highlights a tension between interdisciplinary and systemic research in local and regional agriculture versus higher levels of specialization. This conflict is the result of what Berry (1977) defines as an “agribusiness mentality” that divides agriculture into sequestered disciplines such as entomology, plant pathology or cell genetics (Borsari, 2001; C. A. Francis et al., 2011). Berry also argues that “the tragedy of the land-grants is that their moral imperative came finally to have nowhere to rest except on the careers of specialists whose standards and operating procedures were amoral” (Berry, 1977). The result has been a hierarchical, specialized, and largely concentrated food system complex that produces food that is cheap and widely available (Wright, 2006)

A further challenge to the land-grant system questions their educational approach to issues raised by the conventional agrifood system. Scholars question

whether land-grant pedagogy sufficiently addresses critical engagement of conventional agriculture – an inadequacy that is potentially addressed by an agroecological framework (Gill & Gill, 2010; Jordan, Bawden, & Bergmann, 2008). Given the interdisciplinary nature of agroecology, liberal arts and land-grant institutions alike play a role in addressing the complexities of the conventional agrifood system.

While some agricultural scholars maintain that integrative programs detract from in-depth coursework and disciplinary scientific contributions, many agricultural colleges are also exploring sustainable agriculture education as an emerging framework (C. A. Francis et al., 2011). Sustainable agriculture advocates argue that in the future, LGUs may rely on integrative pedagogies and the intellectual capital of specialized disciplines in order to foster a broad conversation on resolutions for social and environmental issues associated with the agrifood system (Parr, Trexler, Khanna, & Battisti, 2007). The question of how land-grants will be “more faithful to their historical commitment by reconsidering the model of education and leadership” is now being discussed more than ever (Colasanti et al., 2009). Through both their institutional experience and an in-depth review of the literature, Niewlony et al., (2012) further illustrate the expansion of sustainable agriculture curricula at LGUs through the lens of civic engagement and community outreach.

Sustainable agriculture education at LGUs has grown significantly in the past twenty five years. At the 2011 conference of the *Sustainable Agriculture Education Association*, representatives from 11 different land-grants gathered to discuss their emerging curricula in SAFS education. The growth of these developing programs in agroecology, sustainable agriculture, and food systems is credited in part “due to the

LGU tripartite mission of education, extension, and research” (Jacobsen et al., 2012). These programs represent a fundamental shift in agricultural colleges to include specialized research and interdisciplinary education to address challenges on a variety of levels. A recent issue of *The Journal of Agriculture, Food Systems, and Community Development* focused specifically on SAFS and higher education and contained an article examining a large urban garden at one of the schools researched in this paper. The authors evaluated the potential partnerships between agricultural colleges and liberal arts institutions in developing mutually beneficial educational and research opportunities in SAFS education (Burns & Miller, 2012). These represent only some of the ongoing collaborations between LGUs and liberal arts schools. This example is potentially reflective of an emerging SAFS paradigm that will be steadily reliant on the leadership of land grants and supported by sustainability and SAFS education at non-land grants.

AGRICULTURE AND THE LIBERAL ARTS

With etymological roots in the medieval concept of education for freedom, the liberal arts tradition is rooted in broad and diverse learning. Chief among its goals is instructing students both what to think and how to think (Roche, 2010). The seven classic liberal arts – three each pertaining to grammar and mathematics respectively, in addition to music – are seen as the cornerstone to building any liberal education (Roche, 2010). Described differently, John Henry Newman framed the liberal arts as “nothing more or less than intellectual excellence” (Mulcahy, 2009). In contrast to vocational or technical training, the liberal arts are envisioned to be predominately general and nonspecialized, providing students the knowledge and capacity necessary to be engaged members of civic society (Mulcahy, 2009). Despite being one of the most

contested ideas amongst academics, the liberal arts' conceptual approach to education is still the dominant pedagogy in the developed world. However, scholars are beginning to question whether this method and its accompanying rigor isn't better enriched by educational philosophies that incorporate experience and practical knowledge (Mulcahy, 2009).

The research regarding SAFS at liberal arts institutions (there are some vocational programs in sustainable agriculture) rarely situates food and farming education as the primary goals, but rather as an outgrowth of a holistic pedagogical framework. In the classroom, SAFS education often develops from interdisciplinary techniques that materialize in departments of agroecology, experiential classes on sustainable agriculture, and social-science based food studies programs (Caporali, 2007; Cargill, 2005; Parr & Trexler, 2011). These courses are often created and piloted by faculty members rather than developed through administrative mandates (Hopkinson, Hughes, & Layer, 2008; Savelyeva & McKenna, 2011). Scholars suggest that these educational efforts are developed out of a critique amongst sustainability scholars that disciplinary boundaries are incompatible with solutions to today's "wicked" problems (Kreuter, Rosa, Howze, & Baldwin, 2004; Rittel & Webber, 1973). Thus, holistic education should include agriculture and food systems to appropriately address the challenges of the 21st century (Warburton, 2003).

EDUCATIONAL THEORY AND AGRICULTURE

It is unclear who first proposed that agriculture be considered a fundamental constituent of a liberal arts education. Orr (1991) argued that agriculture is part of a holistic regimen of courses that should be compulsory to all liberal arts programs. He also provided a number of reasons why college farms would be useful to students,

defining agriculture as a “liberal art with technical aspects”(Orr, 1991). The global environmental outlook and the changing state of the earth’s ecosystems are further motivation to collegiate faculty and administrators to evaluate the structure of traditional liberal arts programs that still focus predominately on narrowly defined problems.

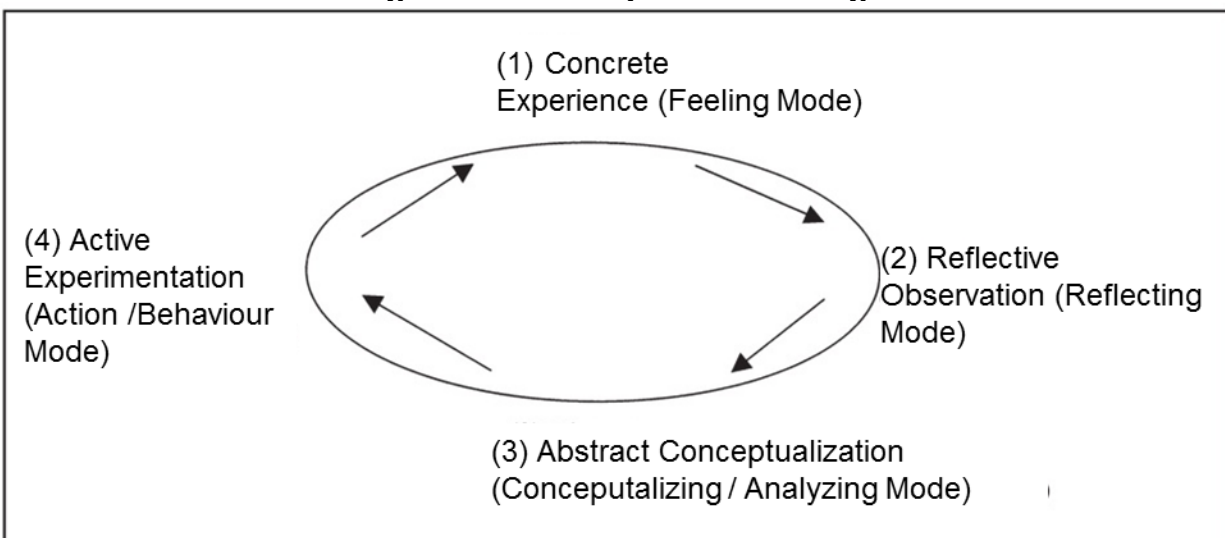
In response to the ecological and social challenges of the 20th century, two distinct but overlapping pedagogies are prevalent in the literature: experiential education and ecological or interdisciplinary education. Though they both have existed through the majority of the 20th century in various forms, discussion of these two techniques has significantly increased in the contemporary higher education literature in recent years.

It is generally agreed that John Dewey, Kurt Han and Jean Piaget were some of the original scholars instrumental in the development of experiential education. As educational philosophers, they questioned the traditional liberal arts curricula and advocated that a more appropriate approach to education would be rooted in the concepts of heads, hand and heart, rather than the three R’s (Higgins, 2009). Dewey reasoned that all learning must be framed in the context of the learner and the instructor and that fundamental to education was “learn by doing” (Dewey, 1916). Central to experiential education was the notion that there is less bifurcation between actual life and formalized education but rather that the two are mutually beneficial and complimentary.

Contemporary applications of this include the union of tradition-based curricula with less formal learning outside of the classroom. Examples include “fieldwork, laboratory studies, studio arts, work/study programs, co-operative education, and apprenticeships (DeGiacomo, 2002). These models of education are becoming

pervasive in all forms of higher education as institutions seek to redefine the traditional collegiate model(Hopkinson et al., 2008). Many of these educational approaches are developed out of the “Kolb Cycle”, introduced by Kolb and Fry (1975). This paradigm, seen in figure 1-1 above, is one of the premiere conceptualizations of experiential learning. Justifications for SAFS education rely heavily on this model for justification of experiential learning – including food internships, community gardens, and developing campus farms (Parr & Trexler, 2011).

Figure 1-1 Kolb Cycle of Learning



Despite the presence of experiential education for motivating SAFS initiatives, there is sometimes a challenge dissecting whether the theory or the content drives SAFS efforts. Development of these co-curricular SAFS endeavors is reliant on an iterative process of education and thus there is less delineation between the learning process and the learning objectives. Additionally, SAFS initiatives are also the outgrowth of thinkers such as Paulo Freire and other thinkers who viewed education as something that occurs between teachers and students alike in praxis (C. A. Francis et al., 2011). These educational philosophers argued that addressing the complex

challenges of sustainable food systems required systems thinking and co-learning by both teachers and students outside of the classroom. Furthermore, many scholars argue that experiential learning and education must become more widely adapted for a broader audience because of the capacity to address complex environmental and social problems (Higgins, 2009).

Ecological or environmental education incorporates systems thinking and applied knowledge to engage students in the tensions between formalized education and their world outside of academia (Klein, 2006). It begins with the assertion that students will inherit a wide variety of environmental challenges and that a liberal or generalized education must build ecological literacy to address these issues (Bruyere, 2008; Orr, 1992). In general, ecological education has helped to develop an increased awareness in students about their general ecological impact as well as their role in the globalized systems of food, water, energy, waste, and commerce (Bruyere, 2008).

Environmental education programs often are built from an interdisciplinary basis developed from the social and natural sciences (Vincent & Focht, 2008). While ecological and interdisciplinary education may in fact seem bifurcated, Klein (2006) suggests that they have significant overlap, because they both inherently require systems thinking, and applied knowledge. They further argue that during integrative learning, “Students are engaged in the actual *doing* of a subject or discipline, and they grapple with the cognitive conflict that occurs when working with alternative perspective” (Klein, 2006).

SAFS EDUCATION

In the context of sustainability education, Hopkinson et al. (2008) propose a distinction between formal and informal learning. They refer to formal education as curricula that are “associated with an academic programme of study”. In contrast, they describe informal education as represented by non-curricular activities including “volunteering, internships, clubs and societies, and events.” Yet another approach proposed by Wellington (1990) focuses on higher education, and on elementary and secondary education. Both of these models are helpful in the separation of formal and

Table 1-1: Wellington's Comparison of Formal and Informal Learning

Informal learning	Formal learning
Voluntary	Compulsory
Haphazard, unstructured, unsequenced	Structured and sequenced
Non-assessed, non-certified	Assessed, certified
Open-ended	More closed
Learner-led, learner centered	Teacher-led, teacher-centered
Outside of formal settings	Classroom and institution based
Unplanned	Planned
Many unintended outcomes (outcomes more difficult to measure)	Fewer unintended outcomes
Social aspect central, e.g. social interactions between visitors	Social aspect less central
Low 'currency'	High 'currency'
Undirected, not legislated for	Legislated and directed (controlled)

informal education for this discussion. Table 1-1 above delineates the contrast between formal and informal learning. Using Hopkinson’s and Wellington’s definitions, this paper will first examine formalized curricula and programs before moving to a discussion of less formalized pedagogical tools related to sustainable agriculture and food systems.

Now a part of many conversations related to campus-wide initiatives at US Colleges and Universities, sustainability may have a permanent appointment in the academic lexicon. In the 21st century, climate change, food scarcity, loss of topsoil and

a host of other social and environmental challenges significantly inform the research, teaching, and cultural agendas of American institutions of higher education (C. A. Francis et al., 2011). While political and social approaches to these “wicked” problems are hardly defined, a general movement toward sustainability can be found in nearly all colleges and universities (Vincent & Focht, 2008). However, there is considerable “ambiguity surrounding the definition of sustainability and tensions between varying concepts of environmental education and sustainability education” (Vincent & Focht, 2008). As global resource demands for food and fiber production increases, the conventional model of agricultural education has been deemed insufficient to adequately address these problems. (Borsari, 2001; Jordan et al., 2008; Karsten & Risius, 2004). Despite this growth of sustainability in academia there is little consensus on what constitutes sustainability education, as well as what disciplinary tools are most apt to teach it. Consequently, literature on sustainability education recommends not only an interdisciplinary approach but also a redefinition of the boundaries of formal and informal education. This approach is seen as necessary to foster an environment of ecological and cultural literacy (Adelman & Sandiford, 2007).

Agroecology has recently entered the discourse in natural and social science communities as a viable discipline and pedagogy; it is moreover seen as one of the disciplinary frameworks to approach SAFS education. Historically defined as an ecological approach to agricultural production, Francis et al. (2003) revised their previous concept and present agroecology as a lens by which to evaluate entire food systems, “encompassing ecological, economic and social dimensions.” This definition creates a more extensive research and teaching approach, and also expands

agroecology beyond the field to include a wider range of disciplinary analysis. Francis et al. (2003) suggest that this expanded notion necessarily includes anthropology, sociology, economics, environmental sciences and other social sciences in agroecology study. By extension, an agroecological approach inherently involves the liberal arts in its purview.

Additionally, agroecology provides a disciplinary lens through which to engage SAFS education and a pedagogical approach that views “humans as integral to agroecosystems”; therefore it includes any disciplines that analyze human organization and activity as necessary to its study (Jordan et al., 2008). Food production and distribution are now directly related to a number of complex public health issues including nutrition, environmental health, and community. Thus, a preliminary understanding of these fields becomes embedded in the research agendas of any scholars or students interested in these fields of study (C. Francis et al., 2003)

With an increasing number of discussions in academic communities regarding the importance of interdisciplinary efforts, sustainable agriculture education is also gaining traction as a platform for linking the biological and social sciences in cross-discipline research and education (C. Francis et al., 2003). It functions as a scientific discipline and as an educational and philosophical paradigm for interdisciplinary teaching and education (Caporali, 2007). For example, one of the premier agroecology programs has been developed at UC-Santa Cruz, a non-land grant liberal arts university (C. Francis et al., 2003). While this is one of just many SAFS programs, most of these programs have been established in only the last four decades, and little to no consensus exists among them on mission, goals, and structure (Vincent & Focht, 2008).

Many of these courses or programs are developed around specific issues facing their institutions' respective regions or communities and thus are organized differently depending on the inputs. Courses such as the New School's "Designing the Sustainable Food Shed" provides an interdisciplinary context to engage students in design and liberal studies in praxis challenges related to food and agriculture (Cohen, 2010).

Some researchers propose an increase in SAFS education scholarship and challenge that it has not yet been fully explored beyond a research context (Parr & Trexler, 2011). A retort to this criticism however exists in the emerging discipline of sustainability science. Though its departure lies in its nature as a research area rather than solely a pedagogical method, this nascent field of study shares much in common with an interdisciplinary or agroecological educational approach. Sustainability science scholars seek to understand how "society should organize itself in response to wicked problems in agriculture and interconnected food, energy, water and land-use systems..." (C. A. Francis et al., 2011). Defined differently, it is a basic and applied research paradigm interested in partnering scholarship and practice to address global and local issues of sustainability (Kajikawa, 2008). Sustainability science also provides a context to focus on engineering, technical, and design solutions to questions related to issues of food, water, social change, energy, and transportation (Bacon et al., 2010). Though Sustainability science seeks to explore a wide variety of issues – not solely agriculture and food systems – it does provide a disciplinary framework and epistemology to approach research in those fields.

INFORMAL MODELS OF SAFS EDUCATION

Inasmuch as formal curriculum development, research and university agendas foster new course and degree offerings, informal education provides another pathway

into SAFS initiatives, often in the form of student led or co-led initiatives,. Not least of these are the recent developments of student farms, community gardens, and co-curricular partnerships with area farmers. Though varying in size, scope, funding structure, and goals, student farms and gardens can be defined per Parr and Trexler (2011):

“Student farms are defined here as campus educational facilities that provide hands-on opportunities for students to engage in horticulture, agriculture, and marketing at relatively small scales of production and distribution. Production is often organic and diversified, including vegetables, fruits, and small livestock, on from 2 to 10 hectares (5-25 acres). Marketing is often direct, including Community Supported Agriculture (CSA) subscription schemes, campus farm stands, and sales to campus dining services. Student farms, as defined above, are a recent phenomenon of the last 30 years, largely associated with interests in alternative, low-input, and ecological farming and local food systems.”

Perhaps the only caveat to this definition is the relative size of the campus farms for liberal arts institutions. Many land-grants operate successful student farms of this size or smaller and a cursory review of student farms reveals there are also a number of liberal arts colleges with market gardens totaling $\frac{1}{4}$ acre or less (Rodale Institute, 2011). Nevertheless, this definition provides an initial framework to gauge other student farm activity.

Student farms often emerge as the primary way in which students at both liberal arts and LGUs can engage sustainable agriculture in an informal setting. One institution for instance, cites two specific goals which motivate their student garden: education for sustainability and critical literacy (Adelman & Sandiford, 2007). Thus, SAFS initiatives are often a culmination of general, diverse objectives and rarely the goal in and of themselves. Other motivations in less formal settings include varying interests such as

civic agriculture (Lyson, 2004), community engagement and student activism, among others.

The case for an expansion of experiential or engaged learning with an interdisciplinary basis called for in land-grants is similarly argued for from a perspective of service-learning and community engagement in liberal arts schools. These efforts utilize a slightly less formal structure to immerse students in questions of community health and food systems in a more tangible way. Service learning, or “the act of linking students to community partners to address public needs while developing disciplinary competency” (Grossman et al., 2010) is frequently cited as both a motivation for SAFS programs and an expression of those initiatives due to its inherent applied and hands-on nature. While the practice of service-learning is generally growing in liberal arts institutions, scholars cite challenges to implementation of service-learning including lack of faculty time, institutional commitment, and potential difficulty in tracking social benefits (Lewis, 2004).

Nevertheless, these informal tools are essential in the fostering of co-curricular SAFS education. Wright (2006) recounts a course taught in 2001 that sought to uncover the nexus between civic agriculture and service learning by engaging students in the declining agrarian culture of the region. By utilizing strong community-based learning initiatives including visits to local farms and a community food expo, students were given the opportunity to learn in a non-traditional context while also enriching linkages and partnerships with the surrounding community. Furthermore, these initiatives offered both local and global perspectives, providing a multitude of dimensions by which students could engage food and agriculture. While this course was developed for

sociology students the author states it might also be appropriate for students in courses on “environmental sociology, community development, or civic engagement.” This is a prime example of the intersection between food, agriculture and liberal education. (Bartlett, 2011)

Lyson also utilizes the principle of civic agriculture to encompass the discussion of the people and communities in which farming occurs (Jordan, Andow, & Mercer, 2005; Lyson, 2004) . Under this framework, the question of what role educational institutions play in fostering a civic agriculture is less a function of their land-grant status and more a product of their surroundings and agricultural heritage. While Lyson’s outline of civic agriculture does not explicitly address higher education, the parallels are evident. By identifying the role of community gardens in developing “agricultural literacy” among residents who might have no other way of learning about food production, he by extension reinforces the notion that students in K – PhD might also benefit from similar activities (Lyson, 2004). With regards to the potential contribution to the region as a result of food-related education, Bartlett (2011) reasons that SAFS initiatives can provide “incubators” wherein academic projects can potentially fuel the development of an alternative food chain. This is important when considering the role of non-LGUs in confronting ecological and social agrifood problems into the future.

RESEARCH QUESTIONS

This study was designed to contribute to a growing, but relatively sparse, body of literature regarding SAFS initiatives at liberal arts colleges and universities. It is intended to understand the motivations, barriers, and models of SAFS at a number of institutions, based predominately in the Midwest. I was interested in exploring a discrete series of questions with representatives of these institutions. They are:

- 1] What exists at their institution regarding development of SAFS related activities?
- 2] What are the obstacles and barriers to creation or operations of SAFS initiatives?
- 3] What are the future goals and visions for SAFS initiatives?

These schools were selected both from a consortium of colleges in the Great Lakes region as well as the entirety of a peer group to the author's home institution, located in southwest Michigan. This research seeks to understand how faculty members and center directors perceive and understand SAFS education and how those perceptions are informed by university values and goals.

CHAPTER 2: METHODOLOGY

STUDY METHODS

Qualitative research methods were utilized for this study because of their capacity to “approach fieldwork without being constrained by predetermined categories of analysis” (Patton, 2002). Because there is not currently a strong body of literature on SAFS initiatives at liberal arts schools, this approach was deemed the most appropriate as an exploratory form of research. In-depth interviewing was selected due to its utility when the research is oriented around a particular topic (Hesse-Biber & Leavy, 2006). Because of a desire to understand general trends and motivations for SAFS initiatives at a variety of institutions, these qualitative methods were the most fitting.

Semi-structured interviews were conducted with university and college representatives from 16 schools. This research was approved by the MSU Institutional Review Board prior to conducting the interviews (approved 1/25/2012 – no. 12-036e). Interviews were conducted either in person or via phone and were transcribed for coding and analysis. The interviews were conducted between February – April 2012 and ranged from approximately 15 to 90 minutes, with most interviews lasting approximately 45 minutes. All informants were contacted initially via e-mail to set up interviews. After initial contact with the potential informants at each institution, I utilized both previous review of web literature as well as their recommendations to find the most ideal key informant to interview.

The following questions were used as a guide to this study:

- 1] What values motivate inclusion of SAFS initiatives within institution?
- 2] What barriers or challenges inhibit further growth and expansion of SAFS initiatives?

3] What are the models and mechanisms for SAFS education within the institution?

The author conducted informal research via web-based sources (institution home pages, instructor blogs, course syllabi, etc.) to help identify the list of institutions and key informants. This process also informed the development of the research questions.

SELECTION OF KEY INFORMANTS

Key informants were selected in two ways. First, a list of twelve peer institutions from the author's home institution – Grand Valley State University (GVSU) - was selected. Of these, two chose not to participate and GVSU itself was not included in the study. Of the remaining nine, six identified at Comprehensive Research Institutions with a Liberal Arts basis while another three self-identified as public research institutions. None of the schools were land-grant institutions or are identified as Research I institutions by the Carnegie Classification (Carnegie Foundation, 2012).

The remaining seven schools are part of a consortium of colleges in the Midwest and were chosen because of their current involvement in SAFS initiatives and their geographic proximity to GVSU. These schools were selected primarily from online information regarding their SAFS education.

Table 2-1: List of Institutions by Alphabetical Order

Albion College	Montclair State University *
Antioch College	University of Northern Iowa *
Appalachian State University *	Oberlin College
Boise State University *	Portland State University *
Earlham College	Towson State University*
James Madison University *	Western Washington University*
Kalamazoo College	College of Wooster
Kenyon College	Youngstown State University *
	* GVSU Peer

Table 2-2: Informant Breakdown at 16 Institutions

No.	Institution Classification	Informant Type	Enrollment	Informant Selection Criteria
1	Liberal Arts	Environmental Center Director	1,600	Mentor to campus farm
2	Liberal Arts	Environmental Studies Faculty	2,900	Director of campus farm; former student in environmental studies
3	Liberal Arts	Environmental Studies Faculty	1,800	Advisor to student farming group; teaches food / agriculture courses
4	Liberal Arts	Environmental Center Director	1,600	Director of community local foods initiative; advisor to student farming group
5	Liberal Arts	Philosophy Faculty	NA	Advisor to student farm, research and teaching interest in local food systems
6	Liberal Arts	Environmental Studies Faculty	1,200	Advisor to student farm
7	Liberal Arts	Environmental Studies Faculty	1,400	Advisor to student farming group, assisted in development of campus
8	Public Liberal Arts / Research	Environmental Center Director	13,000	Director of local foods initiative at environmental center
9	Public Liberal Arts / Research Institution	Environmental Center Director	19,000	Faculty member in Interdisciplinary studies with courses on local food and farming; expertise in international sustainable food systems
10	Public Liberal Arts / Research	Education Faculty	21,000	Main faculty sponsor of an urban farm
11	Public Research University	Biology Faculty	14,000	Recommended by department chair in Biological Sciences
12	Public Liberal Arts / Research Institution	Education Faculty	30,000	Recommended by another faculty of sustainable food systems and farming as an ideal candidate
13	Public Liberal Arts / Research Institution	Environmental Studies Faculty	14,000	Significant amount of publications / presentations on food / farming systems; teaches courses in eco-gastronomy, agroecology, and farming
14	Public Research University	Environmental Center Director	18,000	Director of Center for Sustainability
15	Public Liberal Arts / Research Institution	Sustainability Faculty	17,000	Faculty member in Agroecology; advisor to the student farm and recommended by Center Director
16	Public Research University	Anthropology Faculty	20,000	Faculty advisor to the community garden

At each of these institutions, requests were made through a variety of sources to find the faculty or staff member who could speak most articulately to the SAFS education initiatives on campus. In most cases, an environmental center director or faculty member in the Biological Sciences or Environmental Studies was interviewed. Of the sixteen informants, six were professors of environmental studies, six were directors of sustainability or environmental institutes, and the remaining individuals were faculty members in anthropology, education, ecology, philosophy, and interdisciplinary studies. Table 2-2 delineates important characteristics of the interviewees and their respective institutions.

METHODS

These interviews utilized a semi-structured approach; seven were conducted face-to-face and the remaining nine via phone. These interviews were reliant upon an interview guide but also allowed the informant freedom in responses and general direction of the conversation (Hesse-Biber & Leavy, 2006). The main interview guide can be found in Appendix A. Order and phrasing of questions varied depending on the interview, but informants were generally asked about motivations for and the development of their SAFS initiatives, challenges to those efforts, and future goals of their programs. In this interview setting, the informant was given freedom to express any ideas or opinions and even when the researcher was engaged in the process, the informant was seen as the subject matter expert (Hesse-Biber & Leavy, 2006). Most interviews conducted face-to-face were in the respective offices of the faculty members being interviewed, though a few took place near the student farm or garden on campus.

DATA ANALYSIS

According to Rubin and Rubin (2005) analysis of qualitative data is best served in two distinct phases. These phases were used to inform this process, though multiple iterations of the second phase occurred. First, all interviews were recorded and transcribed by the author within a week following the interview into Microsoft Word. Additional notes and memos were created when necessary and helpful for each institution. Other documentation reviewed included strategic plans, website information, and course syllabi from various respondents.

During and after this collection, codes were developed for understanding emergent themes in the data. Upon completion of data collection, these codes were finalized, then vetted by a colleague and reviewed. Data analysis was completed via nVivo 9.0 software for all transcriptions and ancillary documentation, with codes being iteratively generated. The utilization of this software assists in distilling large amounts of data into emergent themes (Bazeley, 2007). Codes were reliability tested by an independent analysis applied to de-identified excerpts for a sample of interviews.

Upon defining internal validity in the codes, all resulting *data units* (Rubin & Rubin, 2005) were organized into displays used to find coherent and emerging themes in the data. These displays or “thematically conceptual matrices” (Miles & Huberman, 1994) were useful in organizing the data according to major topics and central questions.

LIMITATIONS

Miles and Hubermann (1994) suggest that the main threats to validity in qualitative research are selection of data that either (1) fits the researcher’s

preconceived theory or conceptual framework, or (2) is the most appealing to the researcher. In addition, a possible third threat may be that an insufficient sample size or a selected sample doesn't allow for an accurate representation of the larger population and thus presents skewed findings.

First, while some individual or preconceived biases are impossible to avoid, the researcher exercised a great deal of self-reflection during all stages of data collection and analysis. There was no model or hypothesis that guided the research and thus the data were allowed to tell the story rather than the research fitting the story to a preconceived model. This research was exploratory in nature and thus there was no one idea that was more appealing than others.

Secondly, throughout all stages of the research – development of research questions, creation of the interview protocol, data collection, and analysis – other colleagues and advisors were relied upon for critique and engagement. This measure, while unable to protect against all implicit biases, allowed for an iterative process of research that circumspectly aimed to discover what is actually occurring, rather than just the researchers' interpretation of the data.

Finally, because this study aimed to understand the body of activity rather than an embedded truth that was represented in all of the key informants, the objective was “to discover variation, portray shades of meaning, and examine complexity” rather than to look solely for frequency of codes (Rubin & Rubin, 2005). The goal was not to uncover one singular truth inside of the research, but rather to unearth the diversity of motivations and mechanisms by which SAFS initiatives exist in these institutions. These

respective institutional models were then contrasted with one another to create a more generic display that may be useful in developing future research questions.

Finally, in full disclosure, the author himself is a sustainable farm manager for a small-student food project at a comprehensive liberal arts university. The research motivations grew from his own questions and experiences and were utilized, along with a detailed review of the literature and vetting by colleagues, to help inform what interview questions might be helpful. This data was aimed at both expanding the academic literature around this topic as well as providing useful information to institutions asking similar questions.

CHAPTER 3: RESULTS

The results are separated into five sections: motivational values, mechanisms for implementation, barriers and challenges, campus farms and gardens, and other issues. The first section breaks down institutional values and ideals that motivate sustainable agriculture and food systems education. The second section discusses the multitude of mechanisms utilized to develop and foster these institutional programs. Given that SAFS initiatives rarely grow solely from administrative support but rather from a variety of developments inside the institution, a careful look is warranted for the developmental tools leveraged. The third section explores barriers and challenges common to many institutions prior to and during the development of SAFS initiatives. The fourth section will categorize the models of campus farms and gardens as related to SAFS. Finally, the fifth section will examine additional findings.

MOTIVATIONS FOR SUSTAINABLE AGRICULTURE AND FOOD SYSTEMS EDUCATION

Understanding the motivations that drive SAFS education is central to deconstructing its organizational structure. Interviews sought to uncover the various forms of SAFS education and the institutional values that were leveraged during their nascence. Due to the non-LGU status of these schools, informants were asked to explain the institutional values that had led to the development of SAFS education. Faculty often framed these values by positing that “At this institution, x is important”, or “Our college places a high value on X.” The following three institutional values were both present in the discussions and frequently identified in the institutional literature and ancillary documents.

Community Engagement

Arguably no value or idea was more influential to developing SAFS education than community engagement. It was the only theme that appeared amongst all interviewees. Informants conceptualized their institutions as embedded in their local communities and thus were public servants to those communities' needs. For many schools located in rural areas, the agrarian tradition was seen as a guiding characteristic in development of food and agriculture study. Informant #9 explained, with some enthusiasm, "And we're in a flippin' agriculture community. That's the other thing, look around!" Conversely, for institutions in metropolitan regions, interviewees often delineated their understanding of food access, food scarcity, and food distribution as an issue meriting research – and by extension - education. Informants explained that while agriculture wasn't necessarily part of their landscape, issues of food access, obesity, and public health were seen as connected with the work of the institution. Faculty members explained how they became involved with food because they wanted to get involved in the community and those populations were talking about food:

"We got constant encouragement and support from the university Administration Support to try to integrate – especially Civic Engagement in our courses... So they're mainly interested in trying to get students more involve in the community and I think one of the ways to do that is through the food related issues...There's a lot going on in the city regarding food access, food related issues and so I think that help pick my interest because I sort of reaching out to these organization and talking to them and getting their ideas. And so that pushes things along a little bit. So I think this is a good place, believe it or not, for this kind of issue." (Interview 10)

Rarely was a consistent definition or any definition at all given to define the idea of "community" as it was understood by the informants. It varied from a Midwest town for a small liberal arts college to a major metropolitan region for another institution.

Nevertheless, though the term “community” was not precisely defined by the informants, it was always seen as critical to the institutional identity. Schools in both urban and rural settings imagined food and agriculture to be part of their research and teaching agenda. For example, one environmental center director explained the development of a community-based agricultural initiative:

“A lot of the work that we have done in agriculture and food has been a response to the challenges facing family farming here in the community...And our fundamental underlying mission is to address the academic mission of the college and the needs and interests of the community. So there is always a clear sense of why we are doing what we are doing.” (Interview 4)

Community engagement was often a vital ingredient in the research goals of the institution, and also served as a platform for students and faculty to engage in slightly less formal settings. Various activities mentioned included hosting food festivals, campus farmers markets, or facilitating public conversations with food advocates, local farmers, and food distributors about procurement, distribution, and sustainable food systems. When asked to explain the relationship between community engagement and education, service-learning was often identified as the vehicle. This will be explored more in the section on internal mechanisms.

Experiential Education and the Liberal Arts

In this research, *experiential education* is used to encompass all forms of learning outside of the classroom - not solely service-learning (SL). Experiential education was abstracted by the informants in a number of ways. Faculty members used phrases such as, “thought-to-action”, “theory-to-practice”, “experiential learning”, and “a John Deweyish approach” to explain the schools’ experiential education goals.

These varying descriptions coincided with the general belief that learning needed to take place not only inside the classroom, but also in less-controlled settings for students. Faculty members stressed the role of experience in educating the whole student, and many highlighted the importance of receiving “hands-on” education and an opportunity to “get their hands dirty.” For example, when describing the campus garden, one professor of Environmental Studies explained his motivations:

“And so the case I always make is, for those of you who might question the value of a garden on a campus, it’s all about experiential education. We’re trying to push the envelope of education on campus. Get out of the classroom, do new innovative pedagogies where you have the students experiencing, rather than just talking.” (Interview 3)

Among many of the informants questioned, the liberal arts were considered essential in motivating SAFS initiatives. Faculty discussed their perceptions of challenges in the agrifood system and then suggested that a student must be actively prepared by their liberal arts education to address these issues. As a part of this discussion, they articulated the importance of “holistic learning” that can contribute to “create a well-rounded, broad-minded people who can think, who can pay attention to what’s happening around them” (Interview 8). Respondents didn’t use the traditional definition (explained in chapter 1) to situate their discussion of the liberal arts but rather relied on contemporary interpretations of educating the whole person. They further sought to help students remove the barriers between their education and their own life – fostering a culturally literate population. Here one informant explains his understanding of the intersection of sustainable agriculture and the liberal arts:

“But for me to go back to kind of the question of Liberal Arts College, I mean, it was a great at two levels. One, because agriculture is an inherently interdisciplinary activity; and especially if you are farming

sustainably; you know you really have to integrate a lot of kind of systems of information. From soil types and soil conditions; nutrients in the soil chemistry, soil microbiology, and then you got to looking at more social issues – you know, how do you market and connect with the public? Who do you sell too? Are you doing a CSA? Are you doing a farmers' market? But there are a lot of social aspects. There's the economic aspect in terms of pricing and viability. So when you really get down to it, I think farming is inherently a liberal art activity where if you are doing it, you have to draw on a whole bunch of different fields of knowledge." (Interview 2)

Framed differently, a university faculty member articulates his goals for the institution as he understands the relationship between farming and the liberal arts.

Ideally, I really think every college; every university should have a student run farm. It's just as important as offering calculus and writing, an English department. You've got to have a place where students are raising a little bit of food and engaging in agriculture. If I had my way we'd have a student run farm at our university just as a way of learning some basic skills and learning about the world and where our food comes from. ... It's not a specialized topic that should be left to the land-grant universities...like if you want to become a doctor, you go to a medical school. Nothing should prevent every college student to learn about health, right, about healthy living and things like that. So agriculture is like that...Agriculture is about politics, it's about sociology, it's about economy, so it's about all of those. You know, how is our food grown? Is it fair? Things like that. Those are not something that only land-grant universities should offer. Food is way too important to be left to a few specialties. Everybody should be thinking about food, and soil, and human health and, you know, what vitality of our community is... all the students should be thinking about food and the politics, sociology, biology of it." (Interview 9)

Discrete definitions for experiential and liberal arts education are hardly plausible given the significant overlap between the two pedagogies. While faculty referenced both of these ideas numerous times – the meaning of these ideas was sometimes not clearly outlined. Nevertheless, what emerged during this research was an emphasis on giving students an opportunity to struggle with the implications of their education in a “real-world” setting and educating them not solely as technicians and professionals, but also as well-rounded citizens and consumers. Most of the faculty expressed the importance

of SAFS activities in connecting students to their role as members of civil society and of the bio-physical world.

Ecological Literacy

Of the sixteen colleges interviewed, every college had some formal commitment to sustainability, though an explicit mention of ecological literacy was not always present in this commitment. Civic engagement, experiential education, and the liberal arts were found in a variety of ways in the data and in university material. Commitments to ecological literacy were often less explicit. The word sustainability was often used to speak both of end goals as well as educational outcomes. A few informants identified goals such as “ecological education” or “environmental awareness”; often the phrase sustainability education was used as a proxy for this. Some informants critiqued that the nebulous definitions of sustainability did not inherently mean ecological literacy to everyone at the institution. In the words of one faculty member, “These words get thrown around a lot. These words, which I think are all equally vague, are sustainability, social justice, and diversity. And each one of those words I think I support. I think everyone supports them because they are kind of vague” (Interview 5). Many individuals identified their respective schools’, as well as their own’ dedication to sustainability as a driver for ecological literacy: A more succinct definition of ecological literacy was abstracted:

“Development of an ecologically literate student requires actual outdoor experiences to make connections between previously siloed ideas. Sustainability provides a framework to begin looking at food, culture, farming, cities, etc. Additionally, ecological literacy is a way of introducing students to the natural world and hopefully helping bring a love of the environment to kids in different settings.” (Interview 12)

Because of the students' constant exposure to food through the process of consumption, some informants saw it as a natural onramp to fostering ecological literacy. Faculty member #9 explains:

"I mean the amount of food that is consumed and what happens with the waste products, that's a huge environmental issue for any campus. So if our students are supposed to be environmentally literate, then why not use as the example, something that we know for sure they're purchasing on a daily basis." (Interview 9)

This was an area of the research in which there was not consensus between the respondents. Furthermore, it was sometimes unclear whether the dedication or interest in ecological literacy was the institutions' or that of individual faculty members. There were often commitments to sustainability that did not inherently translate into commitments to ecological or environmental literacy. Most respondents identified the connection between SAFS and sustainability education, though often that connection was not further explored by the researcher. Finally, when sustainability was identified as a concept, it was often in regards to the operations of the university and not necessarily the education. Thus EL can be seen as a motivational driver but perhaps separately from formal or institutionalized commitments to sustainability.

INTERNAL MECHANISMS FOR SAFS EDUCATION

The aforementioned values of the institution, along with others that might not have been explicitly present in the research, are the impetus for many of the schools' educational initiatives. It became apparent in the research that without internal mechanisms or tools to develop SAFS education, those values and resulting ideas would not have the environment to ferment and develop. Three campus tools emerged

quite frequently as instrumental in the development of SAFS education – service learning, curriculum, and organized student advocacy.

Service Learning

University pedagogical techniques are a lesson in constant change and evolution. While Socratic dialogue and “sage on the stage” models still have their place in the classroom, recent shifts and integration of service-learning and experiential education are now incorporated into academic environments more than ever before. Service-learning is often associated with experiential education because the two have shared origins though they differ. While experiential education is built around American philosophical pragmatism, service-learning is not an educational philosophy in and of itself. Rather, it is a vehicle to carry out some of the values discussed in the previous section.

Many of the institutions now house an office of service-learning, experiential education, or civic-engagement to support these non-traditional techniques. While the names of these offices may vary, many of the informants identified the creation of these various frameworks as keys to development of SAFS. One informant, after teaching a freshman seminar on local foods, describes the development of a local student chapter of a farm-to-table organization:

“...they have been very active ever since, we have students researching local foods, doing writing and sociology projects and there have been service learning components that have branched off from that. We have a service learning institute and one group from our service learning project goes to a local elementary school and they have a garden and they do local food with kids teaching them about nutrition and food and they have a garden at the school... It started through a student, who had taken this class, then they go and they work with our service learning institute which is a co-curricular activity. The class is still offered every year, and the

students from that feed into [Farm-to-table] which is our local organization that does things like education things for the whole campus.” (Interview 7)

Another faculty member explains the utilization of service-learning with pre-service teachers in developing a school garden:

“You know, definitely the one part that I did was just a small part of it in terms of service learning and civic engagement. And while the students were -- my pre-service teachers were involved with it. I was also teaching them how to deal with their elementary children and not necessarily garden stuff but just a service learning project and how difficult and challenging it might be to get a project like that going with all the other stuff they have to do.” (Interview 10)

Not every institution had a developed service-learning or civic engagement center. Nonetheless, even when not explicitly named, service-learning, or “linking students to community partners to address public needs while developing disciplinary competency” was often present. Other examples included developing internships on local farms or fulfilling service-learning requirements by working on the schools’ farm or garden.

Many informants discussed how the campus farm or garden served not only as an education about food and agriculture, but also a place where students could wrestle with their own disciplinary education in a tangible way. Anecdotally, one informant told the story of a philosophy major who upon realization of his potential “lack” of marketable skills requested an internship to work on a farm. It is these types of relationships that are exemplar of creative uses of service-learning to pair students with little to no background in SAFS with an experience from which they can benefit.

Integration of SAFS into Curriculum

Perhaps the most academically relevant tool in the development of SAFS education was the reformatting of existing or the development of new curriculum. Table 3-1 illustrates the number of schools in my interview cohort with courses, practicums, or formalized programs in SAFS education. Every informant mentioned that a course somewhere in the academic catalog included a discussion of food and agriculture. Many of the informants mentioned the inclusion of popular works including *Food, Inc.*, *Omnivore's Dilemma*, or other works by McKibben, Kingsolver, Pollan, and Berry in their syllabi.

Table 3-1: Available Courses in Sustainable Agriculture and Food Systems

	Majors or Minors in SAFS	Courses in Sustainable Agriculture / Agroecology	Courses in Food / Agriculture Studies	Farm Practicums / Internships	Courses w/ Food & Ag Content
Albion College					
Oberlin College					
Wooster College					
Kenyon College					
Antioch College					
Earlham College					
Kalamazoo College					
University of Northern Iowa					
James Madison University					
Towson University					
Youngstown State University					
Portland State University					
Western Washington University					
Montclair State University					
Appalachian State					
Boise State University					

Among informants, disciplines that were exploring food and agriculture issues ranged from courses in literature, biology, education, psychology, history, philosophy, health sciences, and a number of freshman seminars. This was often a function of faculty members' personal and academic interests in food and agriculture issues. Many informants referenced the growth of this interest since the publicity and popular awareness of the aforementioned works. Faculty member #2 explained:

“Again, I think, there is a smattering of courses that are of course related to it. There’s a course on sustainable agriculture. There’s a biology professor with a course on organic farming – basically in his backyard. There are kind of a range of courses; some literature courses that kind of looked at agrarian literature and that kind of stuff. But again, I think it was that people would have to pull these different pieces together.” (Interview 2)

The recent growth of environmental studies and interdisciplinary studies programs has also fostered more courses on solutions and practical skills. Of the sixteen institutions, at least seven had a course in sustainable agriculture or agroecology, and a number of others were in the process of developing or reviewing similar courses. These were often housed in environmental studies, and frequently included a combination of lecture, reading, discussion, and field experience at the local community garden or farms. Many of these classes were taught by faculty members and campus farm managers in a co-instructional fashion.

Not all of these courses were “on the books”. Many were the product of a special topics course or one interested faculty that decided to pilot a course. Many informants hoped for further integration between existing classes, the students, and the faculty - though collaboration was often a challenge. Nevertheless, the use of new and existing courses was of great importance when working SAFS issues into the syllabi or curricula.

While curriculum development has traditionally been under the faculty's' purview, this research identified the emergence of an interesting teacher/student relationship. One faculty member explained how the development of her sustainable agriculture practicum course was based not only on her own teaching and research interests, but also on the response of the students. When debating whether or not to develop a course in agriculture, she asked a group of students in an interdisciplinary class whether they might have interest in working on farms:

"A lot of these people have grown up in pretty tight suburbs so they've never seen asparagus before and then, I mentioned in one of our subsequent classes, I said 'you know some of you would probably like to get out there and work how many of you would like to do that?' And a handful of folks raised their hands and so I placed them on some farms, I just, in an ad hoc way, got in touch with some of the farmers whom I knew, and said 'would you be willing to have so and so come out for so many hours a week?' and they were like 'oh, absolutely' and that's pretty much it." (Interview 9)

Other informants recounted how student petitions for coursework on sustainable agriculture, gardening, food studies, and farm internships had informed the class development. Thus, although the curriculum development process is still within the purview of faculty members, the academic and personal interests of students affected at least part of the content of the courses.

Finally, food and agriculture sometimes served not necessarily as educational objective unto themselves, but as a platform to serve other educational objectives. This was clear in at least two cases: the use of physical education for a course on gardening at one institution and the use of a social studies research methods course taught entirely through food related issues at another. In these cases, SAFS were a development from previously existing curricula that were not historically associated with

food and agriculture. Existing coursework restructuring and the proposal of new, interdisciplinary coursework are two of the most defining ways by which SAFS have and are permeating these institutions.

Student Advocacy

Student interest and advocacy was potentially the most informal among internal mechanisms and yet no less active than the more formal educational tools. While this research is aimed at understanding institutional developments, one has to look no further than a student protest of campus practices to see student voices carrying significant influence. While the institutional values discussed in section one were those embedded within the institution and its administration, there were additional values and goals that were present amongst the student body. Three specific values were more present than any others with regards to SAFS: *environmental education, community service and justice*.

Though no students were interviewed for this research, the respective faculty members who were interviewed told many similar stories and anecdotes about the students. Students were far more explicit in their desire to craft their own education according to the aforementioned values. Chief among these student desires was a growing interest in understanding the agrifood system and its complexities. Only one of the schools has a major that will likely translate into a farming career for students, but many faculty members explained ‘their students’ interest in “growing their own food.” One informant explains it this way:

“Because they want experience, and they want to learn how to farm. These are people who are increasingly dissatisfied with our industrial agriculture and the distance and the artificialness of their diet. Those kinds of things, they are very interested in the local versus shipped

food and there is the other axis of organic versus chemical and they want their own organic grown local food only in our cafeteria. We have students who want that and don't know how to do that. They would like that to be part of their education." (Interview 7)

At some institutions, the development of student education and community education was more advanced. In these cases the student body had begun to institutionalize their student goals by way of student organizations, student senate funding, and acquiring faculty sponsors. Other times however, the students catalyzed their own interests informally – though this was always facilitated by the existence of the institution. Faculty shared a number of anecdotes about students who were interested, whether formally or informally, in serving the local food and farming populations. Informant #4 explains, "So, this was a group of students who became interested in food and agriculture and sustainability and wanted to start getting involved. And they were involved in internship opportunities. They were interested in going out and helping farmers." (Interview 4)

Perhaps the only value not often shared between institutions and individual students was the idea of justice. Not all informants mentioned it, but most that did highlighted the students' opinions of it rather than their own or their institutions. Two faculty members explain it this way:

"A lot of our students combine sustainable agriculture and local food, the sustaining thread encompasses social justice. Not just food and nutrition but equality, justice." (Interview 7)

"But mainly they're undergraduates who have an interest in these issues, interested in environment, local and food sources, food equity and access issues, food justice -- I guess you can call it, so." (Interview 10)

Many times students were able to leverage the previous internal mechanisms including service-learning and existing curricula to engage their interests in SAFS.

Whether the interest of a singular student or the growing work of a large student organization, these individuals were able to mobilize inclusion of SAFS education into their academic career. At one institution, there were very few SAFS initiatives present, but one student used an upper-level independent study in Biology to pursue his interests. During this time, the student (who was a social science major) utilized the school biology greenhouse for a number of organic transplants to donate to a local non-profit dedicated to bridging the gap between local consumers and producers. This demonstrates the kind of creative and flexible structure often found at liberal arts institutions that allows students own interests to emerge. Using a flexible course framework, his own personal and academic interests, formerly existing community partnerships, and interdisciplinary study, this student was successful in operationalizing his own SAFS education.

BARRIERS TO DEVELOPMENT

Despite the tenacity of students in crafting their own education and the ingenuity of faculty in responding to academic and social trends, the need for administrative support and resources was evident by most informants. One faculty member explained:

“Any time you have any kind of initiative at a college you need two things: you need real interest from the bottom up, students and faculty, and you need real interest from the top down, trustees and senior administration. And if you’re missing one or the other, it isn’t there.” (Interview 4)

Typically there were few heavy-handed or explicit top-down barriers to new program development. This was due partially to the fact that most informants identified general administrative support for successful and innovative programs. Faculty members recalled a range of responses from their respective administrations ranging from the benign: “interesting ideas”, “differentiating”, “creative opportunities”, to affirming

and sympathetic: “general support” “very positive”, and “incredibly supportive”. In only a few cases were there intentional barriers to the developments of new programs. Challenges typically came not in the form of explicit boundaries but rather open-ended questions and obstacles.

Many interviewees expressed what they perceived as a lack of understanding as to the importance of SAFS initiatives when asking for resources. Many administrators generally supported an initiative as long as it did not demand any resources – time, money, course leave, etc. Here one informant succinctly explains administrative hurdles:

“In the sense that I think there were some internal debates and especially when we were first starting, I guess there was this question that some people in the faculty and in administration had about why we’re a liberal arts institution, you know, why would we be getting into what for all intents and purposes is a vocational exercise?” (Interview 2)

This was exemplary of a tension within SAFS development that might be labeled “support with general skepticism.” Administrators, faculty members, and the board typically were supportive of innovative practices – but that also came with some strings attached. In addition to the administrative obstacles, informants discussed the challenge of internal collaboration and coordination for development of successful SAFS education. Many of these programs are both interdisciplinary and reliant on student, faculty, and staff participation. Yet internal mechanisms to support this coordination are often not fully matured or developed. The main challenge for most faculty members was determining who should spearhead the various objectives and tasks.

Many faculty voiced an earnest support in the development of SAFS initiatives – whether that was coursework, a student farm, or internship program, but then cited their positional barriers to moving them forward.

“So it’s just a coordination challenge, and if one person was the dictator and they could have control of the whole garden, that’s a first step, but then they need labor which is a second step. If they need a space, it can probably be worked out. But inevitably an institution is going to be limited in one or another. In my case, I have total control over my little teaching garden, but I don’t have access to labor right now – It’s just me. And I have lots of other summer obligations so I can’t really be out there gardening on campus.” (Interview 3)

“Faculty members get tenure based on traditional things like publications, how well they teach and their service to the university - which service means, typically sitting on committees with a bunch of other faculty members, bullshitting about nothing. But these kinds of projects convince tenure from support so it’s not as valued.” (Interview 10)

The theme of student transiency was principal amongst issues to sustaining the work long-term. One faculty member described students as “passionate” and “frenetic”, explaining that they got excited about the development of new initiatives, but often abandoned those interests for something else. Another faculty member explains the difficulty of passing the torch from one generation of students to the next:

“I think the main thing is keeping the organization – let’s start off with the strong student leadership. That’s the main organizational challenge is keeping the students involved and sort of passing it on, or passing the infrastructure on to the next group. So finding the human capital amongst the student body to keep it going, and then also maintaining the vision over time too.” (Interview 16)

Though some faculty desired additional courses in sustainable agriculture, agroecology, or food systems, sometimes they didn’t feel confident proposing new courses given their academic backgrounds. They often explained that because of its interdisciplinary nature it would rely on a variety of expertise and that those instructors

couldn't be brought together without additional staffing or course release time. Many expressed an interest in having a staff member not only to run the garden or farm, but to spearhead the SAFS related activities. Table 3-2 delineates the challenges of the various interests in the development of SAFS education.

Table 4-2: Coordination Challenges between Competing Interests

Faculty	Limited additional time; doesn't always align with courseload / teaching interest; doesn't help achieve tenure;
Students	Transient population; Desire ownership but commitment wavers; General lack of knowledge and direction in development of SAFS initiatives
Staff	Rarely is there a staff member who can fulfill the role needed for fostering collaboration; lack of university resources for funding staff positions
Administration	Don't always see the purpose or objective of SAFS initiatives; are likely to be generally supportive but without significant resource contribution
Calendar	Intentional disconnect between agricultural and academic year; creates issues when students want to start food / farming initiatives at the end of the school calendar year

The other side to a lack of collaboration was an inherent lack of resources – predominately funding. One interviewee in particular explained that it was not only money that was a problem, but also the “certainty of knowing that the money will be there, and what the money really translates into is labor” (Interview 3). Many identified a need for farm or garden labor that could be supported by additional funding. While challenges including coordination, funding, and resources were often present, very few of the informants voiced a lack of knowledge of expertise in SAFS implementation.

CAMPUS FARMS AND GARDENS

Arguably the most iconic form of SAFS education, the campus garden or farm has become the centerpiece for many proponents of sustainable agriculture education. This research revealed a large diversity in models of farms and gardens: ranging from nothing at all, to a few raised beds, to fully functioning diversified farms, replete with poultry, livestock, annuals, and perennials. In addition to these activities were a number of other innovative research and teaching endeavors including vermicomposting systems, apiaries, rainwater catchment containers, green-roof gardens, and greenhouses.

The diversity in scope and size amongst these outdoor environments warranted further analysis. The data revealed four overlapping, but somewhat discrete types of institutional support and program establishment. I labeled these (1) *highly integrated and functioning farms*; (2) *developing market gardens*; (3) *small learning gardens*; and finally, (4) institutions with no on-campus garden or farm. These categories serve as a way of organizing the various types and sizes of outdoor activities.

Campuses with highly integrated and functioning farms were schools with a significant history and dedication to sustainable agriculture. These farms featured a wide variety of cropping systems and educational components including agroforestry, perennial systems, apiary, poultry, and livestock management. Three of them were rural and one was in an urban setting.

These schools had substantial coursework in sustainable agriculture and often multiple linkages between formalized curriculum and fieldwork. Nonetheless, these institutions also had a flurry of activity surrounding the farms – such that it could not always be tracked to one source. Additionally, they all had at least one (if not multiple)

staff or faculty positions dedicated to ongoing operations and teaching at the farm.

Often the involvement from faculty included outreach to community partners, academic research, coursework, and student advising. In all of these farms, high levels of organized student and faculty involvement seemed to be necessary for success – in addition to institutional support. The primary question or concern amongst these institutions was how to continue developing and maturing their diversity of programmatic elements.

The second category, or *developing market gardens*, is somewhat ambiguous in nature. These farms were perhaps redevelopments of existing farms, but didn't exhibit the high levels of integration and knowledge base present in the first category. Market gardens at these three institutions featured 1- 5 acres of land, some under cultivation, but with some uncertainty about their eventual growth. Informants spoke of what would be "ideal" or "potential", often highlighting the future work of the farm. One informant here explains his goals for the farm:

"We have the potential here to have the farm really highly integrated into all aspects of the college. One advantage we have, which is not economic or anything, is kind of try to integrate the farm into our education, into work and into how we actually eat everyday on campus. So I think that if we can build on that, that's a really good way to do it." (Interview 5)

Nonetheless, most of these gardens predominately offered vegetables – though two of them also had small chicken flocks. These institutions spoke about development of further coursework in sustainable agriculture, but only one had a course in agroecology at the time of this writing. None were managed with a full-time staff or faculty person but were rather partnerships between faculty advisors, student organizations, and part-time staff.

Table 3-3: Summary of Campus Gardens and Farms

Name of College	Size of Garden / Farm	Crops	Organizational Structure
Appalachian State	40+ acres	veg; perennials; eggs; livestock;	Run by staff / faculty in Agroecology and Sustainable Development; five students in study live / work on farm; high level of course integration and work on farm
Portland State University	12 acres	veg; perennials	Run in partnership between university and local schools; supported by coursework, faculty involvement; institutional funding for graduate assistants,
Western Washington University	5 acres	veg; apiary; eggs; perennials;	Funding from Student political organization (Associated Student); and faculty advisors;
Oberlin College	5 acres	veg; perennials; eggs; poultry	Run as separate self-funding non-profit in partnership with university; involvement by student classes and faculty research
Earlham College	5 acres	veg; eggs; perennials;	Run by Faculty mentor; five students in work-study live on site
Antioch College	2 acres	veg; eggs; poultry; perennials	Run by part-time staff position; full-time student employees in summer;
Albion College	1 acre	veg; perennials;	Environmental Center Director serves as faculty advisor; part-time student employees
Boise State University	2000 SF	veg;	Run by faculty advisor and student volunteers
Wooster College	2000 SF	veg;	Run by faculty in Environmental Studies; involvement by student classes
Towson University	1000 SF	veg;	Run by faculty advisor and student volunteers
Kalamazoo College	200 SF	veg;	Run by student organization and volunteers
James Madison University	Unspecified; small	veg / herbs;	Run by student organization and volunteers
Kenyon College			
Montclair State University			
University of Northern Iowa			
Youngstown State University			

Slightly less nebulous than the previous category was the third grouping of on-campus vegetable gardens. These gardens were small in size, typically less than 2000 SF, and were supported almost entirely by interested student organizations with one affiliated faculty advisor. These gardens almost exclusively featured annuals (with perennial herbs in a couple of cases), and were often fairly open in terms of organizational structure. Many faculty members told similar anecdotes of an initial garden build fostered by small start-up grants, interested students, or motivated facilities staff. Most of these gardens were open-ended in terms of: who manages them, how they are run, and to what extent course integration occurs. Informants described the organization of these gardens as “fairly loose”, “pretty informal” and “hard to stay focused”. While informants with developing market gardens identified a need for resources including funding and positions, informants with small learning gardens often identified organizational framework and consistency as the chief challenges.

Framed in a context of informal education and community engagement, approximately half of the institutions identified ways in which students were simultaneously learning and benefitting the larger community. While this work was sometimes directed by on campus environmentalism or service-learning centers, it was rarely for credit and often highly informal in nature. It was here that lines between informal and formal education were the most blurred as faculty and advisors often sought to create organizational structures that were rigid enough to foster academic excellence, but flexible enough to allow for community engagement and learning “in the field”. Informant 4 articulated the student organization on his campus that had

developed a strong ethos of informal involvement in community agriculture and informal educational opportunities.

“If we hear about a farmer we are working with who gets sick and all of a sudden needs 10 people to come out really just help on a Saturday afternoon with this that or the other thing. [They] put together these work teams and go out. A lot of these kids have worked on farms. Either they came here having worked on farms or they’ve done internships or other things. So they’re good laborers. They do public programs...They work with the dining hall to do educational projects to highlight the local foods we use in the dining hall...They bring lecturers; they share films; they do field trips.” (Interview 4)

This text reveals a very complex set of institutional relationships necessary to foster these SAFS initiatives. In another case, a faculty member developed on-farm internships for students in an interdisciplinary agriculture class. She describes the experience:

“I had one kid, student, come into my office, I remember this really well, he seemed so grateful that this existed, he flopped down in my chair and said “I am going to graduate at the end of next semester. I am a philosophy major. I have no practical skills. Can you please place me on a farm?” And I just laughed. And he was a super sweet kid, and he was really bright and thoughtful, but it was one of those, he just had some epiphany at some point in the fall semester of his senior year, that if he had to provide for himself, he wasn’t really sure how he would do it. Like he didn’t think he would make it very long. So, I just laughed and put him on a farm and he was so unbelievably happy and he wrote these amazing journal entries. And he didn’t really know much at all about ecology, and he’s not unusual, but maybe a little bit more intense than some of the other people who are just doing this in an ad hoc way, just constantly saying “can I have a reading on this?” or “the farmer said blah blah blah, I have no idea what he is talking about, what should I read?” And he did beautifully well, he really did just tons of hours and loved it loved it loved it. So, those little encounters are also part of what inspired us to just make a formal course with it.” (Interview 9)

A complex interrelationship of curriculum, student interests, community resources, and institutional flexibility foster a concurrent informal and formal SAFS student experience. Of the institutions researched, the majority had a student

organization dedicated to SAFS advocacy and education. What was most interesting is how the informal and personal goals of the students could permeate their academic endeavors; thus providing a context for simultaneous curricular and co-curricular education.

OTHER FINDINGS

There were several themes that did not fit the general categories described above, but important enough to include. Among these was a sentiment among a few informants that job training might have been another path to motivate SAFS initiatives. This was due to two factors – future opportunities in agriculture, and general skill building and soft skills including leadership, problem solving, and critical thinking from working in a less controlled environment. Most discussion about agricultural job training came from schools with formalized programs. With regards to skill building and problem solving, several respondents explained the importance of agriculture education to their students who would eventually have international experiences:

“I think what advantage we can give is if you want to study sustainable ag, you can maybe spend your part-time work on campus maybe working on our farm, and then we’ll send you off to farms across the country or maybe even organic farms in Spain or Brazil and really get a diversity of experience that way rather than, say, 5 courses in soil science.” (Interview 5)

Most of the faculty were cautious to say they had no intention of training farmers, but that one potential benefit to agricultural exposure, in addition to all the aforementioned educational benefits, was eventual use and knowledge in a vocational environment – whether domestically or abroad.

The data were also reorganized according to institution and informant type to analyze for additional findings. Despite the diversity in size and location of the various

institutions, they tended to be rather homogenous when broken into these categorizations – with two notable exceptions.

First, when responses were categorized by institutional size, there was greater discussion of the potential for campus commons to serve as an extension of the classroom at smaller institutions. Both faculty and environmental center directors were well acquainted with the college's respective food services contract and opportunities. Conversely, informants at large universities spoke very little on the potential for SAFS education in eating areas. Students were often catalysts in working with food service to begin addressing procurement practices, though faculty at larger institutions spoke of it minimally. On occasion, interviewees explicitly identified the increased flexibility in working with food service due to the smaller size of the college. In these environments, the commons or cafeteria emerged as another form of the classroom. In the words of one faculty member, "here's a notion that's driving all of this that that we are 'one college' and the dining service can play just as important as educating as the faculty" (Interview 1). Faculty highlighted that education should not be confined to the classroom and though informal education wasn't explicitly mentioned, it was embedded in statements like the one below:

"My other catch phrase is 'turning the cafeteria into a classroom.' And ironically, this is one of the most difficult things to do. And I'll give you an example. One of the things we've been trying to do effectively is label the food: 'This is local and it comes from this farm.' But when you've got 75 foods that may be local, and they vary from meal to meal to meal and dish to dish to dish, the food service staff doesn't have time to keep making these signs, and just doing that would seem really simple, but we've been trying to do it for years, but just the logistics of it are almost impossible." (Interview 4)

The second finding was that when informants were categorized by titles – Environmental Center Directors, Environmental Studies Faculty, and Other Faculty respectively – there was a disproportionate number of environmental studies faculty who discussed “justice” or “social justice” as a motivation for SAFS education. These faculty spoke of it predominately as a student value as mentioned previously. It was not mentioned among Directors of Environmental Centers. The cause of this is unknown; though it merits more research especially as the relationship between environmentalism and justice is continually studied.

CHAPTER 4: DISCUSSION

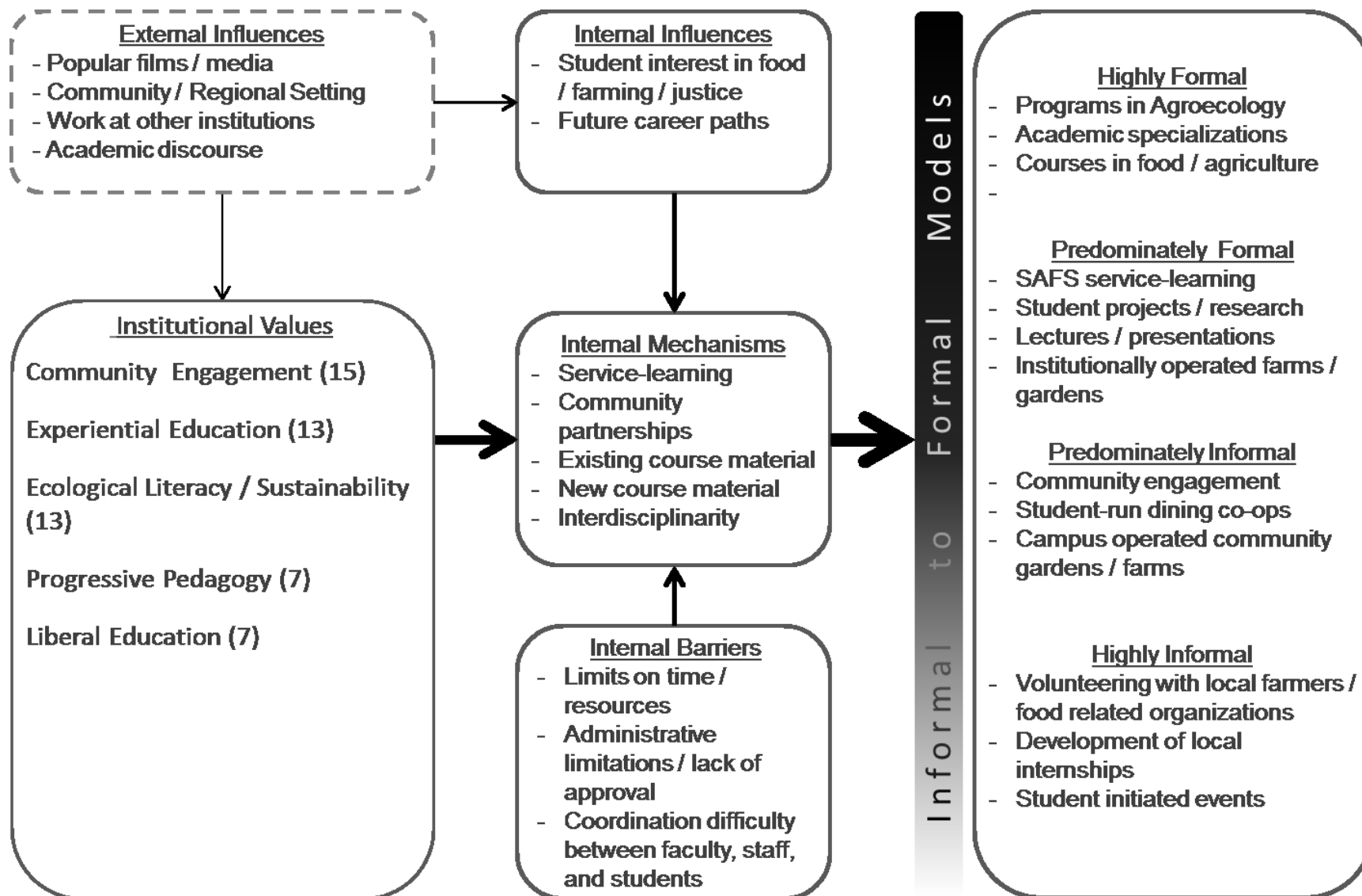
This chapter aims to develop a framework for understanding SAFS initiatives, their context, barriers to fuller implementation and opportunities identified by key informants as presented in chapter 3. It will examine the researched models and attempt to reimagine the aforementioned discussion of formal and informal education – proposing a continuum for these endeavors rather than a bifurcation. The findings here are not intended to represent the entirety of liberal arts schools but rather to provide a benchmark by which to evaluate SAFS developments and initiatives at liberal arts institutions into the future.

This research reveals that the forms of SAFS education are incredibly diverse. In order to accurately situate the findings in the literature, three questions are asked in this chapter:

- 1] What role does SAFS education have in the liberal arts in the future?
- 2] What is the relationship between SAFS education and sustainability education?
- 3] What elements are necessary for building SAFS initiatives?

Figure 4-1 provides a graphical representation of the seeming relationship between the influences, values, barriers and mechanisms presented in chapter 3. The arrows' direction represent influences between the domains, and the arrows' width illustrates the extent of that influence. This conceptual framework is intended to organize the complex structure of SAFS education, and to provide a meaningful model by which future SAFS initiatives can be developed, organized, and possibly evaluated. This graphic should be observed not as the author's recommendation for the institutional relationships, but rather as a reflection of the data gathered.

Figure 4-1: Conceptual Framework of SAFS Education at Liberal Arts Institutions



SAFS EDUCATION IN THE LIBERAL ARTS

According to Parr et al, (2007) “sustainable agriculture is an interdisciplinary field of study that offers a potentially effective organizing structure with which to address many of the complex societal and environmental problems in the agrifood system that have heretofore been unapproachable by single disciplines.” Hess and Trexler (2011) posit that as the public becomes increasingly aware of problems and issues associated with the agrifood system, it is necessary for “citizens to understand this complex system to engage in democratic decision-making processes.” This sentiment was echoed by respondents who identified the importance of understanding food systems with respect to becoming well-rounded citizens. These scholars further assert that there is a strong case to be made for experiential SAFS education for all students – regardless of their specific areas of study.

Institutions of higher education seek to enrich their students’ educational career through both curricular and co-curricular learning (Hopkinson et al., 2008). Figure 4-1 illustrates the academic values that motivate institutional educational goals and their relationship to internal mechanisms for education. Chief among these are *community engagement, experiential education, sustainability, and the liberal arts*. Schools rely on the faculty and co-curricular arms of the institution to exercise these values; this in turn affects the development of courses, syllabi, and programs at the institution. Nearly all of the schools researched identified that SAFS were not an end goal, but rather an outgrowth of something else. These values foster a university dialogue wherein SAFS enter the conversations because of the opportunities it provides. These schools additionally are influenced by external forces including popular culture, regional values

and needs, and broader academic discussions. External influences are responsible for shaping institutional values and cultivating popular conversations on campus.

The emergence of innovative pedagogical tools including service-learning, interdisciplinarity, experiential education and community engagement are redefining how SAFS are approached at non-LGUs. The center of the conceptual framework portrays the internal mechanisms by which institutional educational goals are translated into opportunities for learning among students. Galt, Clark, & Parr (2012) contend that development of SAFS curriculum fosters an ability to move from positivist and objective education to one that is more values-based and includes “more experiential, interdisciplinary, and systems-based approaches to education.” This research reveals that though perhaps more underdeveloped than the same tools at their LGU counterparts, liberal arts schools are leveraging these same values to develop SAFS programs. This research suggests a correlation between utilization of these techniques and implementation of SAFS education.

Scientists, educators, policy makers, academics and the general public are more aware of flaws in the modern agrifood system and the associated environmental, social, and economic challenges than ever before (Cohen, 2010; C. A. Francis et al., 2011; Grossman et al., 2010; Karsten & Risius, 2004). Food and agriculture related films and books by contemporary journalists have been influential in popular culture, and have also made their way into a variety of academic curricula. Despite the historic role of land-grants in agricultural education, these food system critiques have contributed at least in part, to the inclusion of SAFS topics into liberal arts schools, vocational schools, and K-12 education (Bartlett, 2011).

With this in mind, the question of how SAFS might be appropriately used and developed in the liberal arts remains to be answered. Of the over 1,000 interdisciplinary environmental programs in the world, the vast majority of programs have begun in the past 20 years (Association for Environmental Studies and Sciences, 2012). These programs provide platforms to explore concepts such as population growth, sustainable economics, and basic ecology. They also can provide an initial context for SAFS education, though scholars argue that SAFS are historically underutilized and that ‘knowledge gaps’ prevent environmental educators from adequately addressing the topic (Nelles, 2011). This is consistent with the findings of this research where faculty and students are often interested in exploring SAFS, but there is often insufficient resource support for the subject matter. It is often only utilized when a flexible curriculum or coursework process allows for the inclusion of SAFS education.

SAFS EDUCATION AND SUSTAINABILITY

Among the institutions interviewed, there were frequent appeals to the importance of sustainability in both practice and research. Institutions of higher education today are seen as key players in facilitating public discourse about sustainability (Ferrer-Balas et al., 2008). This topic has become ubiquitous in the academic discussion as an essential ingredient for a 21st century education, though the majority of the conversations at the institutional level are focused on the environmental and physical management of the campus rather than sustainability as a pedagogy or educational tool (Hopkinson et al., 2008). Faculty often remarked that though there were connections between sustainability and food systems education, the connections between the two are not always explicit. Informant #7 explained it this way:

“There’s an office of sustainability which mainly focuses on campus operations... So, they’re doing waste reduction, energy conservation and kind of things like that...So they’re thinking, “well how do we reduce our carbon footprint, and how do we recycle and how do we reduce energy consumption on campus?” All of them are wonderful things. And on our campus, because we have a strong, kind of local food program going, the office of sustainability isn’t really engaged in that.” (Interview #7)

This bifurcation between sustainability practices and sustainability education can also be conceptualized as “Going Green” versus “Education for Sustainability (EfS)” (Savelyeva & McKenna, 2011). Scholars posit that EfS must be “transformational education rather than transmissive education” if it enables students to adequately engage with the complicated 21st century sustainability challenges (Ferrer-Balas et al., 2008). Furthermore, this transformational education must include non-traditional pedagogies including formal, informal, and “campus curriculum” to create mutually reinforcing models about sustainability and knowledge integration (Hopkinson et al., 2008). The aforementioned quote identifies an area in which deeper connections between sustainability education and food systems education should be developed.

Framed differently, there is increasing discussion for the development of ecological literacy, or EL, as coined by scholar David Orr in his 1992 book of the same title. This concept liberally defined is the capacity to understand the ecological footprint of humanity or “to know the rudiments of ecology” (Orr, 1992). Orr further argues that EL should include the ability to understand the interactions between the socio-political and bio-physical world and articulate the nature of those interactions ultimately to help correct some perceived imbalances. Nevertheless, this research identified somewhat sparse connections between sustainability and ecological literacy amongst the informants. While community viability and sustainability was often considered central to the existence of the institution, an ecologically literate citizenry was only present on

occasion. Furthermore, it is entirely possible that the development of ecological literacy was predicated on individual ideas and interest given that it was present much less of the time in the university literature.

However, with regards to SAFS education this research reveals that innovative pedagogical tools are not always easily implemented. Figure 4.1 illustrates the role of internal barriers and challenges in development of SAFS efforts. University coordination, funding for non-traditional teaching techniques, and limited interdisciplinary collaboration can sometimes inhibit development of EfS or EL in a context of SAFS education. This research revealed that despite frequent administrative support for new and creative ideas, there is often a lack of academic or human resources to grow them as faculty would desire. Nevertheless, scholars still contend that these tools are necessary to equip students in the 21st century. Vincent and Focht (2008) maintain that an educational approach that relies heavily on a sustainability framework is a necessity for developing students who are capable of addressing the complex social and ecological challenges now and in the future (Vincent & Focht, 2008). Additionally, scholars posit that learning about sustainability must rely on a “broad framework combining formal, informal and campus curriculum to mutually reinforce approaches to student learning about sustainable development” (Hopkinson et al., 2008). Thus though many challenges were identified in this research, this development of simultaneous formal and informal education will likely be a key theme of sustainability education into the future.

BUILDING SAFS PROGRAMS

According to Wellington's (1990) model, the SAFS education examples studied herein exhibited both formal and informal learning. These efforts range from voluntary and open-ended to academically rigorous and institutionalized. Furthermore, many of these initiatives are neither unstructured nor entirely structured as they are dynamic responses to the community needs and their students' educational objectives.

The rightmost column of figure 4.1 tells the story of diversity in SAFS educational endeavors at the institutions researched. This illustration provides four subcategories of SAFS education including formal, predominately formal, predominately informal, and informal. These categories are not mutually exclusive and should be observed as tools for categorization rather than discrete domains.

This research revealed a wide gap in perception of success among informants regarding the development of their SAFS programs. While some were interested in sharing their wisdom and experiences regarding program development, others were anxious to inquire about other models. This section identifies three areas in which burgeoning SAFS programs experienced more growth or development than others: leveraging *university support and values*, *curriculum integration*, and *staff support*.

University Support and Values

Informant #4 succinctly articulated that new initiatives require both real interest from the bottom (students and faculty) and "real interest from the top down – trustees and senior administration" (Interview 4). Table 5 identified challenges from each of the respective interests in an academic community. Institutions however that were able to experience more rapid growth and development of their SAFS programs were aligned

with core university goals and values. Crucial to building SAFS programs is situating them in the values of the institution and its academic goals. This research revealed that the majority of liberal arts institutions are not necessarily interested in SAFS education as an entity unto itself. Thus efforts to develop SAFS programs must identify correlations between existing university objectives and potential outcomes from emerging SAFS endeavors. Many comprehensive liberal arts institutions were interested in community engagement, innovative pedagogical techniques including experiential education and service-learning, and expanding the discussion of sustainability.

Mature or well-developed models of SAFS education at the institutions researched were able to leverage university commitments to these values and use them in fostering development of new educational tools. Furthermore, the top down and bottom up approach encouraged the simultaneous growth of formal and informal SAFS efforts. The lesson present here is that institutions or individuals aspiring to increase SAFS at their institution need to rely heavily on institutional values and incorporate their proposals into the university ideals – rather than vice-versa.

Curriculum

Emerging models of curriculum design focus on high integration of theory and practice in a model of *praxis* where students are able to engage interdisciplinary ideas in real-world contexts. (Galt et al., 2012) While many of the previous works on this topic have focused on SAFS education at land-grants, the overlap and shared pedagogical shifts are present in many colleges and universities, regardless of their land-grant status.

Inclusion of faculty in development of SAFS education is essential for its development – given the need for curriculum development around the topic. However, Ferrer-Balas et al. (2008) argue that incentive structure often does not reward innovative pedagogical techniques and challenges to convention; this often prohibits faculty from reaching too far outside their traditional tasks and responsibilities. This is consistent with the findings in this research where faculty identified a need for an increase in faculty time or additional resources to develop SAFS programs. Thus a flexible framework for curriculum integration is essential for development of all transformational sustainability-based education. In many of the cases where programs were able to thrive, a combination of revamping existing courses and the development of new courses gained student interest and support while also relying on the previously existing institutional structure.

Wellington describes formal learning using words such as “planned”, “compulsory”, “teacher-led / teacher-centered”, and “structured” (Wellington, 1990). However, scholars are beginning to suggest that new models of curricula are emerging. This coursework was rooted less in the research expertise of the faculty, but rather developed from a cross-section of applied issues, faculty engagement, and student experience (Hopkinson et al., 2008). Many faculty recounted stories of courses in problem solving or environmental studies where student requests for more inclusion of food systems and agriculture prompted the faculty to include it in the syllabus or course material. Furthermore, the lines between formal and informal models in SAFS education were often blurred in the classroom as topics were as diverse as soil science, sociology, and philosophy. This emerging sustainability model of education includes a diversity of

formal and informal experience for the student rather than one over the other. This provides a context for students to explore sustainability from a variety of disciplinary contexts as well as examine the world and the agrifood system in informal settings.

Service-learning or internships have long existed for many vocational or career-oriented disciplines. Practicums and experiential opportunities have been considered essential for students in business, health, engineering, and social work. However, what emerged during this research was the identification of developed internships and practicums for students in more traditional liberal arts fields. Often the students who were involved with community gardens or local farms were studying liberal studies, philosophy, literature, or environmental studies. While many of the aforementioned technical disciplines have easier inroads to cultivating their professional experience, the same has not been true for students in the liberal arts. Furthermore, the emerging sustainable food economy now provides an increase in career opportunities for these students, enabling them to connect these experiences to potential career opportunities (Green for All, 2011).

Staff Support and Collaboration

The third ingredient in building SAFS models appeared to be the inclusion of a staff or faculty position dedicated to its development. Ferrer-Balas et al. (2008) posit that incentive and organizational structure within universities does not accurately reward academic contributions to sustainability education. Thus, while this research revealed frequent university and administrative support to SAFS educational endeavors, the further development of these programs is likely predicated upon a more flexible university support for sustainability education. With regards to SAFS experiential

education specifically, this research confirms the previous findings that a staff position is often essential to support this work in coordination between faculty, staff, and the campus farm / SAFS education (Biernbaum, Thorp, & Ngouajio, 2006).

This research revealed that one of the largest challenges in developing SAFS education is the necessity for collaboration across departments and competing interests. Many informants told a similar story of developing new initiatives with interested students, supportive faculty, and passively supportive administration but without any linkages to connect those interests. Schools with developing market gardens and small learning gardens identified a need for more course-release time or staff commitment to the initiatives if they had a chance at further development.

If staff or faculty were already supported by the institution, there was a necessity to institutionalize their work. Sometimes informants would express praise for a “sustainability champion” who began an SAFS initiative, but then also acknowledge that their success was predicated on their own determination, not institutionalized goals. These informants identified the need for staff person(s) who could connect the various institutional entities and parties to SAFS and avoid operating as yet another silo. Indeed in my own work as a university farm manager, collaboration with other farm managers, garden coordinators, and food systems faculty has been essential for implementing best practices and determining ideal organizational models.

There is not a silver bullet to developing SAFS initiatives, but their growth is directly correlated with their ability to adapt in a liberal arts environment. Central to starting a campus farm, developing a food studies course or proposing a SAFS practicum is leveraging all available institutional resources. The conceptual framework

proposed at the beginning of this chapter provides a flexible illustration for SAFS efforts, and interested students, faculty and administrators should reflect on their own institutional model in developing SAFS goals.

CHAPTER 5: CONCLUSIONS

This research shed light on food and agriculture education at liberal arts colleges and universities as well as the mechanisms and models they employ in their development. 16 representatives from a variety of small and medium-sized non-LGU colleges and universities were interviewed to understand the motivations, challenges and mechanisms of SAFS education at their respective schools. They were selected from a list of peer institutions to Grand Valley State University in addition to a number of smaller liberal arts schools in the Midwest. As explained previously, the goal of this research was to understand the broad range and commonalities of practices and models at these institutions.

Contributing most directly to the development of SAFS education were newly emerging pedagogical techniques including experiential learning, community engagement, sustainability, and interdisciplinarity. Many informants were faculty either from environmental studies or directors for environmental centers. These individuals discussed shifting pedagogical paradigms and ideas that could be facilitated by SAFS educational endeavors. Most schools were not directly interested in training future farmers or market gardeners but were rather interested in food systems and agriculture as an entry point into examining the complexity of social, political, ecological and economic systems.

These schools rarely had historic programs in agriculture. Much of the campus discourse was attributed to popular works by Michael Pollan, Joel Salatin, and Barbara Kingsolver among others. Many students were developing a growing interest not only in understanding the agrifood system but also gaining some practical knowledge in

growing and farming. An iterative process between students, faculty, and administration revealed that well developed programs often have interest from both the top down and the bottom up. Often however, there was significant faculty and student interest with only minimal financial or human resource support from institutional administrations.

SAFS models ranged from highly formalized courses and classwork to very informal community based work and volunteering. Regardless of the scope and size of these initiatives, many institutions were interested in the same questions: How can we sustain this program? How does it fit into the context of our institutional mission? How can we collaborate more across disciplines? What should our partnerships with our local land-grants look like? Many schools' SAFS efforts were developed in and around a campus garden or farm; these ranged from a few small raised beds to large highly diversified student farms.

This research sought to both contribute to the exploratory and academic discussion about SAFS education and to also provide an assortment of helpful tools and ideas to institutions looking to further their food and agriculture related initiatives. Additional research would extend these objectives.

FUTURE RESEARCH

Future research in this area should consider utilizing the available literature and the findings in this research to potentially conduct a mixed-methods study. Research of this type might be able to rely on the strengths of both qualitative and quantitative research from a larger sample to provide more generalizable results for the academic community. SAFS scholars and practitioners might consider a study that would simultaneously provide more breadth to research presented here by including a more

diverse body of institutions and more depth given the emerging literature on the topic. Additionally, a bigger sample size would allow researchers to understand whether the size and reach of colleges and universities are an important variable in determining institutionalization of SAFS initiatives.

Given this potential for informant bias, further studies might evaluate potential gaps in liberal arts SAFS education. Do faculty and staff have the expertise to engage the complexity of these topics? Do they have assumptions that steer their development? Is what appears to be a common critique of the modern agrifood complex a valid one, or is it possible that liberal arts critiques foster somewhat simplified solutions to very complex problems? Future inquiry would interrogate whether liberal arts institutions had sufficient knowledge to address the ambiguity of certain challenges in the agrifood system.

Finally, the topic of collaboration between non-land grants and land-grants came up numerous times in this research though the findings were hardly conclusive. Galt et al. (2012) argue that LGUs will need to confront their own epistemological assumptions if they are to continue as the premier source of agriculture and food systems education into the future. However, there is not yet a body of research addressing those assumptions in burgeoning SAFS programs at non-LGUS. This also perhaps poses a question regarding the epistemological approach of non-LGUs toward SAFS education. Future research will ideally include the two institutional types in research to more adequately address these burgeoning tensions and relationships between the two.

APPENDIX

APPENDIX: UNIVERSITY FACULTY / ADMINISTRATOR INTERVIEW GUIDE

HISTORY OF FOOD / AG ED

- 1] Can you begin by telling me about any activities at your school related to food and agriculture education? (If none exist, skip to question 12).
- 2] Can you elaborate on how these started?

DEVELOPMENT OF FOOD / AG ED

- 3] What prompted this development of these initiatives?
- 4] What parties are involved in sustaining / building these initiatives?
 - a. Students?
 - b. Faculty?
 - c. Staff?
 - d. Community?

FOOD / AG ED AND GENERAL EDUCATION

- 5] Tell me about the university attitude toward food and agriculture education.
- 6] What role, if any, do you believe this has in the educational tradition of your institution?
- 7] What do you foresee as the obstacles / barriers to developing food and agriculture education?

FOOD / AG ED AND SUSTAINABILITY

- 8] What can you tell me about the relationship between sustainability and food / Ag education?
- 9] What would a future vision for sustainability and food / food systems education look like on your campus?

OTHER MOTIVATIONS FOR FOOD / AG ED

- 10] Are there other motivations beyond sustainability to include food and agriculture education? If yes, can you tell me about them?
- 11] What do you foresee should be the relationship between land-grant institutions and non-land grants on the issue of sustainable agriculture?
- 12] What are some of the obstacles / barriers to developing food and agriculture education?

13]How do you think those fit into the identity of your institution?

14]What role does food and agriculture play into your institution's educational mission?

15]What would a future vision for sustainability and food / food systems education look like on your campus?

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