Fostering the Next Generation of Agri-food Entrepreneurs in Vermont: Implications for University-based Education[1]

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Abstract

This article details efforts to develop agri-food entrepreneurship education in a university setting. We propose a conceptual model of explicit, tacit and co-created knowledge delivered within a service-learning format. Interviews with university alumni revealed a need for more explicit knowledge as foundational building blocks. Interviews with faculty revealed that they focus more on tacit knowledge and experiential education and less on explicit knowledge. Our recommendations include introducing more business content earlier and for non-entrepreneurship majors, greater coordination, fewer departmental barriers and a diversity of faculty to deliver a more well-rounded experience.

Introduction

Importance of Food Entrepreneurship

The contributions of entrepreneurs to community economic development are well-known (U.S. Bureau of Labor Statistics, 2013). For rural states, food and agriculture (agri-food) comprises an important part of the economy. Vermont is, by at least one estimate, the most rural state in the US (Bishop, 2012) and not surprisingly, agri-food plays a central role in the state's economy. A recent study estimates that it provides 57,089 jobs (16% of all private-sector jobs), including 6,984 farms and 4,104 other food-related businesses (13% of all private-sector establishments) (Vermont Sustainable Jobs Fund, 2012). The total contribution of agri-food to the state's economy is estimated at US$2.7 billion (Vermont Sustainable Jobs Fund, 2011), about 12% of state GDP (U.S. Department of Commerce, 2012).

In addition to contributions to jobs and income, the agri-food sector has influenced the socio-economic wellbeing of rural communities. The devastating effects of farm consolidation and concomitant decline in farm numbers are well-documented (Ginder et al., 1985, Heffernan and Heffernan, 1986). Numerous studies have shown the positive socio-economic effects associated with a strong cohort of small and medium sized owner operated farms and businesses (Goldschmidt, 1947, Lobao and Stofferahn, 2008, Lobao and Meyer, 2001, Lyson et al., 2001).

Vermont has made agri-food based community and economic development a priority. Two of the institutions that are leading these efforts are the Vermont Farm to Plate Initiative (FTP) and The University of Vermont (UVM). In 2011 FTP released a strategic plan to place the agri-food system at the forefront of state economic development and sustainable job creation. The FTP initiative was created by a partnership between state government, non-profit and for-profit organizations; more than 1,200 Vermont residents provided input into the strategic plan.

Since 2010, Food Systems has been one of UVM's transdisciplinary strategic initiatives (Kolodinsky et al., 2012) and principles of sustainability are central to these efforts. In particular, the triple bottom line or three-legged stool (social, economic and environmental) model has been embedded in teaching, research and outreach efforts (Grubinger et al., 2010). A sustainable agri-food enterprise is one that operates in ways which minimize (internalize) external costs and maximize external benefits (Conner, 2004).

Community Entrepreneurship at UVM

The Community Entrepreneurship (CENT) major is housed in the Department of Community Development and Applied Economics (CDAE) at UVM. CENT is distinct

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from traditional business curricula in its location in the College of Agriculture and Life Sciences and thus is well suited to developing agri-food businesses. It is distinct from social entrepreneurship curricula in its emphasis on entrepreneurship as a sustainable community development tool and its integration in a departmental curriculum in which community development is the primary goal (Wang et al., 2010). The CDAE Department has a strong focus on experiential education, transdisciplinarity and stakeholder engagement as a means of meeting its community development mission (Baker et al., 2009)

Service Learning

UVM places strong emphasis on experiential education, particularly in the form of service-learning (S-L). S-L is "*experiential education in which students engage in activities that address human and community needs together with structured opportunities intentionally designed to promote student learning and development,*" (Jacoby, 1996). S-L increases both student retention of learning and student civic engagement and helps students to develop professional skills and goals (Eyler et al., 2001, Eyler and Giles Jr, 1999). Community partners in S-L courses benefit from useful projects, enhanced relationships with the University and links with other partnering organizations (Eyler et al., 2001).

UVM has developed a three phase model for S-L coursework (Williams Howe, 2010, Baker et al., 2009). Phase I, Skill Development, focuses on interpersonal communication: projects tend to be concrete, small scale, limited in scope and closely managed by faculty. In Phase II, Capacity Building, students apply Phase I skills, moving to higher levels of critical thinking through reflection. Faculty retain a strong management role but raise expectations of students in leading and meeting course goals. In Phase III, Empowerment, students collaborate with community partners to develop and meet project goals, including defining and understanding the issue at hand and developing the means to address it. Faculty work as mentors, empowering, suggesting and consulting rather than prescribing.

The following sections detail efforts to date to create an integrated S-L curriculum at UVM which fosters the next generation of sustainable agri-food entrepreneurs. We present entrepreneurship pedagogy and develop a conceptual model of the skills needed to be a sustainable agri-food entrepreneur. We then present methods and results of research conducted with UVM faculty and recent graduates to gauge how well key concepts and principles have been recently taught. Discussion focuses on implications for curriculum improvement.

Selected Literature: Key Elements of Sustainable Agri-Food Entrepreneurship Education

Why is entrepreneurship education needed? Gibb (2011) discusses the need for instilling an entrepreneurial mindset in students. This mindset is central to employability and to a wide range of personal and organizational contexts. Gibb (2011) emphasizes students' ability to be creative and confident in their endeavors as underpinning the kind of flexible, adaptable workforce needed in today's economy. Yet Knudson et al. (2004) lament the lack of emphasis on entrepreneurship in agricultural economics and agri-business studies. Most established markets for agricultural products are commodity based. This system involves price-taking behavior: low cost, high volume sales which brings small per unit margins, requires little marketing effort from farmers and externalizes costs (Kirschenmann et al., 2008). Sustainable enterprise requires internalization of social and environmental costs. Agri-food entrepreneurs must find innovative and flexible ways to produce and market differentiated products (Conner, 2004).

What should be taught? A useful framework for what to teach is the distinction of explicit and tacit knowledge and its extension to include co-created new knowledge (Peterson, 2009). Explicit knowledge can be codified; it is separable from context and easily shared among people using manuals, instructions, etc. Tacit knowledge is gained by experience or practice; it is context specific and not easily shared. New knowledge is co-created by combining and sharing novel combinations of explicit and tacit knowledge among stakeholders (e.g., strategic supply chain partners) using experimentation and iteration. Peterson (2009) highlights how explicit knowledge is the least risky and most certain, yet has the lowest potential for innovation and strategic value. New knowledge is the least certain, most dynamic and unpredictable, yet has the highest potential for true innovation and highest strategic value.

Entrepreneurs need a certain degree of readily accessible explicit knowledge and most business curricula teach it in courses like accounting, corporate strategy, finance, law, marketing, law and organizational behavior (Hindle, 2007). One critique of typical business administration curricula is that they prepare students to work for others rather than for other own businesses (Hindle, 2007, Aronsson, 2004).

Tacit knowledge is needed to find and act on opportunity. One seminal theory posits the process of discovery, evaluation and exploitation of opportunity as the unique role of the entrepreneur (Shane and Venkataraman, 2000). Successfully navigating these tasks requires a set of heuristics to deal with the high degree of ambiguity and uncertainty inherent in the entrepreneurial process. Reliance on rational calculations and fact-based logic does not allow for the rapid decisions needed in the face of the brief windows of entrepreneurial opportunity (Alvarez and Busenitz, 2001). A critique of current entrepreneurial education is the lack of opportunity to gain tacit entrepreneurial knowledge – what it feels like to take action: discover, evaluate and exploit opportunities (Gibb, 2011). Peterson (2011) asserts there is an over-reliance of explicit knowledge among academic researchers (particularly applied economists) due to the lack of generalizability of tacit knowledge. Entrepreneurs need to create as well as absorb and experience knowledge. A key element

is the ability to engage in reflexive learning in which actors monitor their activities and have a theoretical understanding of themselves and others (Sarason et al., 2006).

Explicit and tacit knowledge may suffice for traditional enterprises but may be inadequate to foster sustainable enterprises. Peterson (2009) argues that transformational supply chain governance based on collaboration and co-creation of new knowledge is needed to address the "wicked" problem of sustainability. A recent study suggests that co-learning and collaboration across supply chains partners is needed to address the complexity of transactions within farm-to-institution programs, which have been called the vanguard of the alternative, sustainable agri-food systems (Buckley et al., 2013, Izumi et al., 2010). These transactions require innovations beyond conventional supply chain norms. Mechanisms cannot be simply explained (explicit knowledge) or figured out by individual actors (tacit knowledge) but need to be co-created by experiential negotiation, experimentation and adaptation within specific contexts (new knowledge) (Buckley et al., 2013).

Both Hindle (2007) and Gibb (2011) emphasize that entrepreneurship should not be taught solely in business schools. We need an approach that emphasizes experiential education, a mix of practitioners and academics, emphasizing creativity and action over canonical content Transdisciplinarity and experiential learning, particularly S-L, seem well-suited.

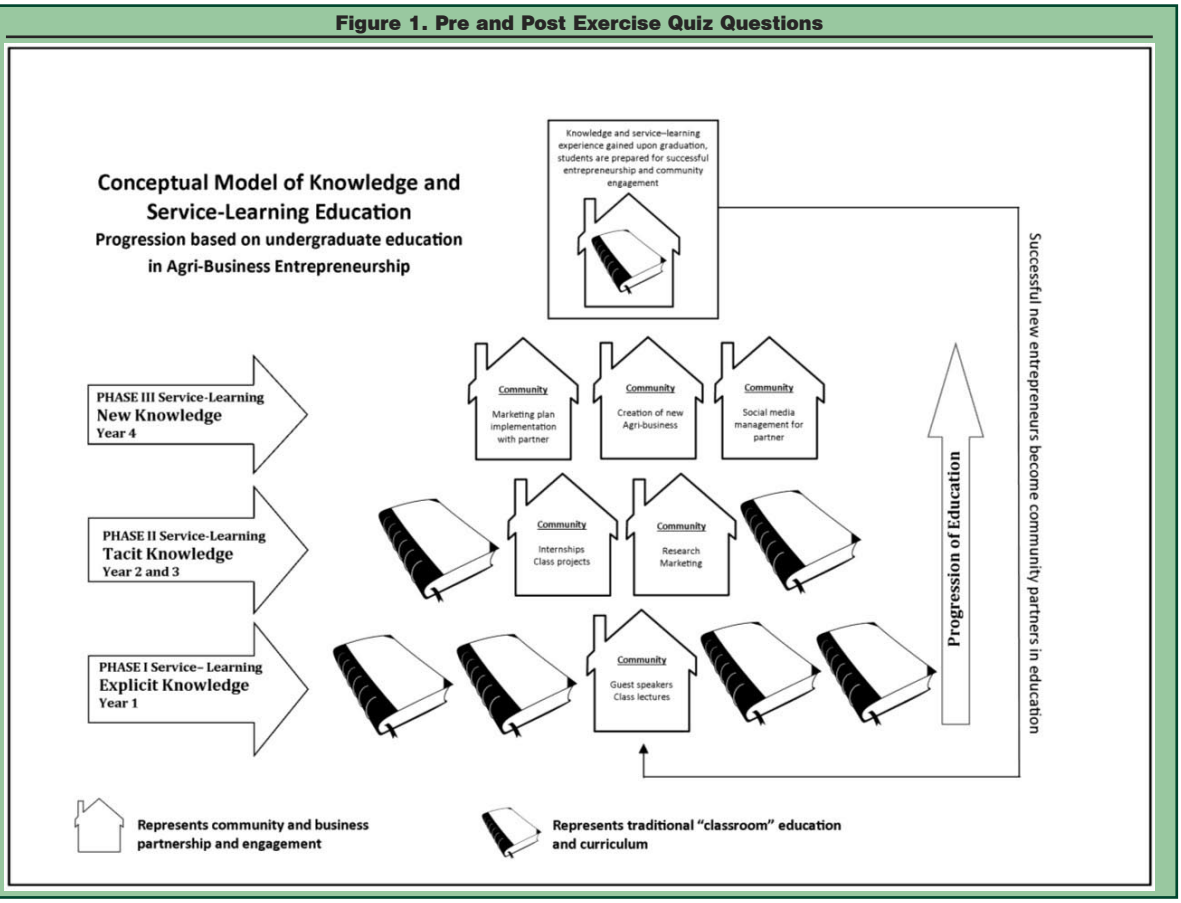
Conceptual Model

Our conceptual model posits that to best prepare students for a successful career in sustainable agri-business, an integration of both knowledge and skills education earned through service-learning and community engagement is essential. Principles of sustainability and the triple bottom line are not just theoretical models of agri-business, but opportunities to engage and embed students in enterprise (Figure 1). Education efforts should position students to gain all three types of knowledge: sequences of S-L classes can impart all three types in reflexive, self-reinforcing and additive ways. Phase I S-L imparts explicit knowledge (basic concepts) that prepares students for greater engagement in the entrepreneurial process. Phase II S-L provides students with tacit knowledge. Phase III S-L prepared students to generate new knowledge by engaging and problem-solving with stakeholders.

Process

Sustainable entrepreneurship education will be most effective when built on a foundation of explicit knowledge, offered during the early undergraduate years (Baker et al., 2009). Agri-food business leaders must have explicit knowledge of business plan development, financial management, marketing, distribution, food production regulations, labeling requirements, etc. Community engagement and contribution in Phase I S-L may include guest speakers and lectures in a classroom setting (Williams Howe, 2010). Information is presented

Figure 1. Pre and Post Exercise Quiz Questions



in a "how-to" dialogue, inviting students to begin the process of framing issues by connecting theory to practice. Gaining tacit knowledge is key in phase II of S-L delivery as it advances educational opportunities through collaboration and partnerships with community organizations (Williams Howe, 2010). Built on a solid foundation of explicit information, students are challenged to apply knowledge through critical and strategic thinking to meet goals with the community partner. Under close supervision, students work with community partners to conduct research, develop marketing plans, complete internships, or aid in writing public policy. Co-creation of knowledge takes place during phase III S-L education through community engagement. Students are prepared to independently apply acquired knowledge and skills. Community partners serve as mentors for students developing their own agri-business plans and provide opportunities for students to manage social media marketing, or the implementation of a marketing campaign.

Agri-food entrepreneurship education enhanced by a progressive service-learning curriculum provides several potential benefits for both the student and the community. The progression of S-L education results in a strong foundation of the three types of knowledge. The knowledge gained through service-learning demonstrates the student's ability to work as team member and independently in real-world, real-time situations. By building an education that encompasses and engages community, students understand and value social responsibility and sustainability in both theory and practice. The students will in the future have the opportunity to share their experiences and knowledge when they become community partners with future students in agri-food entrepreneurship. Businesses acting as community partners in educating students to be problems solvers and creative thinkers ensure that the skills needed for successful entrepreneurship are incorporated in education. This is a true "win-win-win" situation: businesses have a stronger employment pool, students have a unique educational experience and the university is providing a high-quality, marketable education.

Methods

We used a qualitative approach to explore the degree to which the conceptual model (Fig.1) is in tune with the curriculum at UVM, the Land Grant University of the state. The study was comprised of two sets of semi-structured interviews conducted simultaneously in the spring of 2013. We interviewed university faculty to better understand the way entrepreneurship and professional skills are taught at UVM. We interviewed recent UVM graduates to obtain their perspective on how their education prepared them for their professional careers. The study was deemed exempt by the UVM's Institutional Review Board.

Data Collection

A total of 15 face-to-face semi-structured interviews with faculty and a mix of 8 phone and face-to-face semi-structured interviews with former students were conducted. We used snowball sampling to select our sample which allows for the identification of information-rich key informants from well-situated people (Patton, 2002). We contacted faculty known to be involved in entrepreneurship education at UVM. After interviews, we asked for names of colleagues across the university we should talk to and for names of former students whom they knew had started a business, or were known to have an interest in starting one. The process was repeated until no new names emerged. Faculty members representing a wide variety of disciplines were interviewed: anthropology, business, community development and applied economics, engineering, geography, sociology and plant and soil science. The former students interviewed also represented several disciplines. The interviews were conducted by two researchers between February and May 2013 and lasted on average 45 minutes. We used two interview guides tailored to faculty and alumni in order to provide structure to the inquiry while allowing flexibility for follow-up questions and explanations (Herndl et al., 2011, Patton, 2002). Interviews were audio-recorded and transcribed.

Interview Analysis

Deductive Content Analysis (DCA) was used to analyze the interview transcripts. DCA is a systematic and objective means of describing and quantifying phenomenon that allows the researcher to test theory and conceptual models (Elo and Kyngäs, 2008; Burns and Grove, 2005; Kyngäs and Vanhanen, 1999; Patton, 2002). The team of researchers discussed and agreed on the codebook based on the conceptual model components (Graneheim and Lundman, 2004). It included the following codes:

- co-created knowledge,
- experiential education,
- learning/teaching about entrepreneurship,
- learning/teaching to become an entrepreneur,
- networking skills,
- passion and values,
- tacit knowledge,
- use of guest speakers.

Researchers conducted multiple readings of the transcripts and extant literature to develop an understanding of how faculty prepare students for their professional lives and to ascertain what former students learned, skills they wish they had learned and how they use these skills in their careers (Burnard, 1991, Charmaz and Mitchell, 2001). The interviews were coded with HyperRESEARCH 3.5.2. This qualitative analysis software allows for an efficient and manageable analysis of data while offering tools to compare codes and acceptance between researchers as well as reporting capabilities (Gerbic and Stacey, 2005, Staller, 2002).

Results and Discussion

Results are organized in two main themes in order to test the data against the conceptual framework: important knowledge and type of knowledge.

Important Skills

Faculty

Faculty named a broad array of skills needed by students (Table 1). Specific skills include spreadsheets, GIS, business, finance and research methods. Broader skills included communication and teamwork. The most often cited skills were teamwork, communication, knowing yourself/exploration and business/finance (Table 1). PhD trained faculty focused on broad skills whereas master level faculty focused on practical skills. For example, a former business owner with a master's degree said:

"*When they leave UVM, I would like to think that they understand the general laws of business and the general management of money plus being able to express themselves well in writing and to express themselves well in speaking.*" Faculty 13.

A PhD level faculty with no business background stated: "*Understanding is more important to me than the students understanding how to do.*"

Table 1. Knowledge considered important by faculty organized by specific to broad (n = 15)

Knowledge	Frequency in %[z]	Type of knowledge
Theory associated to discipline	13	Explicit
Business/Finance	27	Explicit
Computer literacy	7	Explicit
Research methods	7	Explicit
Practical skills	13	Explicit
Communication	33	Tacit
Time management	13	Tacit
Team work	33	Tacit
Networking	7	Tacit
Observation	7	Tacit
Apply theories and concepts to real world	13	Tacit
Knowing yourself/exploration	27	Tacit/co-created
Analysis	13	Tacit
Problem solving	13	Tacit/co-created
Critical thinking	27	Tacit

Note. [z]number of interviewees who reported this being important knowledge

Table 2. Skills and knowledge considered important by alumni organized by specific to broad (n = 8)

Knowledge	Frequency in %[y]	Type of knowledge
Theory associated to discipline	37	Explicit
Finance	100	Explicit
Computer literacy	62	Explicit
Marketing	75	Tacit / Explicit
Risk management	50	Tacit
Networking	87	Tacit
Passion/values	75	Tacit/co-created
Problem solving	37	Tacit/co-created
Critical Thinking	37	Tacit/co-created

Note. [z]number of interviewees who reported this being important knowledge

Alumni

Much like the faculty, alumni emphasized important skills ranging from specific to broad (Table 2). Specific skills include spreadsheets for financing or social media for marketing. Broad skills include networking or passion and values. However, the quality and degree of education varied by major and department – especially with regard to entrepreneurship.

"*I really wish I had learned risk management tools for farming. It's really tough to decide not only certain decisions, like the impact of using pesticides, but the factors to consider: customer demand, higher yield, more profit but higher costs, my own morals… there's' just so many factors.*" Alumnus 7.

Many alumni recognized the importance of business fundamentals, but they often did not extend beyond their department to take courses in them because they were not required and the courses sometimes appeared unapproachable. One sustainable agriculture major said:

"*They [finance courses] weren't required so I didn't even consider taking them. I mean it's kind of a daunting subject for someone outside of the business school, but basic book keeping is certainly integral in order to run your own business well.*" Alumnus 2.

Though most students had little education in business fundamentals, nearly all of the students had exposure to broader concepts including critical thinking, problem solving and networking. Students in specific majors (such as sustainable agriculture) did not receive business education: their curriculum focused on specialization (such as farming practices) and students did not choose courses outside their major. The emphasis on broader concepts equips students for a wide range of careers, but may neglect the building blocks of business skills.

Types of Skills

We classified skills alumni and faculty identified important as explicit, tacit or co-created. Tables 1 and 2, show that specific skills such as the theory associated with a discipline or computer literacy fall under the category of explicit, while broader skills such as analysis and critical thinking were categorized as tacit.

Explicit Skills

Faculty

Explicit skills tend to be taught early on in the curriculum using a more traditional teaching approach such as lectures and textbook learning. The interaction with the community for explicit skills was limited and used as an initiation for future interactions with community partners:

"*This semester we served a non-profit organization so it was pure service which is the lowest level of service learning. At their conference we just served in whatever capacity they needed. Some people poured coffee, some people helped set up tables and some people gave directions.*" Faculty 1.

Additionally, some faculty members pointed out that the students must be able to apply the theory that they have learned in class to the real world.

Alumni

Many alumni reflected on their careers after graduation to show the importance of the sometimes

dry, but important, explicit skills. Consistently, alumni recognized how the context of acquiring skills impacted how effectively they retained – or did not retain – the information.

"*It [core information technology class] taught us 'the ins and outs of Microsoft Office' and it was a serious bummer when I realized I had to learn it again because, unfortunately, I remembered none of it.*" Alumnus 7.

Participants often pointed out their ability to fully comprehend explicit skills once they were able to apply it. Separate from the method and point in curriculum where explicit skills were taught, alumni in specialized majors emphasized the lack of focus on fundamental business skills, such as credit or tax information. Repeatedly, participants would emphasize their lack of exposure or little interest in learning explicit skills that they recognized as important. This was particularly evident in students from scientific majors. The interviews suggest that explicit skills reinforced or taught in tandem with experiential education can both spark interest and enable students to retain the information beyond the classroom.

Tacit Knowledge

Faculty

Most of the important knowledge was categorized as tacit including communication, time management and team work. It represented putting theory and skills from the classroom to use. Tacit knowledge is taught through a mix of theory, examples, guest speakers, internships and S-L.

"*You can go to conferences, talk to people, work on projects, internships and it becomes this very rich and dense product you can draw from and I think that I often comment that it's up to you and it has to be an ongoing process so that every job is a tool you can put in your tool box.*" Faculty 8.

Faculty emphasized the need for students to be exposed to the outside world and able to put in action what they learned in class. Faculty use reflection to allow the students to connect the theory with their experiences and their learning. It can be a daunting exercise for students, but it is seen by the faculty as a useful method to reinforce their teaching and encourage reflexive learning.

Alumni

Once explicit skills are taught, students have the opportunity to test out theories, express creativity and learn lessons hands-on. Many alumni reflected on tacit knowledge as some of their defining moments in their undergraduate careers. They also emphasized the importance of experiential learning, including networking, guest speakers or attending conferences.

"*It [service learning course] allowed me to connect on a deeper level with fellow students and with the greater community... It actually introduced me to some people who I've since worked for after graduating.*" Alumnus 8.

It was clear that the courses and experiences that involved tacit knowledge were among the most memorable. Alumni shared stories that marked pivotal points as undergraduates, where in some cases, passions were recognized as careers.

Co-created Knowledge

Faculty

Co-created knowledge was not as often identified specifically. Co-created knowledge comes from innovation, collaboration and adaptation; accordingly, the highly complex characteristics of co-created or new knowledge make it a more rare form of education. We found two examples of co-creation of knowledge. First, it could take place in the classroom when faculty encourage their students to interact with other students as colleague.

"*We are also using knowledge networking in the class. I am teaching them to consider the rest of their peers in the classroom not as students but as others consultants, and, if another consultant appears to have another connection in the outside world or a skill set you should draw on that other connection in the class even if they are outside your group.*" Faculty 1.

In this situation, the faculty simulates the workplace environment to encourage students to work with another and solve problems.

In the second scenario, co-creation of knowledge occurred when students partnered with a community partner with a mission of accomplishing a common goal.

"*I paired the students with a particular issue or topic so one was transportation to the workplace, one was transportation to health care. The groups were to work with the refugee communities and more specifically with service providers. And to the service provider I said here are these highly qualified groups of students if you are interested in working with them. So I left it up to them, and the groups went and prepared something that was very concrete.*" Faculty 4.

Other faculty had students develop marketing plans for businesses, develop prototypes or organize events for community partners. A strong emphasis on community and awareness of peers as collaborators reinforced the concept of co-creation of knowledge.

Alumni

One notable instance of co-created new knowledge was in an entrepreneurship course where students had to conceptualize, produce, market and sell their own product.

"*At first, our merchandise sold itself… but then we realized our sales were lagging and so we sat down and got creative…. I think my group did well because we adapted and didn't accept defeat. We reevaluated what we had and asked, 'How can we get more people to stop at our table?' …We completely changed our approach and made the emphasis on the customers: interacting with them, setting up activities around the booth… We knew our product was great; we just had to get them*

there. And we did. We got the new customers, people weren't drawn in by what we sold, but by how we sold it." Alumnus 8.

Consistent Themes Enabling New Knowledge: Critical Thinking, Problem-Solving and Work Ethic

"*My advice for people who have an idea of what they want to do, 'Talk to as many people as you can. Learn from them. Run ideas by them. Get feedback. Get inspired. Collaborate. Adapt and then evolve.' At times, you really won't want to get up, but you gotta persevere… Being your own boss isn't easy: there's no salary, no one telling you to wake up in the morning. It's even worse when you're losing money. But if you really love it, you'll make it work*." Alumnus 4.

Co-created or new knowledge occurs outside of the ordinary classroom setting. The results can be very beneficial but the process might be difficult to implement in a traditional university campus. In the above example with an nontraditional entrepreneurship course, it seems that the retention of co-created knowledge must also be attributed to the students, whose personal commitment transformed an assignment into an opportunity for growth.

Comparison to Conceptual Model

UVM Faculty, particularly those with doctoral (e.g., PhD) degrees, placed greater emphasis on tacit and co-created knowledge, which potentially equips entrepreneurs with the ability to create opportunity (Alvarez and Busenitz, 2001). However, there is a gap in the teaching of explicit knowledge; some faculty expect that students learn explicit knowledge on their own. Doctoral level faculty tended to encourage higher thinking and the connection of various types of knowledge, rather than delivering it in classroom formats. In contrast, master's level faculty emphasize practical skills and explicit knowledge. There are two possible explanations for the difference. First, faculty with business experience and faculty with experience outside academia know first-hand the types of skills an entrepreneur needs. Second, the university has traditionally been a place of higher knowledge and thinking and PhD level faculty might be more inclined to favor these types of skills as they have been immersed and trained in these. S-L classes provide opportunities for gaining tacit and co-creating knowledge by bringing in community partners with a different set of skills and tangible projects to work on.

UVM alumni, especially those in non-business or economics majors, discussed a need for greater emphasis on explicit knowledge, particularly basic business skills and knowledge like marketing, accounting and finance. Nearly all alumni had robust exposure to broader, conceptual skills (networking, problem solving, passion/values) often outside the classroom (S-L, conferences). Conceptual and experiential education play vital roles in preparing all students to be enterprising and therefore more broadly employable in the current and future settings (Gibb, 2011), as long as a proper explicit knowledge foundation is in place.

Implications

Implications based on the study findings include:

- Students would benefit from classes early in the curriculum with heavy emphasis on explicit, business-related content, connected to real-world applications. In more advanced curriculum, these explicit skills would be revisited, augmented and applied further in real life. A mix of faculty with various educational and professional backgrounds will ensure that students experience a well-rounded education. There is a need for availability of business curriculum to non-business/economic majors. This could be achieved using more cross-listed classes and looser departmental barriers.
- Faculty advisors need a better understanding of course offerings outside their departments to help students develop long term learning goals based on student passion and interest in the first and second year of a four year degree.

Summary

Training the next generation of agri-food entrepreneurs in a university setting requires a wide range of skills. This paper details efforts to create an integrated S-L curriculum at UVM to foster the next generation of sustainable agri-food entrepreneurs. Our conceptual framework, based on theories of explicit, tacit and co-created knowledge, utilizes a service-learning format to deliver each information type in a sequential, reinforcing manner. We recommend the use of a three phase service-learning format, featuring a greater emphasis on business content earlier in curriculum and greater access for non-business majors. This approach may require greater coordination and fewer departmental barriers, as well as a diversity of faculty to deliver a more well- rounded experience.

The main strength of this paper it its application of well-known models to food entrepreneurship in a university and state which place high priority on food systems. The weakness is a small, non-representative sample of respondents. Future directions of research include replication at other locations and longitudinal studies of graduates of the curriculum.

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