



**AgEcon** SEARCH

RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

*No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.*

**Helping Students to Think Outside the Box with Entrepreneurship Education  
in Colleges of Agriculture**

**Liang, Chyi-lyi (Kathleen)**  
**The University of Vermont, Department of Community Development and Applied  
Economics, 103 C Morrill Hall, Burlington, Vermont 05405**  
**Phone (802) 656 0754 E-Mail [CLIANG@uvm.edu](mailto:CLIANG@uvm.edu)**

**Selected Paper prepared for presentation at the Agricultural & Applied Economics  
Association's 2011 AAEA & NAREA Joint Annual Meeting, Pittsburgh, Pennsylvania, July  
24-26, 2011**

**Copyright 2011 by C. Liang. All rights reserved. Readers may make verbatim copies of  
this document for non-commercial purpose by any means, provided that this copyright  
notice appears on all such copies.**

*Let us think of education as the means of developing our greatest abilities, because in each of us there is a private hope and dream which, fulfilled, can be translated into benefit for everyone and greater strength for our nation.*

*John F. Kennedy (1917-1963) Thirty-fifth President of the USA*

## **Background**

College education provides a foundation of learning which enhances personal growth, skills, knowledge, and experiences. However, industry leaders have concerns about how we teach students to become “scholars” rather than “productive and creative employees”. The structure and culture of industries have changed significantly over time. Like other industries, agriculture has become more dynamic and integrated following the development of technology and information system. Colleges of agriculture in the United States face the challenge of recruiting and retaining students for specific majors. This situation is not new, and it can be explained using economic tools such as the theory of demand. The demand for agricultural specialists is generally derived from the demand for the services that a specialist can provide. If there is no demand in the market for the skills and knowledge taught in a particular discipline, then the demand among students for the particular skills and knowledge will decline. The declining interest among students is associated with two key market trends. First, there has been an absolute decline in the demand for mainline agricultural skills and knowledge due to the declining number of businesses within agriculture (both associated with declining relative importance of the sector and consolidation). Second, the skills and knowledge needed to meet employers’ needs in the market differ from what is taught in schools, and the curricula have not evolved in a manner consistent with changing demands of the industry in terms of environment, culture, or structure.

The increasing demand for entrepreneurship education relates to a new vision of what successful enterprises of the future look like. According to the IBM Global CEO Study in 2008, the traits for future successful enterprises include - hunger for change, innovation beyond customer imagination, globally integrated, disruptive by nature, and genuine and not just generous. Educators in business and non-business schools are searching for innovative and balanced curricula to help students become more competitive and adaptive in a highly competitive job market. Questions remain for many educators in colleges university-wide, such as (1) can we actually teach entrepreneurship? And, if so, (2) how and what should we teach in entrepreneurship?

## **An Overview of the Development of Entrepreneurship Education**

Entrepreneurship education derives its importance from three themes: the demand for entrepreneurship education, educational access to the “make-a-job” option, and economic growth through job creation (Kourilsky, 1995). Kourilsky discussed the General E – the entrepreneurial generation – identified by a national Gallup poll, through a rigorous sample including high school students, small business owners, and the general public on their opinions about starting a business, knowledge of entrepreneurship, and entrepreneurship education. The survey results supported the importance of entrepreneurship education with respect to personal growth, skills,

knowledge, and experiences that are different from those provided by traditional educational models. For example, a significant percentage of high school students wanted to start and run their own businesses; they believed successful entrepreneurs should give back to their own communities; they identified a gap between their entrepreneurial dreams and the knowledge they were taught in high schools; and they were passionate and enthusiastic about learning how businesses work. While the orientation of many educational models focuses on a “take-a-job” mentality, the learning process of entrepreneurship education is geared towards the knowledge, skills and mindset needed to create jobs (make-a-job) by generating innovative ideas, concepts and new venture opportunities (Kourilsky, 1995; Liang, 2009; Liang & Dunn, 2010).

Creating and implementing entrepreneurship education at the university level is not as easy as one might imagine, however. For example, there has been a significant growth in the number and status of entrepreneurship programs in schools of business and management (Katz, 2003; Solomon, Duffy, and Tarabishy, 2002; Solomon, 2007). The popularity of entrepreneurship courses has increased dramatically among both graduate and undergraduate students. Alumni and industry representatives of business schools strongly support the development of entrepreneurship programs, and these individuals have become a driving force for the creation and expansion of entrepreneurship programs within business schools. Despite the increase in popularity and interests in the field of entrepreneurship, there has been considerable resistance from faculty members in many institutions to the creation or expansion of entrepreneurship programs. Faculty members within or outside the business schools have been, and many remain, skeptical about the validity of entrepreneurship as an academic field. Many educators and researchers have questioned the quality and rigor of entrepreneurship research, and the need to hire academic faculty to teach and conduct research in entrepreneurship (Kuratko, 2005; Kourilsky, 1995; Kutatko, 2004).

As many researchers have pointed out, entrepreneurship is a multi-dimensional phenomenon or activity in terms of personality, traits, skill and training, decision making, organization creation, team building, management science, and resource allocation. Characteristics affect behavior, behavior leads to decisions, decisions link to consequences, and consequences reflect changes in the economy and well being of entrepreneurs and society. Entrepreneurship is an interaction between actors and actions, beyond the traditional definition and disciplines of business. On the positive side, entrepreneurship education can be created and implemented successfully in any college and any discipline, given its interdisciplinary nature. On the other hand, faculty members outside of business schools lack the information, guidance, support, and resources needed to start the process of planning, creating, and sustaining entrepreneurship curriculum for undergraduate or graduate students.

## **Creating and Implementing a Successful Entrepreneurship Program in a College of Agriculture**

### **Summary of the Program**

The Community Entrepreneurship (CENT) major and minor has been created and implemented in the Department of Community Development and Applied Economics (CDAE) in the College of Agricultural and Life Sciences (CALs) at the University of Vermont (UVM) since 2006. The CDAE department was formed in 1994 due to structural change in CALs, and three departments

merged to form CDAE: Agricultural and Resource Economics; Merchandising, Consumer Studies and Design; and Vocational Education and Technology. When CDAE was newly formed, it offered one major with 3 concentrations: Consumer Economics, International Development and Agricultural Economics, and Small Business. Between 1998 and 2002, CDAE faculty modified existing curricula by upgrading and updating course contents and officially launched two majors within CDAE in 2002: Community and International Development (CID), and Agricultural and Resource Entrepreneurship (ARE). ARE replaced the old SB program by introducing many new topics and pedagogy in teaching entrepreneurship; it was one of the pioneering entrepreneurship programs in U.S. Colleges of Agriculture. Between 2002 and 2006, ARE courses still focused on agricultural and resource issues related to new venture creation and expansion. However there was a strong demand on campus and among communities to introduce the entrepreneurship education to a broader audience. In 2006, the CENT major and minor replaced the ARE, to respond to the need for creating an innovative and experiential learning oriented educational program that leads to trainings, skills, knowledge, and experience for job creation and asset/capacity building for community development.

The objective of the CENT programs is to promote entrepreneurship education by adopting a non-conventional pedagogy using an integrated, multidisciplinary approach. The faculty in CDAE integrates different aspects of community development in the curriculum, and focus on improving the sustainability of local and global communities through the application of interdisciplinary approaches that are economically sound, culturally appropriate, environmentally feasible, and socially just. Researchers have argued that some existing entrepreneurship education programs in the United States miss the heart of entrepreneurship process (Kourilsky, 1995). Many researchers have agreed that the signature of true entrepreneurship is characterized by three attributes: opportunity recognition, resource commitment in the face of risks to pursue the opportunity, and creation and operation of an enterprise with a team (Kourilsky, 1995; Timmons, 1978; Bygrave, D'Heully, McMullen, & Taylor, 1996). The CENT curriculum was created with the principles of entrepreneurship at the center, while meeting other required learning elements within CALS and CDAE. Table 1 lists all courses CENT major need to take in 4 years, and the courses for a CENT minor required before graduation.

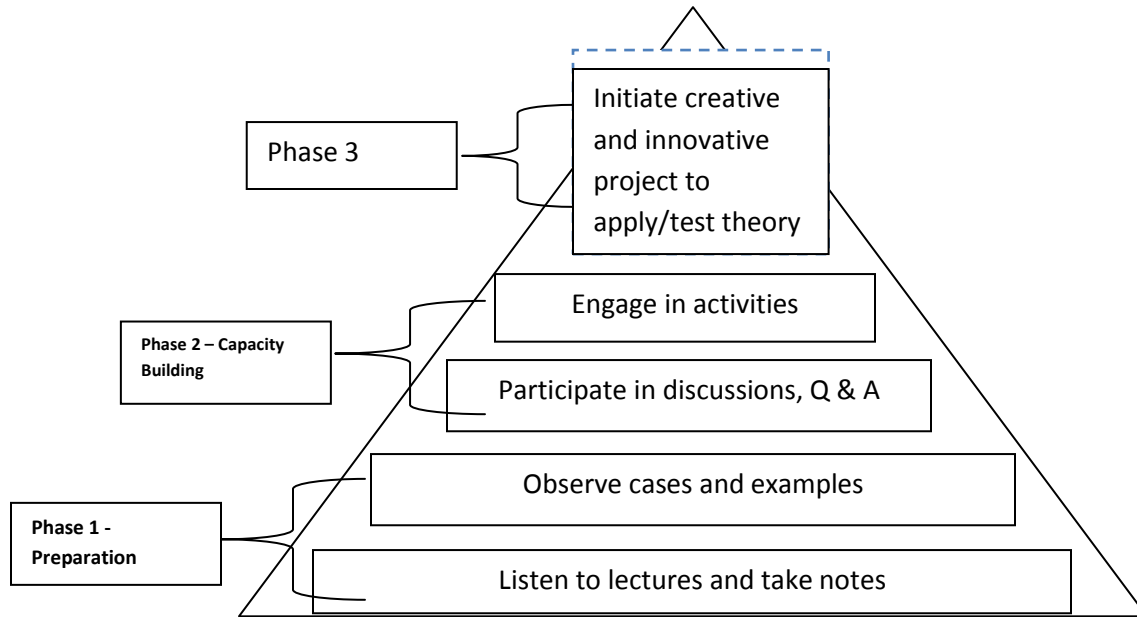
The goal of the curriculum of the CENT is to support students to develop their independent decision-making skills and professionalism. Not every person will choose to become an entrepreneur. The program does however prepare students for jobs in organizations (nonprofit, for profit, or government) that they will work for when they graduate. If a students decide to start their own venture, they will be ready because they are well prepared by the learning process offered by CENT.

Table 1. CALS, CDAE and CENT core courses

<p><b>CALS Core Competencies</b></p> <p>Communication Skills (1 writing class, 1 speech class) Information Technology Skills (1 computer application class) Quantitative Skills (1 math class, 1 statistics class) Critical Thinking Skills (CENT curriculum requirement specific) Interpersonal Skills (CENT curriculum requirement specific)</p> <p>Knowledge (2 physical &amp; life sciences classes – with or without lab; 2 social science classes – not including CDAE courses; 2 humanities &amp; fine arts classes)</p> <p>Values (2 diversity classes – D1 &amp; D2 for different aspects of diversity; environmental stewardship – CENT curriculum specific; personal growth – CENT curriculum specific)</p>
<p><b>CDAE core courses</b></p> <p>CDAE 002 World Food Population &amp; Development CDAE 015 Visual Communication CDAE 061 Community Development Economics CDAE 102 Sustainable Community Development CDAE 127 Consumer, Markets &amp; Public Policy CDAE 250 Research Methods CDAE internship or service learning</p>
<p><b>CENT core courses:</b></p> <p>CDAE 157: Consumer Laws And Policy CDAE 166: Introduction To Community Entrepreneurship CDAE 167: Financial Analysis For Community Entrepreneurship CDAE 168: Marketing For Community Entrepreneurship CDAE 253: Macroeconomics For Applied Economists CDAE 254: Microeconomics For Applied Economists CDAE 255: Applied Consumption Economics CDAE 266: Decision Making For Community Entrepreneurship CDAE 267: Strategic Planning For Community Entrepreneurship (senior capstone)</p>
<p><b>CENT Minor and free electives:</b></p> <p>CDAE 166, CDAE 167, CDAE 168, CDAE 266 and one elective</p>

## The Theory-Based Entrepreneurship Education Framework for CENT

To answer the million dollar question “what should we teach in entrepreneurship?”, the faculty of CDAE develop a unique pedagogical framework (Graph 1) that directly links to the heart of entrepreneurship – opportunity recognition, resource commitment, and new venture creation through teamwork. This unique framework builds on the value of traditional classroom learning, by incorporating experiential learning as proposed by John Dewey (Dewey, 1997; Liang, 2009).



Graph 1. CENT Pedagogy Framework

The key point is to create a dynamic learning environment in which theory and application are covered simultaneously. Each student has the opportunity to go through this learning model with their own learning pace and style, and they make progress in learning about responsibility, challenges and achievement just as real life entrepreneurs do. In the beginning of the learning process, students start with traditional way of learning – attending lectures of theories of entrepreneurship and its relationship to community development. Once students are exposed to theories, they will be taught a series of cases and examples introduced by community entrepreneurs who work with various organizations and enterprises (for profit, non profit, government, etc.) These two beginning levels of learning represent the first phase of entrepreneurship education – focus on observation and experience. The faculty provides a concrete, closely guided experience to students early in their educational development. This phase also prepares students to grow towards more complex entrepreneurship experiences in the future.

Once students become comfortable and familiar with the concepts of entrepreneurship and community capacity building, they will engage in discussion and debates in the classroom facilitated by faculty or community entrepreneurs. Group activities are introduced and initiated

by faculty and community partners to further engage students in learning the process of entrepreneurship. This is the second phase of learning associated with capacity building. Students are guided and encouraged to take on more responsibility and apply classroom knowledge to real-life situations by working with community partners. The 'quality improvement' stage of student development sets in as students experiment with greater levels of critical thinking and interacting in a professional setting. The act of reflection, facilitated by the instructor/supervisor, is a key tool at this stage of student development to enhance the critical thinking and learning process.

Finally students generate their own ideas of new venture creation, initiating their own teamwork, seeking their own resources and funding support, planning for their own ventures, operating and managing their own ventures for a substantial period of time independently with faculty supervision, providing assessments on individual as well as team performance, and reflecting on the overall learning of entrepreneurship. The peer-to-peer routine review and assessment system gives students full responsibility to be engaged and monitored by team members. This is the third phase of the entrepreneurship education, in which students actually practice theories and reflect on gaps between theory and reality. The responsibility of conducting entrepreneurial activities culminates the learning throughout phase 1 and phase 2, and the focus is on skill mastery and the most advanced levels of application of entrepreneurial concepts and critical thinking. By working independently from the faculty, students are empowered to define and address issues that real life entrepreneurs encounter on a daily bases. Students are also accountable for venture outcomes related to profitability, venture organization, communication strategies, and public relation.

Most of the courses offered to CENT majors and minors apply this learning framework to various degrees. The following section provides a summary description of two required keystone courses (CDAE 166 Introduction to Community Entrepreneurship, and CDAE 267 Strategic Planning for Community Entrepreneurs) for CENT major and minor to demonstrate the application of the framework.

### **Two Bookend Courses for CENT Major and Minor – CDAE 166 and CDAE 267**

One particular faculty member in CDAE has taken the responsibility to teach two required courses offered to CENT majors and minors since 2005. This faculty member has deliberately designed the curricula for these two courses to connect them with each other. While many concepts are identical or similar in the two courses, they are taught at two different levels to provide students different experiences of entrepreneurship. Both CDAE 166 and CDAE 267 are offered every semester.

The Introduction to Community Entrepreneurship (CDAE 166) is a 3-credit survey course offered to all majors on campus. The instructor covers basic concepts and theories in CDAE 166 such as exploring opportunities in the market, organizational and management issues, accounting and finance framework, teamwork, ethics, legal issues, resource management, communication strategies for internal and external purposes, market and industry research, etc. We use *Dollar Enterprise* in CDAE 166 to provide an opportunity for students to go through the entrepreneurial venture process as a real life simulation on a smaller scale (this is described below). Students

range from first year to senior, and most are sophomores. There is no level restriction for students, and there is no pre-requisite for this course.

In Strategic Planning for Community Entrepreneurs (CDAE 267), however, students are guided to utilize all knowledge and information that they have learned in 3-4 years to actually construct working business plans for real entrepreneurs. This is the capstone course for the CENT majors who are seniors only, and CENT minors can also take this course if they are seniors. There are more challenging and demanding concepts for students to develop in this 4-credit course, such as intensive research, survey and interviews outside the classroom. At least 5 professional presentations are arranged for students to communicate with a non-academic audience, such as investors and vendors.

### **Introduction to Community Entrepreneurship (CDAE 166)**

The purpose of this course is to help students learn more about how and why people become entrepreneurial, how successful entrepreneurs make decisions, why entrepreneurs fail, career ideas, and existing situations in our society related to entrepreneurial issues by engaging students in reading, writing, discussion, and activities. The teaching team includes the instructor, guest speakers, and library support staff and it hopes to bring a broader understanding of entrepreneurship and the relationship between entrepreneurship and community development into every learner's heart and daily life in a safe, comfortable, and interactive learning environment.

The most unique activity in this course is "Dollar Enterprise". The objectives of Dollar Enterprise focus on designing practices and exercises for individuals to apply business knowledge and personal skills, such as:

- Utilize unwanted wastes to create value-added treasure.
- Build strong teamwork and work ethics.
- Exercise creative thinking.
- Enhance analytical skills from all business aspects.
- Engage in entrepreneurial process.
- Learn network and communication strategies.
- Contribute to community organizations.
- Have a lot of fun in learning.

The theme of Dollar Enterprise is to promote recycle, reuse, renew, and upcycle. Students are encouraged to utilize "unwanted wastes", modify the concepts of this "trash", and create new value added "treasure" for others. The instructor gives \$1 to each individual (11-12 dollars per team) as seed money. Dollar Enterprise covers the basics of the formation of a business in the real world including activities that allow students to develop ideas and teamwork, explore opportunities, identify niche products and services, generate resources, apply for permits and licenses, register business names, create coalitions and partnership, build community supports; and dealing with day-to-day operation, assessment, optimization and time management. The ultimate goal of Dollar Enterprise is to generate sufficient funds and support to create more

innovative mini new ventures at UVM that (1) utilize minimum resources to generate maximum positive impact for our society; and (2) lead students to learn entrepreneurship that combines business knowledge, critical thinking skills, sustainability, social responsibility and community development strategies.

This activity runs twice a year in each semester with 120 to 140 students in each semester who form 11 to 14 teams. It takes one month to help students complete all paperwork required by UVM and the business start-up more generally. Each team runs their business for 4 weeks (at least 3 hours every day from Monday through Friday) during the semester in various pre-reserved locations on campus only.

Weekly team reports and team member's assessments are completed and returned to the instructor at the end of each week during the operation period. At the end of the 3-week business activity, each team concludes with a business report, financial report, self assessment, and final team member assessment. Each team donates all proceeds to local charities and a Community Entrepreneurship Education fund that has been established to assist future students who are interested in becoming successful Community Entrepreneurs.

There are 12 steps in the Dollar Enterprise for each team to follow, and these 12 steps are taught in parallel to entrepreneurship theories and contents throughout the semester including Dollar Enterprise operation period:

- Brainstorm an idea.
- Finalize team members and identify market opportunity.
- Finalize and assess products and services.
- Identify resources and partnership.
- Formulate work routines.
- Prepare for an initial business plan and a business model.
- Establish rules for team assessment and self-assessment.
- Complete and continue weekly reports and team/individual reflections.
- Risk assessment and prepare for contingency.
- Prepare financial analysis.
- Prepare final business report, revision of the business plan, and final assessment/learning reflections.
- Arrange for donations to charity.

Since Spring 2005, Dollar Enterprise had worked with many Vermont organizations such as Sodexo at UVM, Shelburne Orchard, The Old Bread Bakery, Champlain Orchard, Cheese Trader, City Market of Burlington, Healthy Living, Hannaford Supermarket, Green Mountain Coffee, Lake Champlain Chocolate, Miguel Stowe Away restaurant and Klinger Bread. These community partners generously donated materials/ingredients or offered discounts to students who needed materials for their products.

To date, Dollar Enterprise has generated more than \$2,500 in the Community Entrepreneurship Education fund at UVM. Total donations to charities exceeded \$23,000. Agencies such as Make A Wish Foundation, American Red Cross, Chittenden County Humane Society, King Street Youth Center and other youth organizations, NOFA, Food Shelf, Grass Root Soccer, Women

Helping Battered Women, Greyhound Rescue, Breast Cancer Research, Homeless Shelter, and others have been beneficiaries of the program.

Table 2. Number of Students Participating in Dollar Enterprise

	Gender		Year			
	M	F	First Year	Sophomore	Junior	Senior
<b>2005</b>	88	87	14	61	45	53
<b>2006</b>	120	90	11	88	57	54
<b>2007*</b>	65	44	5	43	33	27
<b>2008</b>	101	108	6	86	64	50
<b>2009</b>	105	114	8	125	48	36
<b>2010</b>	109	112	25	100	56	38
<b>2011**</b>	59	78	14	88	20	11
<b>Total</b>	647	633	83	591	323	269

Note: \*This instructor only taught CDAE 166 in Spring 2007. Another instructor taught CDAE 166 in Fall 2007, but did not operate Dollar Enterprise. \*\*Spring 2011 is still in progress.

Through the years, the number of students in CDAE 166 has increased significantly. Often the instructor has to relocate the class to a large theater-style lecture hall to accommodate students. Students come from over 34 majors on campus, including Art, Engineering, Mathematics, Nutrient and Food Sciences, Microbiology, Education, Nursing, Business, Social Work, English, Sustainable Landscape, Soil and Plant Sciences, Theater, Music, Physical Education and Training, History, Chemistry, among others. This course has been voted as one of the most popular courses on campus, given its unique combination of theory, practices, and interactive learning. Over 2/3 of the students who have taken CDAE 166 are interested in starting their own business one day. However a few will decide not to start their own business in the near future, after they learn and experience the complexity of entrepreneurship process.

Table 3. Net Profits Donated to Entrepreneurship Education Foundation at UVM and Charity Organizations

Spring 2005	1140.82
Fall 2005	2384.18
Spring 2006	1261.65
Fall 2006	1923.89
Spring 2007	1648.10
Fall 2007	2090.00
Spring 2008	2000.00
Fall 2008	2192.40
Spring 2009	1930.03
Fall 2009	3257.00
Spring 2010	1985.70
Fall 2010	1944.46
Total	23758.23

**Strategic Planning for Community Entrepreneurs (CDAE 267)**

This course has been modified many times since August 1998 as the CENT major/minor evolved over time. It was taught by a team of 3 instructors between August 1998 and Fall 2000. In the Fall of 2000, one faculty member became the sole instructor of this course. After attending the national Rural Entrepreneurship Through Action Learning (REAL) Institute in Austin, Texas, in 2000, the instructor decided to implement the REAL curriculum and Service-Learning concepts in this course. This decision successfully promoted CDAE and UVM to become one of the few 4-year universities in the U.S. to adapt the REAL curriculum in teaching Entrepreneurship. The new structure of CDAE 267 included more hands-on activities to learn about entrepreneurship, more intensive research and communication training, more collaborative teamwork and team effort with community partners, more invited speakers and mentors from local communities to

guide student teams, and more connection with local organizations which serve and promote entrepreneurship (such as Small Business Development Center, bankers, etc.)

Students work in teams of 3-4 members in each team for the semester. The goal of CDAE 267 is to encourage independent learning, through the initiation and construction of a real business plan for the community entrepreneur. By the time students complete this course, they are expected to:

- Be able to adapt critical thinking to entrepreneurial activities.
- Understand the necessity of sound planning before embarking on a business venture.
- Have acquired specific skills and experience in gathering and analyzing data from primary and secondary sources as an independent entrepreneur.
- Be able to use computer packages to analyze data.
- Be able to write and assemble a business plan containing the principle elements needed by a banker or any investors to evaluate the potential success.
- Be confident to explain and defend their business ideas in front of a diverse audience throughout the semester.

The course structure consists of:

1. **Lectures**: There are lectures associated with various business concepts that entrepreneurs must understand in the planning process. From initiating an idea to constructing financial reports, all of the lectures are designed to apply the fundamental knowledge and skills learned from other courses in CENT. More importantly, the lectures emphasize creativity, motivation, and critical thinking; i.e., not only to show students how to apply knowledge, but also to provide opportunities to develop a decision making process which can be applied in any real enterprise situation.

2. **Library Research**: These scheduled sessions are conducted by library faculty members for exploring library resources that relate to market, industry, marketing, operation, management, and finance. These research sessions are designed to help students familiarize themselves with the information/data that can be obtained through various sources.

3. **Presentation**:

At least 5 presentations are scheduled throughout the semester. A specific topic of each presentation is assigned for student teams to share information in classes. Students are required to wear business attire for the presentation. The purposes of the presentation include:

- To practice personal and communication skills, using professional and constructive approach in front of the audience.
- To demonstrate creativity and innovation by sharing knowledge in entrepreneurship contents.
- To exchange ideas and information with peers.

4. **Business Plan: (at least 5 drafts, corresponding to the schedule of presentations)**

Students are required to put together a business plan for a real business. Many students initiate their own ideas given prior or existing business experiences. The instructor also connects students with real entrepreneurs who are seeking assistance to prepare for a business plan.

The following conditions must be followed:

- (1) Do not design a Bar or any generic eating and drinking establishments. Do not design a generic hotel, motel, Bed & Breakfast, or any other non-specific lodging establishment.
- (2) Each team must explain clearly why the business idea is innovative, creative, and exciting to every team member.
- (3) Franchises are forbidden.
- (4) Each team must use EXCEL to construct financial statements as original work.
- (5) Using professional consultants or commercial packages to design the business plans, to write the plans, or to collect any data, is not allowed.

**5. Weekly Journals:**

Each team is required to keep a team journal detailing dates, times, work activities and accomplishments relating to this course and your project. The instructor sometimes assigns specific topics for students to write about. The journal can also be used as a “reflection” of the course. All information in the journal is kept confidential.

**6. Weekly Team Meeting with the Instructor:**

Each team is required to meet with the instructor every week for at least 30 minutes. The meeting is to provide direct feedback to students regarding the process of the planning, teamwork, and expected outcomes for weekly performance.

This newly modified CDAE 267 was first taught in the Fall 2000 semester, and students responded extremely positively to the new format and new structure of the course. Students showed increasing interest in taking the course, more advanced critical thinking and linking with real world applications, improved creativity and knowledge levels in dealing with entrepreneurial concepts, and tremendous motivation to respond to challenges. Since 2000, more than 600 students have enrolled in CDAE 267. These students come from at least 4 different colleges (including CENT major and minor). Student teams have created more than 100 working business plans and many of the plans have led to successful new ventures.

Table 4. Number of Students in CDAE 267 by Gender

Semester	M	F	Semester	M	F
S2000	20	7	F2006	12	1
F2000	14	19	S2007	24	8
S2001	22	14	F2007	17	9
F2001	26	13	S2008	27	14
S2002	20	8	F2008	22	12
F2002	14	6	S2009	23	6
S2003	14	2	F2009	7	5
F2003	11	3	S2010	10	6
S2004	14	6	F2010	21	12
F2004	15	6	S2011	10	3
S2005	18	13			
F2005	13	3			
S2006	16	4			
			Grand Total	413	192

## Conclusions

Education is preparation for life. Entrepreneurship education is really no different from other types of education. Entrepreneurship is a process – a process begins with a dream, which can be further developed into an idea and a concept of a product/service depending on opportunity in the market, resource availability, and an entrepreneurial team. Can we really teach entrepreneurship? This has been a debatable question for many researchers and experts who hold various perceptions about what entrepreneurship is or should be. The more appropriate question is: “what can we do to assist those people who are seeking information about what to do, when they believe that they have the greatest ideas in the world?”

There are many dimensions of entrepreneurship education that we can discuss: to develop individual’s capacity in entrepreneurial activities, to teach specific skills and knowledge about new venture creation and operation; to provide guidance and technical support in business planning; and to provide a nurturing environment where entrepreneurs are well supported. There are tremendous opportunities for the College of Agriculture to prepare students to live a satisfied and productive life in school and after graduation. This paper has provided a sample road map for others to consider how to lead students thinking “outside the box.” Educators often define the “learning objectives” and the “learning box” for students. It is simply because we were all educated from a very conventional model – observe, listen, take notes, read, exam, and learning

shell occur automatically. We are facing a new generation of learners who are very familiar with technology, who demand quick responses and learning feedback, who are willing to multitask even though they might not manage time well, and who are more interested in outcome-based learning style. Entrepreneurship education can occur anywhere in any courses. We just need to know what we need to do - how we prepare the curriculum that will be effective and level-appropriate for different types of learners. When educators become entrepreneurial teachers and we can think outside the box, entrepreneurship education will occur.

## References

Bygrave, W., D'Heully, D., McMullen, M., & Taylor, N. (1996). TOWARD A NOT-FOR-PROFIT ANALYTICAL FRAMEWORK, *Frontiers of Entrepreneurship Research*, Retrieved on April 30, 2011 from <http://www.babson.edu/entrep/fer/papers96/bygrave/bygrave2.htm>

Dewey, J. (1997). *Experience & Education*, first Touchstone edition, Touchstone, Rockefeller Center, NY, USA.

Katz, J. (2003). The Chronology and Intellectual Trajectory of American Entrepreneurship Education, *Journal of Business Venturing*, Vol. 18, pp. 283-300.

Kourilsky, M. (1995). *Entrepreneurship Education: Opportunity in Search of Curriculum*, Kauffman Center for Entrepreneurial Leadership at the Ewing Marion Kauffman Foundation, Kansas City, MO.

Kuratko, D. (2004). *Entrepreneurship Education in the 21st Century: From Legitimization to Leadership*,

Kuratko, D. (2005). The Emergence of Entrepreneurship Education: Development, Trends, and Challenges, *Entrepreneurship Theory and Practice*, Vol. 29, Issue 5, pp. 577-598.

Liang, C. & Dunn, P. (2007). Triggers of New Venture Creation: A Comparison Between Pre-Business and In-Business Entrepreneurs. *Academy of Entrepreneurship Journal*. Vol. 13, No. 1, pp 79-88.

Liang, C. (2009). *Dollar Enterprise – From Theory to Reality*, Kendall Hunt Publishing Company, USA. ISBN 978-0-7575-6398-0

Liang, C. & Dunn, P. (2010). Examining Four Dimensions of Entrepreneurs' Perceptions on Spouses' Reactions to New Venture Creation – Realistic Optimism, Pessimism, Other Entrepreneurial Characteristics, and Expectations, *Journal of Business and Entrepreneurship*, Vol 22, No. 2, pp 75-95.

Solomon, G., Duffy, S., & Tarabishy, A. (2002). The state of entrepreneurship education in the United States: A nationwide survey and analysis. *International Journal of Entrepreneurship Education*, 1(1), 65-86.

Solomon, G. (2007). An examination of entrepreneurship education in the United States. *Journal of Small Business and Enterprise Development*, 14(2), 168-182.

Timmons, J. (1978). Characteristics and Role Demands of Entrepreneurship. *American Journal of Small Business*, 3(1), 5-17.