Entrepreneurs in Action!:
An On-line Cross-discipline Problem-based Learning Environment for Entrepreneurship

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Introduction

Many of the more aggressive colleges/universities across the country are engaging in some form of course work and/or experiences related to entrepreneurship education. Most of these efforts can be found either in the School of Business or the School of Engineering. Some schools offer one course in Entrepreneurship in order to acquaint students with the general field of entrepreneurship. Other schools may offer one or two more courses to further enhance the student's understanding of entrepreneurship. Still other colleges and universities offer a complete four-year degree program and/or master's degree or doctorate. Still, the vast majority of schools offer little or nothing to teach students about self-employment, creative thinking, and the process of generating new and creative ideas for opportunity development.

There are at least two general underlying assumptions about entrepreneurship education. Some schools, especially some schools of business, assume that entrepreneurship cannot be taught. To them, it is an inborn skill that is derived from your gene base. In these types of schools, students appear to be already either starting a company or have entrepreneurship tendencies. These schools emphasize more about how to develop a business venture and seek venture capitalists for funding. Corporate buy-outs are also an important feature of this approach. Generally speaking, some of these programs teach more about how to manage and develop a corporate environment than they do to seek new and different opportunities. Usually, these programs are single discipline focused.

In programs associated with schools of engineering, students are more frequently involved in innovation than they are in true entrepreneurship. The schools of engineering are usually great at teaching the technical concepts related to disciplines but frequently do not have courses that cut across technical subject areas, thus combining multiple subjects simultaneously. While there is a trend among schools of engineering to introduce selective courses that introduce entrepreneurship into the curriculum, it is usually taught as an entity within itself and does not involve cross-discipline activities.

The second approach is centered on the general concept that all students can learn, to some extent, to be creative and entrepreneurial. The focus of this approach is to be broad based, to take a cross-discipline approach, to be focused on seeing opportunities

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that others do not see and to stress self-fulfillment. The general theme is to create a job and not take a job. Much of our academic learning is based on a system of compliance and heavy structure. Thus, there is very little room for creative thinking and entrepreneurial development in this kind of structured learning environment. It is our assumption that students can be encouraged to think creatively and entrepreneurially in a cross-discipline, problem-based learning environment. Tennessee Technological University (TTU) and Vanderbilt University (VU) are involved in a research project to develop an on-line course that will use principles of the ***Entrepreneurs in Action!*** research project as its theoretical framework.

Entrepreneurs in Action! Model

A team of researchers has been working at Vanderbilt University for the past four years on a teaching strategy called ***Entrepreneurs in Action!*** The overriding assumption in this research has been that students in all disciplines can think creatively and entrepreneurially if given the opportunity to do so and if the concepts and ideas are hooked (connected) to their framework of learning. Therefore, the whole-part-whole teaching model has been researched and developed, and the program has been implemented in selected sites across the country including Schenectady, NY; Mandeville, LA; Los Lunas, NM: Hendersonville, TN; Murfreesboro, TN; and at Vanderbilt University in Nashville, TN. The approach involves identifying unique and different opportunities of interest to students in a local community and to teach students how to take that opportunity and develop it into a business venture. The process involves a cross-discipline approach, local problems of interest to students and the local community, online experts in the community, and local media support. The following description summarizes the ***Entrepreneurs in Action!*** process.

Over the years our work has been based on a set of assumptions about how people learn and how schools prepare students to live in the real world. Our assumptions have been that most of traditional schooling in America is built around systems of compliance and control. This approach tends to stifle students' creative and entrepreneurial instincts. Our research has been exploring a different approach to education, one that involves capturing the interest of the student through the use of problem and project based instruction delivered via the Internet. We have chosen to call our program ***Entrepreneurs in Action!*** This program seeks to involve students in an entrepreneurial problem at the outset and to promote learning of traditional subject areas as a part of the problem-solving activities that are undertaken. This strategy is designed to teach students to think entrepreneurially by the use of local cases and/or scenarios. Unlike many curriculum strategies that teach conformity, structured learning and unrelated learning, our strategies support creative and entrepreneurial thinking across the curriculum.

We emphasize the whole-part-whole instructional strategy that we have developed in our research. We provide a situation where students see the entire picture

of the opportunity, break the opportunity into parts and then move back to a new whole as developed from his or her own research regarding the opportunity.

This approach involves seeing the big picture first, breaking it into parts (instructional units) and then putting it back together again into a new whole (See Figure 1).

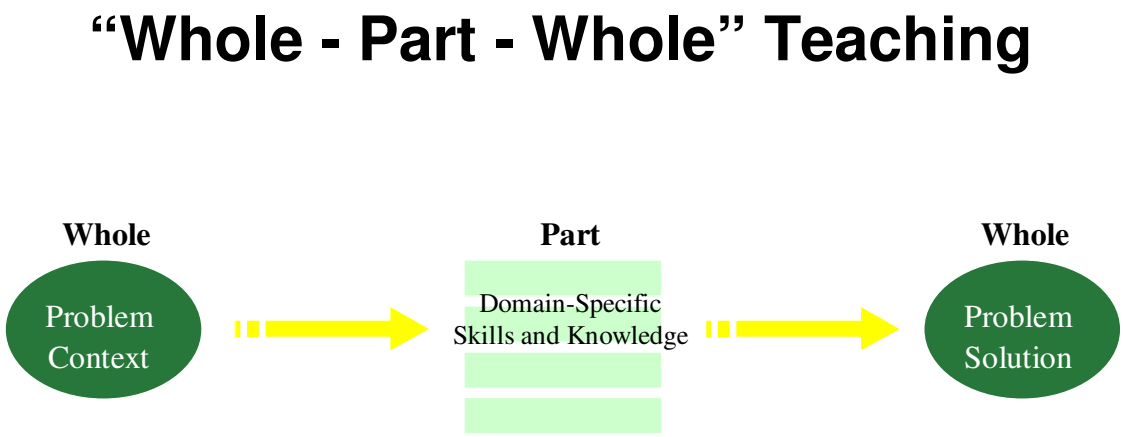
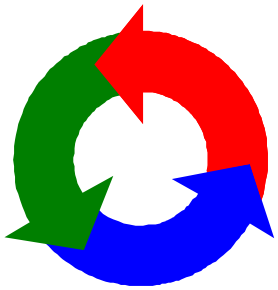


Figure 1

This instructional design supports the Clouse theory where the concept being taught is connected (hooked) to the framework of the learner. Students learn and then apply new knowledge in situations that will reinforce their learning. Termed "recursive design," this strategy supports long-term learning of important concepts versus short-term memorization learning (See Figure 2).



Recursive Design
Learn and Apply
Figure 2

In addition to using our whole-part-whole concept and a recursive design, we also use just-in-time learning techniques from local community entrepreneurs. By presenting

curricular content just at the moment when the need for it arises, this feature addresses the issue of maintaining the relevance of the content being learned.

In general, this means that the students are given an opportunity to respond to a case developed for a local community. Students are given the opportunity to think creatively about the entrepreneurial use of the case. When students want more information about an issue, they are able to e-mail their questions to local on-line experts. Experts and entrepreneurs are selected from the local environment to provide expert information just at the time the students need to learn such information. This is what we call "learning the parts." Once the students have the information they need, they then put together a new entrepreneurial "whole" for the case. Students are required to develop an entrepreneurial approach to the case and find ways to implement the entrepreneurial activity.

Project Objectives

The overall objective of this research project is to develop an on-line in Entrepreneurship course that would build on the infrastructure already in use at Tennessee Technological University. The course would first be tested on the Entrepreneurs in Action web site at Vanderbilt University and moved later to the TTU system.

The specific objectives of this research would be as follows: 1) develop a cross-discipline on-line course in entrepreneurship that could be shared with other universities; 2) to develop a series of problem-based learning experiences utilizing the ***Entrepreneurs in Action!*** case development pedagogy to teach entrepreneurship concepts across disciplines; 3) to generate new and creative ideas concerning new product development and new venture development; 4) to connect the learning experiences with the framework of the learner and when possible, to develop cross-state opportunities; and 5) to develop an instructor's manual for university professors to learn to use this methodology.

This presentation will report on our progress during the spring semester 2004.
Our first on-line case is related to the field of Energy. The case under development proposes a real live problem based learning environment associated with the need for energy in the future and is based on the power grid problem that caused a black out in a major portion of eastern United States. The problem solving case will investigate the technical, social, political, and economic issues related to energy sources in the future of the world. Students will develop cross discipline solutions including several engineering fields, marketing, entrepreneurship, and human and organizational development, and business. We will test our case in at least four different Universities—Tennessee Technology University, Cookeville, TN, Vanderbilt University, Nashville, TN, Francis Marian University, Florence, SC, and Tennessee Wesleyan College, Athens, TN. We seek the advice of others at the conference concerning our approach and new ideas.

The theories and concepts in support of our work are further explored in the following References.

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