International Journal of Entrepreneurship Education 1(2)

The Impact of Entrepreneurship Education on Entrepreneurial Self-Efficacy

Larry W. Cox
Kauffman Center for Entrepreneurial Leadership

Stephen L. Mueller
Texas Christian University

Sherry E. Moss
Florida International University

Abstract This exploratory study was undertaken to assess the effect of an introductory entrepreneurship course on the level of entrepreneurial self-efficacy among undergraduate business students enrolled in the course. While enhancing entrepreneurial self-efficacy was not the explicit purpose of the course, its syllabus included activities that theoretically should have done so. Furthermore, an implied objective of all entrepreneurship education at the college level is the production of more (and more skillful) entrepreneurs (Ronstadt, 1985). The study compared students who had not yet begun the course (pre-course group) with those who had completed the course (post-course group). Controlling for age, gender, business major, and ethnicity, major findings were mixed. Overall, entrepreneurial self-efficacy was lower among the post-course group than the pre-course group. This result suggests that a course containing efficacy-enhancing elements, but intended primarily to build awareness and understanding of entrepreneurship among students with little or no prior exposure to the subject, may actually decrease self-efficacy. However, differences in self-efficacy between the pre-course and post-course groups did vary by major.

A possible conclusion is that introductory entrepreneurship courses designed to build awareness and understanding, but containing efficacy-enhancing elements, can be expected to deflate the bravado of over-confident college students. Thus enhanced self-efficacy may not be an appropriate goal. On the other hand, this study indicates the need to build more intensive self-efficacy-building experiences into the typical introductory entrepreneurship course.

Keywords: entrepreneurship education, management education, entrepreneurial self-efficacy, self-efficacy.

1. Introduction

The number of entrepreneurship education programs offered at American universities has increased dramatically over the last several decades. Robinson and Haynes reported in 1991 that 81.5% of the 232 universities they surveyed offer at least one course in entrepreneurship (Robinson & Haynes, 1991). In a

similar study, Solomon and Fernald reported that between 1979 and 1986 the number of collegiate entrepreneurship courses increased 428% at the 300+ four-year colleges and universities responding to their questionnaire (Solomon & Fernald, 1991).

What is driving this phenomenal increase in entrepreneurship education programs at American universities over the past three decades? Several factors are at work. First, many business educators are promoting entrepreneurship instruction at the undergraduate level under the premise that increasing the number of people with sufficient knowledge to consider entrepreneurship as a career alternative will have a significant positive impact on economic development (Curran & Stanworth, 1989, p. 17). A second factor driving the increase in entrepreneurship programs is the growing demand by business students who believe that business ownership is a viable and preferable career option.

The proposition that entrepreneurship education leads to an increase in new venture foundings has intuitive appeal. However, much of the entrepreneurship research to date has not provided empirical support for the claim that completion of formal courses in entrepreneurship and small business management increases the likelihood that an individual will start a business. Part of the reason for this lack of support can be attributed to problems with the design of the studies and the methodology employed. For example, in their review of entrepreneurship education research, Block and Stumpf concluded that outcome measures used in many studies, such as student satisfaction, student performance in the course, and student attitudes about the course content and activities, are insufficient indicators of educational effectiveness. They were also critical that no researcher had compared their results to a control group, such as those who have not had any formal entrepreneurial education experience (Block & Stumpf, 1992). Other researchers have argued that most of the empirical studies to date have used participants with some existing predisposition toward entrepreneurship thereby biasing the results in favor of educational interventions (Gorman, Hanlon, & King, 1997). Finally, given the significant amount of time and number of events that intercede between the completion of a collegiate entrepreneurship course and the launch of a new business, it is unlikely that even a comprehensive longitudinal study would detect a "cause-and-effect" relationship between entrepreneurship education and new business formation.

Notwithstanding the limited documentation on the effectiveness of existing programs, the rise in popularity of entrepreneurship at the university level has challenged business educators to develop appropriate curriculum. This demand-driven need for new courses has spurred debate among entrepreneurship educators on the appropriate pedagogy for entrepreneurship and small business management instruction (e.g., Bunch, 1995; Davis & McEacharn, 1995; Hillis & Morris, 1995; Krueger & Hamilton, 1995;

Martello, 1995; McMullan & Long, 1987; Relf, 1995). To help clarify these curricular issues, a few empirical investigations have been undertaken to assess the extent and nature of existing university-level entrepreneurship programs (e.g., Hills, 1988; Robinson & Haynes, 1991; Solomon & Fernald, 1991; Vesper, 1986, 1993; Zeithaml & Rice, 1987). Other studies have examined the effectiveness of particular teaching techniques or course contents (e.g., Cullen & Dick, 1989; Gartner & Vesper, 1994; Hills, 1988; Sexton & Bowman, 1987, 1988).

As part of this pedagogy debate, undergraduate courses in entrepreneurship, particularly introductory courses, have come under scrutiny with respect to content. Undergraduate students are typically younger and less experienced than graduate students. As a result, students enrolled in undergraduate entrepreneurship courses are largely naive regarding entrepreneurial processes and are at a time in their lives where starting a business venture is unlikely. Therefore these courses are designed to introduce students to the general issues involved in starting a new venture and do not provide the rigorous training needed by individuals whose foray into small business ownership is more imminent (Curran & Stanworth, 1989). Evaluation of course effectiveness is thus more problematic since the results (i.e. actual new venture foundings) may be years away.

Given the long-term nature of the ultimate goal of educational intervention and the increasing presence of entrepreneurship courses in undergraduate curricula, there is a need to evaluate the impact of an entrepreneurship course at or near the time the course is completed rather than years later. But several questions must first be answered. For example, what are the relevant education outcome variables? And once identified, to what extent do these variables predict entrepreneurial behavior? This study is part of an effort to develop an appropriate theoretical framework within which the potential effectiveness of entrepreneurial program content can be evaluated.

2. Entrepreneurial Self-Efficacy

The concept of self-efficacy is derived from social learning theory and refers to a person's belief in his or her capability to perform a particular task (Bandura, 1977). More specifically, self-efficacy has been defined as "…belief in one's capabilities to mobilize the motivation, cognitive resources, and courses of action needed to meet given situational demands…" (Wood & Bandura, 1989a, p. 408). Self-efficacy is based upon past experience and anticipation of future obstacles, and affects a person's beliefs about whether or not specific goals are attainable (Gist & Mitchell, 1992). Moreover, it influences choice, effort and perseverance. If self-efficacy is low, an individual

will not act, even if there is a perceived social demand for that behavior (Boyd & Vozikis, 1994).

According to Bandura, individuals develop and strengthen beliefs about their ability to perform certain tasks in four ways: (1) mastery experiences; (2) modeling; (3) social persuasion; and (4) judgments of their own physiological states (Bandura, 1982; Wood & Bandura, 1989). The first of these four sources of self-efficacy beliefs, *mastery experiences*, is considered to be the most powerful of the four in shaping one's perception about success in performing a particular task. Mastery of a task results from repeated performance of that task. Sometimes referred to as learning by doing, mastery experiences form the basis of confidence in one's ability to successfully perform such tasks in the future.

The second source of self-efficacy beliefs is *modeling*. Although considered less effective than mastery experiences, role modeling can provide vicarious experience through observation and affects self-efficacy through a social comparison process (Wood & Bandura, 1989). In other words, people form judgments of their own capabilities by comparing themselves to others. Self-efficacy is enhanced when there are perceived similarities between subject and role model in terms of personal characteristics and capabilities and when the modeled behavior produces obvious consequences or results (Gist, 1987; Bandura, 1977).

The third source of self-efficacy beliefs is *social persuasion*. Feedback and encouragement from others is often used to validate one's ability to perform a task. Thus when people receive positive feedback and realistic encouragement, self-efficacy is enhanced (Gist & Mitchell, 1992).

Finally, in assessing personal capabilities, people often rely on their perception of their *physiological state*. Such factors as general physical condition, personality factors, and mood may affect self-efficacy by influencing the arousal a person experiences when confronted with a task. For example, anxiety about performing a particular task may in itself contribute to the likelihood of failure (Gist & Mitchell, 1992).

The concept of self-efficacy has been extensively researched in other social science disciplines, but only recently extended to management science and entrepreneurship (Boyd & Vozikis, 1994; Krueger & Brazeal, 1994; Scherer et al. 1989). Several entrepreneurship theorists have proposed that self-efficacy plays an instrumental role in the new venture creation process. Boyd and Vozikis (1994) for example, proposed that self-efficacy influences the development of entrepreneurial intentions and hence the probability of venture creation. They argue that the intention to start a venture is formed in part by the perception of outcome anticipated – success or failure. In other words, few people form intentions about engaging in entrepreneurial activities if they believe there is a high probability of failure. By extension, a person will form the intent to create a new venture or act upon an existing entrepreneurial

intention only when self-efficacy is high relative to the perceived requirements of a specific opportunity (Boyd and Vozikis, 1994).

3. Entrepreneurial Self-Efficacy and Education

As noted above, entrepreneurial self-efficacy is the product of task mastery, role modeling, verbal persuasion, and judgments regarding physiological states (Bandura, 1982; Wood & Bandura, 1989b). Self-efficacy develops over time and is influenced by a number of external and internal factors such as upbringing, economic circumstances, personality and values. A comprehensive model of entrepreneurial self-efficacy, including its antecedents, behavioral consequences and interactions with other personal attributes, was recently developed by Boyd and Vozikis (1994). An adapted version of their model that includes the effect of education is shown as Figure 1.

Within this framework, an effective entrepreneurship course (serving as the education intervention) should increase the student's level of entrepreneurial self-efficacy by providing (1) opportunities for mastery experiences, (2) exposure to appropriate role models and (3) feedback and encouragement from others. A course designed to enhance self-efficacy should therefore include or approximate these elements through learning activities appropriate for an undergraduate introductory entrepreneurship course. These activities typically include business plan writing, entrepreneurs as guest speakers, readings and cases (Gartner & Vesper, 1994). The requirement that each student assist in the development of a high-quality, original business plan serves as a proxy for the more powerful mastery experience of starting one's own business. Exposure to successful entrepreneurs in person and vicariously through the analysis of case studies, provides modeling and observational learning. In-class discussions and graded assignments contribute to social persuasion.

In general, we would expect that entrepreneurship courses designed with self-efficacy as a guiding principle would likely lead to increased levels of entrepreneurial self-efficacy among students successfully completing such courses (Gorman, Hanlon, & King, 1997). However, few existing introductory courses explicitly or implicitly use self-efficacy as a guiding design principle or learning objective. More often these courses are intended to simply increase awareness and understanding of entrepreneurship and the new venture creation process among students with little or no prior experience or exposure to entrepreneurs. Enhancing entrepreneurial self-efficacy may not be the expressed purpose of these introductory courses in entrepreneurship but syllabi typically include activities which, according to our theoretical model, should enhance self-efficacy. Furthermore, an implied objective of all

entrepreneurship education at the college level is the production of more (and more skillful) entrepreneurs (Ronstadt, 1985).

The purpose of our study is to provide some empirical evidence as to the nature of the relationship between exposure to introductory courses in entrepreneurship and entrepreneurial self-efficacy.

4. Method

4.1. Subjects

Seven hundred thirteen students enrolled in an undergraduate entrepreneurship course at a large, urban university in the Southeast voluntarily responded to a questionnaire administered during class time. Ages ranged from 17 to 52 years with an average of 24 years. Fifty percent were female and 50% were male. Nineteen percent of the subjects were White, non-Hispanic; 58% were Hispanic; 7% were Black, non-Hispanic; and 7% were Asian or Pacific Islander. Eighty-eight percent of the respondents were juniors or seniors.

4.2. The Education Intervention

The entrepreneurship course providing the setting for this study was a required part of the business curriculum at this southeastern university. The course was comprised of a weekly lecture session taught by a tenured or tenure-track professor and a weekly "lab" session facilitated by an adjunct instructor from the local business community. During a typical semester, three professors lectured to five large sections (80–160 students), while the lab instructors guided the students through the development of a formal business plan and the analysis of several case studies in a small group setting.

Despite some style differences in professors and lab instructors delivering the course, all sections were consistent with respect to learning objectives, pedagogy and textbook materials. The syllabus included a semester long business plan writing project, practicing entrepreneurs as guest speakers and case analysis. The expressed goals were to (a) build awareness and understanding of the new venture creation process and (b) provide experiential work.

4.3. Quasi-Experimental Design

Over two consecutive semesters during 1998-1999, students enrolled in several sections of the entrepreneurship course were separated into two groups. Students in the first group (identified as "pre-course") were asked to respond

to a questionnaire on the first day of the entrepreneurship class before any course content was delivered. Students in the second group (identified as "post-course") were asked to respond to the same questionnaire during the last week of the semester-long course. This particular experimental design was chosen to minimize testing and maturation effects (Cook & Campbell, 1979). In our study, testing and maturation effects could potentially be manifested by students motivated to "please the professor" and indicating a higher entrepreneurial self-efficacy after the class than before.

4.4. Measures

Entrepreneurial self-efficacy. The instrument used to measure entrepreneurial self-efficacy was adopted from Lee and Bobko (1994). Their approach allows the researcher to ask respondents about any target behavior of interest. In our study, "starting a new business venture" was utilized as the target behavior. The instrument asks the respondent to self-assess his/her ability to perform the necessary tasks at ten specific levels (e.g. 10%, 20%, ... 100% of the necessary tasks) by indicating a "yes" or "no" for each level. The respondent is then asked to indicate degree of confidence in that response (measured on a continuous scale ranging from 0 "not confident" to 10 "completely confident"). The first measures self-efficacy "magnitude", while the second measures self-efficacy "strength." Lee and Bobko evaluated several different methods of calculating self-efficacy including magnitude only, strength only and two different types of composite measures. The composite measure which sums the confidence ratings (strength) across only those items to which subjects answered "yes" (magnitude) was determined to be psychometrically superior. Following Lee & Bobko, we used the composite score as a single measure of entrepreneurial self-efficacy (See Appendix A for a sample of the self-efficacy scale used in this study).

5. Results

Multivariant regression analysis was used to test the effect of various factors on entrepreneurship self-efficacy including the effect of exposure to the entrepreneurship course. Several regression models were tested with pre-course vs. post-course representing the independent variable, entrepreneurial self-efficacy as the dependent variable, and age, gender, ethnicity and major as covariates. Results for the entire sample are shown in the first column of Table 1. Controlling for age and gender, the sign of the pre/post dummy variable was negative and statistically significant indicating that students in the post-course group had lower entrepreneurial self-efficacy than those in the pre-course

group. With respect to the control variables, age had a positive effect on ESE supporting the notion that self-efficacy increases with age and experience. The effect of gender, on the other hand, was not statistically significant indicating that there was little or no difference in the level of ESE between male and female students in the sample.

To determine whether race or ethnicity moderates the affect of the education intervention on ESE, the sample was divided into ethnic/racial groups (See Table 1). For all ethnic/racial groups, the coefficient of the pre/post dummy variable was not statistically significant. This result suggests that race or ethnicity did not play a role in determining the effect (if any) of the education intervention on ESE.

Table 1: Regression Analysis Results by Ethnicity

	All Students N = 650	White Students N = 131	Hispanic Students N = 400	Black Students N = 46	Other Students N = 73
Intercept	47.107*** (6.372)	37.072** (12.102)	52.128*** (8.636)	73.813 (27.409)	29.013 (22.499)
Age	0.798*** (0.227)	1.218** (0.411)	0.627* (0.318)	-0.112 (0.845)	1.182 (0.803)
Gender (male=1, female=0)	-1.853 (2.054)	-2.061 (4.439)	-2.447 (2.597)	-2.204 (8.478)	2.932 (6.652)
Pre/Post (Post=1, Pre=0)	-5.009** (2.145)	-8.532† (4.836)	-4.912† (2.672)	-7.418 (8.783)	-0.148 (7.232)
R-Squared	.03	.07	.02	.02	.03
† p < .10 * p < .05 ** p < .01 ***p < .001	Std error in parenthesis				

Although entrepreneurial self-efficacy was lower overall for the post-course group than for the pre-course group, the data suggest the possibility of an interaction between course intervention and the subject's business major. To determine whether the student's major moderates the effect of the education intervention on entrepreneurial self-efficacy, additional analyses were performed. First, the sample was subdivided by major and ESE mean values for each major computed and tabulated (See Table 2). Regression analysis was then performed on each subsample to determine differences in

Table 2: Regression Analysis Results by Business Major

	Acct'ing Majors N = 128	Finance Majors N = 145	Int'l Bus. Majors N = 71	Mgmt Majors N = 141	Mkting Majors N = 94	MIS Majors N = 52
Intercept	42.992*** (12.320)	67.218*** (13.433)	29.072 (21.815)	39.053** (13.196)	83.542*** (21.059)	63.750* (24.839)
Age	1.148** (0.404)	0.304 (0.474)	0.546 (0.822)	0.793 (0.486)	-0.452 (0.820)	0.510 (0.743)
Gender (male=1, female=0)	–0.038 (4.376)	–7.537† (4.154)	7.379 (6.354)	4.697 (4.637)	–9.389† (5.643)	–5.782 (7.859)
Pre/Post (Post=1, Pre=0)	– 16.711*** (4.355)	2.019 (4.222)	11.805† (6.566)	–6.856 (4.898)	-6.377 (6.245)	–17.326* (7.297)
R-Squared	.14	.03	.07	.03	.05	.12

† p < .10
* p < .05
** p < .01
***p < .001

ESE between the pre- and post-course groups for each major. Regression analysis results are presented in Table 3.

Controlling for age and gender, regression results presented in Table 3 indicate that accounting majors in the pre-course group had significantly higher entrepreneurial self-efficacy than accounting majors in the post-course group. Likewise, MIS majors in the pre-course group had significantly higher entrepreneurial self-efficacy than MIS majors in the post-course group. In contrast, IB majors in the post-course group had slightly higher entrepreneurial self-efficacy than those in the pre-course group ($p < .10$). However, there were no statistically significant differences in entrepreneurial self-efficacy between the pre-course and the post-course groups for the other three majors, namely management, marketing and finance.

6. Discussions

In theory, entrepreneurship courses containing efficacy-enhancing exercises should increase the level of self-efficacy among nascent entrepreneurs. In this study we found that entrepreneurial self-efficacy was lower among students in the post-course group compared to the pre-course group suggesting that exposure to an introductory entrepreneurship course may actually decrease self-efficacy. However, the change in self-efficacy level depends on business

major. The post-course majors in accounting and MIS had a significantly lower level of entrepreneurial self-efficacy compared to the pre-course control group, while the post-course international business majors showed a slight and marginally significant higher level of entrepreneurial self-efficacy. On the other hand, there was no significant difference in entrepreneurial self-efficacy between the pre- and post-course majors in finance, management, and marketing.

Table 3: ESE Means

	Pre-Course		Post-Course	
Major	**N**	**Entrepreneurial Self-Efficacy**	N	**Entrepreneurial Self-Efficacy**
Accounting	79	70.24	51	55.19
Finance	87	64.21	63	65.62
Int'l Business	44	53.09	27	65.58
Management	89	64.19	56	59.49
Marketing	69	58.64	28	52.21
M.I.S.	26	67.10	29	50.16

There are several plausible explanations as to why entrepreneurial self-efficacy may decrease after exposure to an introductory course in entrepreneurship. First, some students simply do not perform as well as they had expected – most notably in the preparation of a written business plan – and therefore lose confidence in their ability to rise above the difficulties presented by venture creation. Second, the course is so difficult and the grades so adamantine that by the end of the semester, student perceptions are significantly deflated. And third, the increased anxiety levels commonly experienced by students at the end of an arduous semester produce generally lower efficacy levels than those reported at the beginning of the semester when students are presumably less stressed.

Future studies may be able to shed light on these issues, however none of the explanations offered above is entirely satisfactory given the variation across majors. It is improbable that any particular major simply outperformed the others, especially since students were randomly assigned to business plan teams (a major course component) or assigned in such a way as to maximize team diversity. Nor is there any evidence that some majors received better or worse grades or experienced more or less anxiety at term end.

A more compelling argument is that students who increased (or decreased) in entrepreneurial self-efficacy entered the focal entrepreneurship course with inaccurate perceptions regarding the magnitude of the task and/or their ability to launch a new venture. Gist and Mitchell (1992) state that the more novel the given task (i.e., the less experienced the individual), and the less stable the personal and task characteristics (i.e., the more that changes over time), the greater the possibility that efficacy judgments will be inaccurate. Presumably, few students started their own businesses prior to taking this course, and, as pointed out by Gartner and Vesper (1994), the basics of entrepreneurship are "fundamentally different" (p. 183) than the basics in any other business class. Furthermore, their personal and environmental contexts will most likely change dramatically before these students are ready to start their own companies. No doubt many students had a fallacious view of what it takes to start a business prior to enrolling in this course. Exposure to the realities of entrepreneurship may have caused these students to re-adjust their entrepreneurial self-efficacy to a more appropriate level (Cervone, 1985; Gist & Mitchell, 1992).

Decreases in entrepreneurial self-efficacy may have been the result of over-inflated perceptions on the part of accounting and MIS majors coming into the course. Accounting and MIS are arguably more technically-oriented than the other curricular offerings in the business college and by student accounts more challenging. In addition, they may be the least likely to consider start-up issues in their course content. Consequently, students majoring in accounting or MIS might have had less knowledge of the peculiar exigencies of venture creation than the other majors. Further, their self-assessments regarding new venture creation may have been artificially high due to vestigial self-confidence created by success in previously completed (and strenuous) accounting/MIS courses (Boyd & Vozikis, 1994). In other words, a heightened sense of "accounting self-efficacy" or "MIS self-efficacy" may have been carried over and applied to the area of entrepreneurship (Bandura, 1997).

Another possibility is that the accounting and MIS majors differed from the other students in terms of personal traits. While a large literature exists comparing business majors to non-business majors with regard to ethical standards (e.g., O'clock & Okleshen, 1993; Stewart, Felicetti, & Kuehn, 1996), there are no known studies comparing majors within the business college to each other on any dimension. Consequently, there is no theoretical or empirical basis for speculating that differences in self-efficacy across business majors was the product of personality similarities within the majors.

The finding that entrepreneurial self-efficacy is higher among international business majors in the post-course group is contrary to the above arguments. Anecdotal evidence suggests that the IB majors in this study are also disproportionately foreign students leading to conjecture that IB students have entered the entrepreneurship course with inordinately low entrepreneurial

self-efficacy given their unfamiliarity with the U.S. economic system, its institutions, laws and venture creation processes. Thus in the case of foreign students, an entrepreneurship class demystifies the complexities of venture creation in the U.S. and thereby corrects the unduly negative view IB majors held regarding their entrepreneurial capabilities. This also assumes that while several factors (i.e., age, year in school, gender and ethnicity) were statistically controlled in the regression analysis, it was not possible to eliminate all of the cognitive and emotional properties that go along with being a member of a particular gender or racial/ethnic group.

For three of the majors (management, marketing, and finance) there was no significant difference in level of entrepreneurial self-efficacy between the pre-course and the post-course samples. This result may be due to two factors: (a) the more realistic perceptions regarding new venture creation held by management, marketing, and finance majors and/or (b) the inherent limitations involved in teaching entrepreneurship in a classroom setting. Management, marketing and finance students are more likely than accounting, IB, or MIS student to be exposed to new venture issues as a part of their normal coursework. For example, instruction regarding how to perform market research or penetrate new markets (important topics to both the marketing and entrepreneurship curricula) undoubtedly resembles the course content presented in the entrepreneurship class. Thus, marketing, management and finance majors were more likely to be familiar with the tasks surrounding venture creation than accounting, IB and MIS majors, and may have formulated levels of entrepreneurial self-efficacy appropriate to their degree of expertise prior to the class.

An alternative interpretation of these general findings (i.e., decrease in self-efficacy) is that classroom instruction has limited utility in increasing self-efficacy levels. According to Boyd and Vozikis, "the most effective way for individuals to develop a strong sense of self-efficacy is through mastery experiences or repeated performance accomplishments" (Boyd & Vozikis, 1994 p. 67). Obviously, the preparation of an original business plan, even an excellent plan, is not the same as actually starting one's own business. In lieu of an effective mastery experience, all that remains is observational learning through role models and persuasive discussions with instructors. Role models are salient to entrepreneurship students only to the extent that "there is a perceived similarity between the [student] and the model in terms of personal characteristics and capabilities and when the modeled behavior produces obvious consequences or results" (p. 67). In other words, if entrepreneurship students are not able to identify with guest speakers, the impact of this classroom activity on self-efficacy is minimized. Similarly, the use of "social persuasion" on the part of the entrepreneurship instructor is contingent upon the instructor's credibility, expertise, trustworthiness and prestige (Bandura, 1977). In sum, the educational intervention in this case may not have been

strong enough to boost entrepreneurial self-efficacy beyond levels appropriate for average undergraduate business majors. Real gains in entrepreneurial self-efficacy may require skill-based instruction with salient mastery experiences built in.

7. Conclusions

Ronstadt asserts that entrepreneurship education will produce more and better entrepreneurs. However, he acknowledges that a small minority of future entrepreneurs who attend college decide while they are undergraduates that they will in fact pursue entrepreneurship as a career option. He concludes that "…unless [entrepreneurship] courses are required or other required courses are entrepreneurialized, most future entrepreneurs will not be educated entrepreneurs" (Ronstadt, 1985, p. 14).

We agree with Ronstadt that the availability and importance of entrepreneurship education between the "naiveté" and "awareness" stages of development will increase over time. Unfortunately, entrepreneurship educators are uncertain as to the ultimate impact and effectiveness of such awareness education. They simply replicate extant programs or develop new approaches under the assumption that their efforts will foment future entrepreneurial endeavors and economic advancement. Furthermore, administrators, policy makers and the public at large are left to question the usefulness of entrepreneurship education as a whole, and the advisability of further funding.

For this study we developed an instrument to measure entrepreneurial self-efficacy and administered that instrument to undergraduate business majors enrolled in a required entrepreneurship course. The findings indicate that not all business students respond to entrepreneurship education in the same manner – some students increase in entrepreneurial self-efficacy while others lose confidence. The authors propose, however, that these results represent a correction of perceptual inaccuracies which for this course and at this stage in the process of entrepreneur development, may be an appropriate outcome. The realignment of entrepreneurial judgments, either up or down, is arguably a valid, though somewhat non-ambitious goal for "awareness" education. In fact, it may be unreasonable to expect interventions at this early juncture to produce tangible entrepreneurial behaviors.

This study raises a number of questions about the goals (as opposed to methodologies) of entrepreneurship education. Should educational interventions, particularly at the naiveté phase of entrepreneur development, focus on skill enhancement, thereby increasing entrepreneurial self-efficacy or should they address the more ephemeral issues of motivation and intention? Should educators emphasize the more formidable aspects of new venture

creation in order to "burst the bubble" of over-confident students or run the risk of raising self-efficacy to unrealistic levels in order to increase the odds of subsequent entrepreneurial behavior (Gist & Mitchell, 1992)? Is current undergraduate entrepreneurship instruction adequately serving the needs of the student body or is it failing to address the differing needs of students within each of the majors?

Future research should probe for reasons why entrepreneurial self-efficacy appears to vary across majors. In addition, researchers should compare the "before" and "after" efficacy levels of students in entrepreneurship awareness courses with those of students in programs similar to the one described by Clark, Davis, and Harnish (1984). Although they labeled their course as "introductory", it intervened at a point much closer to the "new venture creation" stage than the "awareness" stage of entrepreneur development – up to 38% of their attendees already owned a business, and the remainder were "predisposed toward the topic" (p. 29). Finally, a longitudinal study should be designed to examine the hypothesized connection between attitudes and beliefs (i.e., entrepreneurial self-efficacy) and actual entrepreneurial behavior.

In summary, our findings suggest that introductory entrepreneurship courses designed to build awareness and understanding, despite efficacy-enhancing elements, might actually deflate the expectations of your would-be entrepreneurs. Thus enhancing self-efficacy may not be an appropriate goal for these types of courses. On the other hand, these findings indicate the need to build more intensive self-efficacy-building experiences into the typical introductory entrepreneurship course.

This investigation introduced a useful methodology for evaluating the impact of entrepreneurship education. Further research in this area will serve to enhance the influence and effectiveness of entrepreneurship educators and bolster the confidence of the public at large in the need for educational interventions in this growing area. This study also raises interesting questions regarding the short- and long-term goals of entrepreneurship education, particularly in the awareness stage. Whether educators should "burst bubbles" or "build steam" is an important issue for future debate.

References:

Bandura, A. (1977). *Social Learning Theory*. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist* 37(2):122-147.

Bandura, A. (1997). *Self-Efficacy: The Exercise of Control*. New York: W. H. Freeman and Company.

Block, Z., & Stumpf, S. A. (1992). "Entrepreneurship education research: Experience and challenge." In D. L. Sexton & J. D. Kasarda, eds., *The State of the Art of Entrepreneurship,* Boston: PWS-Kent Publishing, pp. 17-42.

Boyd, N. G., & Vozikis, G. S. (1994). "The influence of self-efficacy on the development of entrepreneurial intentions and actions." *Entrepreneurship Theory and Practice* 18(4):63-77.

Bunch, J. F. (1995). "Electronic networks: Support & delivery platforms for entrepreneurship education." In T. G. Monroy, J. Reichert, & F. Hoy, eds., *The Art & Science of Entrepreneurship Education: Vol. III* (pp. 23-24). A publication of The Project for Excellence in Entrepreneurship Education.

Cervone, D. (1985). *Self-efficacy judgment under uncertainty: Availability biases in perceived self-efficacy and behavior*. Unpublished doctoral dissertation, Stanford University, Stanford, CA.

Clark, B. W., Davis, C. H., & Harnish, V. C. (1984). "Do courses in entrepreneurship aid in new venture creation?" *Journal of Small Business Management* 22(2):26-31.

Cook, T.D. & Campbell, D.T. (1979). *Quasi-experimentation: Design and analysis issues for field settings*, Boston: Houghton Mifflin Co.

Cullen, T. P., & Dick, T. J. (1989). "Tomorrow's entrepreneur and today's hospitality curriculum." *Cornell Hotel and Restaurant Administration quarterly* 30(2):54-57.

Curran, J., & Stanworth, J. (1989). "Education and training for enterprise: Some problems of classification, evaluation, policy and research." *International Small Business Journal* 7(2):11-22.

Davis, D. A., & McEacharn, M. E. (1995). "Increasing student involvement in the learning process." In T. G. Monroy, J. Reichert, & F. Hoy, eds., *The Art & Science of Entrepreneurship Education: Vol. III* (pp. 1-10). A publication of The Project for Excellence in Entrepreneurship Education.

Gartner, W. B., & Vesper, K. H. (1994). "Experiments in entrepreneurship education: Successes and failures." *Journal of Business Venturing* 9:179-187.

Gist, M. E., & Mitchell, T. R. (1992). "Self-efficacy: A theoretical analysis of its determinants and malleability." *Academy of Management Review* 17: 83-211.

Gist, M. E. (1987). "Self-efficacy: Implications for organizational behavior and human resource management." *Academy of Management Review* 12(3): 472-485.

Gorman, G., Hanlon, D., & King, W. (1997). "Some research perspectives on entrepreneurship education, enterprise education and education for small business management: A ten-year literature review." *International Small Business Journal* 15(3):56-77.

Hillis, G. E., & Morris, M. H. (1995). "Entrepreneurship programming & customer focus: A process approach." In T. G. Monroy, J. Reichert, & F. Hoy, eds., *The Art & Science of Entrepreneurship Education: Vol. III* (pp. 219-232). A publication of The Project for Excellence in Entrepreneurship Education.

Hills, G. E. (1988). "Variations in university entrepreneurship education: An empirical study of an evolving field." *Journal of Business Venturing* 3:109-122.

Krueger, Jr., N. F., & Hamilton, D. H. (1995). "Constructivism and entrepreneurship education." In T. G. Monroy, J. Reichert, & F. Hoy, eds., *The Art & Science of Entrepreneurship Education: Vol. III* (pp. 11-22). A publication of The Project for Excellence in Entrepreneurship Education.

Krueger, Jr., N. F., & Brazeal, D. V. (1994). "Entrepreneurial potential and potential entrepreneurs." *Entrepreneurship Theory and Practice* 18(3):91-104.

Lee, C., & Bobko, P. (1994). "Self-efficacy beliefs: Comparison of five measures." *Journal of Applied Psychology* 79:364-369.

Martello, W. E. (1995). "Capturing creativity for entrepreneurial ends: Serendipity as a creativity tool." In T. G. Monroy, J. Reichert, & F. Hoy, eds., *The Art & Science of Entrepreneurship Education: Vol. III* (pp. 133-156). A publication of The Project for Excellence in Entrepreneurship Education.

McMullan, W. E., & Long, W. A. (1987). "Entrepreneurship education in the nineties." *Journal of Business Venturing* 2:261-275.

O'clock, P., & Okleshan, M. (1993). "A comparison of ethical perceptions of business and engineering majors." *Journal of Business Ethics* 12(9):677-687.

Relf, W. B. (1995). "The entrepreneurship curriculum: Victim of a life cycle or progenitor of the future." In T. G. Monroy, J. Reichert, & F. Hoy, eds., *The Art & Science of Entrepreneurship Education: Vol. III* (pp. 25-32). A publication of The Project for Excellence in Entrepreneurship Education.

Robinson, P., & Haynes, M. (1991). "Entrepreneurship education in America's major universities." *Entrepreneurship Theory & Practice* 15(3):41-52.

Ronstadt, R. (1985). "The educated entrepreneurs: A new era of entrepreneurial education is beginning." *American Journal of Small Business* 10(1):7-23.

Scherer, R. F., Adams, J. S., Carley, S. S., & Wiebe, F. A. (1989). "Role model performance effects on development of entrepreneurial career preference." *Entrepreneurship Theory and Practice* 13(3):53-71.

Sexton, D. L., & Bowman, N. B. (1987). "Evaluation of an innovative approach to teaching entrepreneurship." *Journal of Small Business Management* 25(1):35-43.

Sexton, D. L., & Bowman, N. B. (1988). "Validation of an innovative teaching approach for entrepreneurship courses." *American Journal of Small Business* 12(3):11-18.

Solomon, G. T., & Fernald, L. W., Jr. (1991). "Trends in small business management and entrepre-neurship education in the United States." *Entrepreneurship Theory & Practice* 15(3):25-39.

Stewart, K., Felicetti, L., & Kuehn, S. (1996). "The attitudes of business majors toward the teaching of business ethics." *Journal of Business Ethics* 15(8):913-918.

Vesper, K. H. (1986). "New developments in entrepreneurship education." In D. L. Sexton, & R. Smilor, eds., *The Art and Science of Entrepreneurship*, New York: Ballinger, pp. 379-387.

Wood, R., & Bandura, A. (1989a). "Impact of conceptions of ability on self-regulatory mechanisms and complex decision making." *Journal of Personality and Social Psychology* 56:407-415.

Wood, R., & Bandura, A. (1989b). "Social cognitive theory of organizational management." *Academy of Management Review* 14:361-384.

Zeithaml, C. P., & Rice, G. H., Jr. (1987). "Entrepreneurship/small business education in American universities." *Journal of Small Business Management* 25(1):44-50.

Appendix A: *Modified Lee & Bobko (1994) Self-Efficacy Scale. Perceived Confidence in Your Ability to Start a Business*

Think about the process of ***starting a new business venture*** and consider the following statements. For ***each*** statement, please: (a) indicate whether or not you believe you can attain the suggested outcome (i.e. circle "Yes" or "No"), and (b) rate how confident you are in this belief on a scale of 0 to 10 (0 = "Not Confident"; 10 = "Completely Confident").

In terms of starting a new business venture, I am:

	Yes/No		Not Confident								Moderately Confident		Completely Confident
1. capable of effectively performing at least 10% of the necessary tasks	Y	N	0	1	2	3	4	5	6	7	8	9	10
2. capable of effectively performing at least 20% of the necessary tasks	Y	N	0	1	2	3	4	5	6	7	8	9	10
3. capable of effectively performing at least 30% of the necessary tasks	Y	N	0	1	2	3	4	5	6	7	8	9	10
4. capable of effectively performing at least 40% of the necessary tasks	Y	N	0	1	2	3	4	5	6	7	8	9	10
5. capable of effectively performing at least 50% of the necessary tasks	Y	N	0	1	2	3	4	5	6	7	8	9	10
6. capable of effectively performing at least 60% of the necessary tasks	Y	N	0	1	2	3	4	5	6	7	8	9	10
7. capable of effectively performing at least 70% of the necessary tasks	Y	N	0	1	2	3	4	5	6	7	8	9	10
8. capable of effectively performing at least 80% of the necessary tasks	Y	N	0	1	2	3	4	5	6	7	8	9	10
9. capable of effectively performing at least 90% of the necessary tasks	Y	N	0	1	2	3	4	5	6	7	8	9	10
10. capable of effectively performing at least 100% of the necessary tasks	Y	N	0	1	2	3	4	5	6	7	8	9	10