

**Developing Entrepreneurial Characteristics in Minority Youth:
The Effects of Education and Enterprise Experience**

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SUMMARY

Identifying and nurturing entrepreneurial potential among youth can have positive long-term implications for American economic development. This premise is particularly relevant to ethnic minorities who are under-represented in successful entrepreneurial activity. Entrepreneurship education has been proposed as an intervention strategy for students in at-risk and urban environments plagued by social and economic disparities. This chapter explores the theoretical framework for entrepreneurship education among pre-collegiate students, with particular attention to research related to ethnic minorities. A review of the entrepreneurship literature presents a foundation for hypotheses that entrepreneurship education and enterprise experience can positively influence youth toward entrepreneurial characteristics. An empirical analysis of data from minority students in an inner city school system indicate that students with training in entrepreneurship have greater overall entrepreneurial characteristics, higher achievement motivation, more personal control, and greater self-esteem than a comparable cohort. Minority students who participate in enterprise activities have greater overall entrepreneurial characteristics, more personal control, greater self-esteem and more innovation than a comparable cohort. The findings provide critical support for initiatives by educators and policy makers to allocate resources to entrepreneurship education to improve the nation's workforce productivity, as well as, develop a much-needed supply of entrepreneurial talent in America.

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Introduction

Developing entrepreneurial talent is important to sustaining a competitive advantage in a global economy catalyzed by innovation. The importance of quality entrepreneurship education and training has gained national attention, with the introduction by the 106th Congress of the Future Entrepreneurs of America Act (H.R. 1331). Congress is also considering providing technical assistance to secondary, post-secondary, vocational, and technical schools to develop and implement curricula designed to promote vocational and technical entrepreneurship (H.R. 2666).

Emerging themes in entrepreneurship literature relate to developing and nurturing entrepreneurial motivation and skills. Researchers suggest there would be an increase in the number of people whom would be successful entrepreneurs if they were identified, recruited, and nurtured throughout the educational process (Hatten and Ruhland, 1995; Ede, Pnigrahi, & Calcich, 1998). Other authors presume that entrepreneurial education develops entrepreneurs, by increasing their business knowledge and promoting the development of psychological attributes associated with entrepreneurs (Kruegar & Brazeal, 1994; Kourilsky & Walstad, 1998; Walstad & Kourilsky, 1999). Kourilsky (1995) concluded that the supply of entrepreneurs could be increased if more people were to develop a positive perception about the feasibility and desirability of entrepreneurship through educational preparation at an early age.

Various streams of literature relate the effects of entrepreneurship education and venture creation on the development of youth. There is an established body of research which investigates the psychological characteristics associated with entrepreneurship (Brockhaus, 1980; Begley & Boyd, 1987; Montago, Kuratko, & Scarella, 1986; Boyd & Vozikis, 1994; Krueger & Brazeal, 1994; Littunen, 2000). Researchers have also explored the learning theory associated with program

content and the pedagogy of entrepreneurial development programs (Leitch & Harrison, 1999). Empirical evidence supports entrepreneurial education as an intervention tool, which impacts adult attitudes *toward* entrepreneurship (Ede, Panigrahi, & Calcich, 1998; Hansemark, 1998; Hatten & Ruhland, 1995). Youth awareness and attitudes related to social and economic desirability of entrepreneurship as a career option has been the subject of other studies (Kourilsky & Walstad, 1998; Walstad & Kourilsky, 1999).

There is a particular need to encourage self-employment among African-Americans and Hispanics. Less than 2% of African Americans and Hispanics in the United States become business owners, compared to 5.6% for Caucasians, and 10% for Koreans (Ede, Panigrahi, & Calcich, 1998). Comparisons of owner-age data indicate owners between the ages of 25 and 34 represent only 17% of all African-American business owners, the lowest percentage across ethnic groups (Walstad & Kourilsky, 1999). This suggests a focus on introducing entrepreneurship at an earlier age may have an impact on reducing the disparity in business ownership among African-Americans.

The lack of emphasis on entrepreneurial studies in the school system is further evidenced by the results of a recent Gallup poll of American high school students. Results of the recent Gallup poll of American high school students, indicate 85% of students reported they knew little about business; 80% of high school students think that more entrepreneurship should be taught, while 68% indicated a desire to learn more about entrepreneurship. More specifically, the data indicate a significant difference in black youth (84%), relative to white youth (75%), regarding their positive opinion that entrepreneurship education should be a vital part of the curriculum (Kourilsky & Carlson, 1997).

Prior literature has spent a considerable effort on defining entrepreneurship and entrepreneurial characteristics (see Gorman, Hanlon, & King, 1997). The debate over whether

these characteristics are innate or can be developed has focused on entrepreneurship education as an intervention strategy for adults and college students. If these entrepreneurial characteristics are indeed universal, entrepreneurial potential could be identified and nurtured at an earlier age. This study contributes to the field of entrepreneurship by analyzing the following research question: Does entrepreneurial training of youth affect characteristics commonly associated with entrepreneurial potential? Operationalizing classroom enterprise experience as the experiential part of the training process, this study also addresses the question: Does enterprise experience, in addition to educational effects, influence entrepreneurial characteristics in youth? The chapter will first establish a theoretical framework for entrepreneurial characteristics and entrepreneurship pedagogy, particularly related to ethnic minorities. The hypotheses of this study are then tested on an urban population of primarily ethnic minorities that are socially and economically disadvantaged. Results from a study of 502 intermediate level students in an inner city public school are used to address whether entrepreneurship education and enterprise experience are effective intervention strategies. The discussion and conclusion will address implications for students, educators and policy makers.

Literature Review

Entrepreneurship Education

Prior research suggests identifying and nurturing potential entrepreneurs throughout the education process could produce many long-term economic benefits (McClelland & Winter, 1969; Hatten & Ruhland, 1995 & Hansemark, 1998). A venture support system based on entrepreneurship education and designed to stimulate and facilitate entrepreneurial activities, could result in a lower unemployment rate, increased establishment of new companies, and fewer failures

of existing businesses (Hatten & Ruhland, 1995). According to Bechard and Toulouse (1998), the lack of training is the main reason for the failure of small and medium enterprises (SME).

Entrepreneurship education can also be an important component of economic strategies for fostering job creation (McMullan, Long, & Graham, 1987). Moreover, effective youth entrepreneurship education prepares young people to be responsible, enterprising individuals who become entrepreneurs or entrepreneurial thinkers and contribute to economic development and sustainable communities (Ashmore, 1990).

Entrepreneurship education generally refers to programs that promote entrepreneurship awareness for career purposes and provide skill training for business creation and development (Vesper, 1990; Bechard & Toulouse, 1998). It is distinguishable from other forms of business education when its purpose is creating a new product or service that results in higher economic value (Hanesmark, 1998). An inherent assumption in entrepreneurial education is that entrepreneurship characteristics and skills can be developed. Research suggests that the propensity towards entrepreneurship has been associated with several personal characteristics that can be influenced by a formal program of education (Gorman et al., 1997; Bechard & Toulouse, 1998). Education can prepare for new venture initiation by transferring knowledge and developing relevant skills that improve the self-efficacy and effectiveness of the potential entrepreneur (Gorman et al., 1997). Currently, there is not a consensus regarding when educational intervention is most effective in developing entrepreneurial potential.

Entrepreneurship literature has considered the effectiveness of education at various stages of life. For example, entrepreneurial education has been linked to the propensity toward entrepreneurship for adults (Gorman et al., 1997). Vesper (1990) suggested that university entrepreneurship educators facilitate the entrepreneurial process by creating awareness among

collegiate students. Studies by Hanesmark (1998), Hatten & Ruhland (1995), and Ede, Panigrahi, & Calcich (1998) support the value of formal entrepreneurial education at the university level, but only in terms of affecting the attitude toward entrepreneurship as a career alternative. Gasse (1985) recommended that entrepreneurial potential should be identified and developed at the secondary school level, when the possibility of self-employment as a career option is still open. Ladzani and Van Vuuren (2002) concluded that entrepreneurial skills should be introduced to young emerging entrepreneurs. They recommend that this intervention should include introducing an entrepreneurial culture at home and continue at higher education and training institutions. When students are oriented toward entrepreneurship at an early age, entrepreneurial venturing is easier to accomplish later in life (Ladzani & Van Vuuren, 2002). Likewise, Banaszak (1990) found that entrepreneurial studies are well suited for middle grades (six through nine). It encourages students to examine their own personal development by studying role models and learning the basic values of the American economic system. Banaszak suggested that entrepreneurial programs in the middle grades provide knowledge of the role and function of entrepreneurs in a market driven economy and help students understand and practice entrepreneurial characteristics such as self-esteem, willingness to take risks, innovativeness, and acceptance of responsibility for personal actions and persistence.

There are indications that the formal education system is not particularly supportive of entrepreneurship and may result in the suppression of entrepreneurial characteristics (Chamard, 1989). Kourilsky (1990) found that 25% of kindergartners demonstrate important entrepreneurial characteristics (need for achievement and risk taking) compared to 3% of high school students. Singh (1990) concluded that traditional pedagogy should be reoriented to emphasize and value entrepreneurship in order to cultivate an enterprise culture. Kourilsky and Walstad (1998)

suggested that stimulating entrepreneurial attitudes through education at the pre-collegiate level could encourage entrepreneurship as a career choice.

Entrepreneurship education based on solid learning theory can develop entrepreneurs by increasing business knowledge, and promoting characteristics associated with entrepreneurs (Krueger & Brazeal, 1994; Kourilsky & Walstad, 1998; Walstad & Kourilsky, 1999). Learning styles that include active experimentation, balanced with concrete experience and abstract conceptualization, enhance entrepreneurial propensity (Gorman et al., 1997). Stumpf, Dunbar, and Mullen (1991) also argued for the benefits of behavioral simulations in teaching entrepreneurship. McMullan and Long (1987) recommended that entrepreneurship education should include skill-building components such as negotiation, leadership and creative thinking, exposure to technological innovation, and new product development. Entrepreneurship programs should also teach skills in detecting and exploiting business opportunities, in addition to incorporating detailed and long-term business planning (Vesper & McMullan, 1988). Plaschka and Welsch (1990) introduced the concept of transition stages of entrepreneurship education suggesting programs should be geared toward creativity, multi-disciplinary and process-oriented approaches, and theory-based practical applications. A typical intervention should focus on enabling participants to generate and screen ideas, as well as assess whether they have entrepreneurial characteristics (Ladzani & Van Vuuren, 2002).

Anecdotal evidence suggests that successful entrepreneurship education programs are those that are student-based and non-traditional in their approach (Hammer, 2000). For example, simulations, gaming, and role-playing allow students to formulate responses that are truly entrepreneurial (Kent, 1990). Experienced-based programs that provide real experiences, where

students are active rather than passive learners, and actually make decisions tend to be successful pedagogy.

Consistent with these pedagogical criteria, teachers in this study used KidsWay, a popular youth entrepreneurship curriculum. This curriculum uses active learning techniques, which encourage students to absorb course materials by completing tasks that demonstrate reflection and elaboration on course content (Hammer, 2000). This learning style is distinguishable from traditional and experiential methods because it includes mini-lectures integrated with group activities and games, which reinforce learning objectives. In contrast, semi-structured experiential techniques involve completing a group task or project that uses real business situations as the context for learning (Hammer, 2000). In this study the experiential learning component was incorporated in the entrepreneurship classes where students developed and implemented a class-based enterprise.

Ethnic Entrepreneurship

Ethnicity is a cultural heritage shared by a category of people, whereas race is a category of people who share significant biologically related traits (Woolfolk, 1993). Minority groups are so labeled by sociologists because they are in a numerical minority, and may receive unequal or discriminatory treatment. There are also cultural differences related to interpersonal relationships. Research indicates some ethnic groups achieve below the average for all students on standardized achievement tests; however, when social economic status is considered, these differences diminish (Woolfolk, 1993).

Some of the research has focused on entrepreneurship education for at-risk students in urban settings, which tend to be over-represented by populations of ethnic minorities. For example, MacDowell (1990) paints a bleak picture of the failure of inner city schools to provide high school

graduates with sufficient skill sets for the workplace, which negatively affects the nation's future productivity. Characteristics such as self-discipline and self-confidence, along with inner control and delayed gratification, are challenging for economically underprivileged and at-risk students, since they are faced with difficult day to day challenges that force decisions for immediate returns rather than viable long-term decisions. The challenges they face, according to MacDowell, such as the values and attitudes from the school environment, can be overcome by entrepreneurship education. As an alternative to these challenges that disproportionately affect ethnic minorities, MacDowell suggested a well-designed entrepreneurial training program can provide the hidden curriculum skills that are important to educators and employers.

Kent (1990) describes a decline in education quality in urban schools, pointing to falling test scores and student performance that reflect an environment of crime, poverty, hopelessness, and a dependency on government handouts. Kent claims that there are basic characteristics demonstrated by students, schools, and teachers in urban schools: Students from this environment: are typically poor academic achievers; live in nontraditional families; have limited experience with the market economy; and lack entrepreneurial role models. Urban schools typically lack resources; are bureaucratic; and tend to be custodial rather than educational. Teachers in these settings tend to be inflexible; face heavy teaching loads; are poorly trained in entrepreneurship; and have negative attitudes and low expectations of their students. Admitting it is not a panacea, Kent (1990) suggested entrepreneurial education as one way the urban school environment can be changed for the better. He proposed five goals associated with these programs: encourage the concept that alternative lifestyles are possible; develop attitudes of inner control, self-confidence, goal setting, and decision making; inspire students to take school more seriously; provide basic entrepreneurial skills; and a working knowledge of economic principles. Kent's concluded that achieving these

goals will assure success of entrepreneurship education as an intervention strategy, but did not provide empirical evidence.

Rushing (1990) recommended that entrepreneurship education programs focus on minority groups, particularly African-Americans, who are underrepresented among successful entrepreneurs. Rushing suggested that special programming should attempt to overcome obstacles African-Americans encounter, such as the lack of role models, low self-esteem, and the frustration of failure. The Gallup poll data as presented by Walstad and Kourilsky (1999) confirms this lack of role models, particularly parental, is more acute for blacks. With this exception, most of the preceding research has been prescriptive based on anecdotal evidence. To this point there has been limited evidence that entrepreneurship education is a successful intervention strategy for overcoming these obstacles. This research considers the success of entrepreneurship education from the perspective of whether it develops characteristics typically associated with entrepreneurs.

Entrepreneurial Characteristics

The literature on entrepreneurial characteristics has included a number of variables that address psychological attributes, personality, attitudes, and behavior. Some of these variables are loosely coupled elements of the individual, but not necessarily interchangeable. To avoid a lengthy theoretical discussion to make these finer distinctions, this study groups them generically as entrepreneurial characteristics. Although prior research has debated whether entrepreneurial characteristics are innate, recent findings support the idea that psychological attributes associated with entrepreneurship can be culturally and experientially acquired (Gorman et al., 1997). Based on prior research, this study presumes that these are universal and ageless characteristics that can be nurtured and developed at earlier stages of the education process (Kourilsky, 1990; Kourilsky & Walstad, 1998; Walstad & Kourilsky, 1999). Individuals can be predisposed to entrepreneurial

intentions based on a combination of personal and contextual factors (Boyd & Vozikis, 1994). Personal factors such as prior experience as an entrepreneur and contextual factors such as job displacement have limited applicability to entrepreneurial propensity, which have been categorized as demographic characteristics and psychological attributes. According to Robinson, Stimpson, Huefner, & Hunt (1991) demographic circumstances do not enhance our ability to predict entrepreneurial tendencies. Psychological attributes, however, have produced good results for predicting whether a person will pursue entrepreneurship (Stewart, Watson, Carland, & Carland, 1999).

A number of psychological attributes have been suggested as predictors of entrepreneurial behavior in the entrepreneurship literature, with some degree of consensus. Kourilsky (1980) suggested the following are the most relevant: need for achievement; creativity and initiative; risk-taking and setting objectives; self-confidence and internal locus of control; need for independence and autonomy; motivation, energy and commitment; and persistence. According to Gorman et al. (1997) propensity toward entrepreneurship is associated with several personal characteristics: values and attitudes, personal goals, creativity, risk-taking propensity, and locus of control. According to McClelland (1961) achievement motivation, risk taking, and locus of control are important characteristics. However, Robinson, Stimpson, Huefner, and Hunt's (1991) argued that self-esteem and innovation are more prominent in entrepreneurs than the need for achievement. Sexton and Bowman (1983) and Brockhaus (1980) maintained that risk-taking propensities are not good predictors of entrepreneurial behavior. In subsequent work Stewart, et al. (1998) disagreed, finding that entrepreneurs had higher achievement motivation, risk-taking propensity, and preference for innovation than corporate managers and small business owners. Risk-taking may not apply to youth who have not undertaken significant economic risk and opportunity cost due to the

loss of wages, or wealth risk associated with business failure. Following Robinson's et al. (1991) conceptualization of the prominent characteristics of entrepreneurial propensity, this study considers whether achievement motivation in business, personal control of business outcomes, perceived self-esteem in business, and innovation in business can be effected by educational and enterprise intervention at the intermediate grade level. The first hypothesis proposes that a composite of these entrepreneurial characteristics varies between groups based on educational intervention:

H1a: Students receiving entrepreneurial training will attain a greater overall entrepreneurial characteristics score than a comparable cohort.

Prior experience as an entrepreneur has been linked to the propensity for adults to start a new venture (Boyd & Vozikis, 1994). Gibb (1993) proposed a model of enterprise education appropriate to primary and secondary school curricula that included a project management task structure, and an enterprising teaching mode. The combination of these elements was expected to stimulate enterprising behavior, skills, and attributes in students. Since classroom enterprise is considered the experiential part of the entrepreneurial pedagogy, it is expected that it will influence entrepreneurial characteristics:

Hypothesis 1b: Students engaged in classroom enterprise will attain a higher overall entrepreneurial characteristics score than a comparable cohort.

Achievement motivation. Of the many characteristics associated with entrepreneurs, achievement motivation is a consistent attribute. The need for achievement is based on expectations of doing something better or faster than others or better than the person's earlier accomplishments (McClelland, 1961, 1965). It is also a process of planning and striving for excellence (Hansemark, 1998). McClelland (1965) maintained that founders of business have a higher level of need for achievement (n_{Ach}) and suggested that this characteristic is an important

factor for economic development and business growth. Hansemark (1998) also found that young adults in an entrepreneurial program had a significant increase in their n Ach scores. Specifically related to achievement in business, this study proposes that:

Hypothesis 2a: Students receiving entrepreneurial training will attain a higher need for achievement score than a comparable cohort.

Hypothesis 2b: Students engaged in classroom enterprise will attain a higher need for achievement score than a comparable cohort.

Personal Control. Locus of Control reinforcement is related to the expectation of success or failure in a judgmental task (Rotter, 1966). People will attribute the reason why something happens either to themselves (internal) or to the external environment. Brockhaus (1982) and Gasse (1985) found that entrepreneurs have greater internal locus of control than the general population; therefore, entrepreneurs believe that the outcome of a business venture will be influenced by their own efforts. Hansemark (1998) also found that young adults participating in an entrepreneurship program developed a more internal locus of control. Analogous to locus of control, Robinson et al. (1991) found that internal personal control leads to a positive entrepreneurial attitude. Since personal control is a more important element for youth than risk-taking, this research is consistent with Robinson et al. (1991) and uses personal control of business outcomes, expecting to find that:

Hypothesis 3a: Students receiving entrepreneurial training will attain a higher personal control score than a comparable cohort.

Hypothesis 3b: Students engaged in classroom enterprise will attain a higher personal control score than a comparable cohort.

Self-esteem. Self-confidence and self-esteem are used as analogous terms in this research to address how an individual feels about their own ability. Kourilsky (1980) concluded that these are important variables in predicting entrepreneurial success. Robinson et al. (1991) also suggested

that self-esteem, particularly related to business affairs, is a prominent entrepreneurial characteristic, therefore:

Hypothesis 4a: Students receiving entrepreneurial training will attain a higher self-esteem score than a comparable cohort.

Hypothesis 4b: Students engaged in classroom enterprise will attain a higher self-esteem score than a comparable cohort.

Innovation. Kourilsky (1980) and Robinson et al. (1991) argued that innovation and creativity are important variables. Innovation is defined as creating new products, methods, markets or a new organization. Analogous to creativity, Kourilsky (1980) defined persistence as the willingness to seek alternative approaches and problem-solving methods, as well as a manifestation of flexibility and divergent thinking; and it was found it to be a powerful predictor of success. Using Robinson et al. (1991) concept of innovation in business, this study proposes that:

Hypothesis 5a: Students receiving entrepreneurial training will attain a higher innovation score than a comparable cohort.

Hypothesis 5b: Students engaged in classroom enterprise will attain a higher innovation score than a comparable cohort.

Methods

Sample

The sample for this study was derived from intermediate level students in a Newark, NJ Public Schools district. This population includes nine schools and 28 classes ranging from grades 4 through 8. In this quasi-experimental design with non-equivalent control groups, the intervention was randomly assigned to intact classes. Students in the 13 treatment classes engaged in entrepreneurship education and training, while students in 15 classes, designated as the control group, were involved in other activities during the same class period. Using random assignment of the educational intervention limits threats to external validity (Campbell & Stanley, 1966).

Procedures

The treatment group engaged in an entrepreneurship training class for three hours each week for 26 weeks using KidsWay curriculum as an alternative intervention strategy for improving the academic status of an underachieving school population. KidsWay curriculum meets the pedagogical criteria dictated in the literature for entrepreneurship education (Stumpf et al., 1991; Plaschka & Welsch, 1990; Vesper & McMullan, 1988; McMullan & Long, 1987; Gorman, 1997). The learning methodology includes active experimentation, concrete experience, and behavioral simulations. The skill-building component includes negotiation, leadership, creative thinking, exposure to technological innovation, and new product development. Students were also taught how to detect and exploit business opportunities and long-term business planning. The control group engaged in other non-academic classroom activities such as art and music during the same class period, thereby limiting the possible confounding (placebo) effects of the experimental setting and threats to the external validity of the study.

Student entrepreneurial characteristics were measured using the Entrepreneurial Attitude Survey adopted from research on adult entrepreneurs (Robinson et al., 1991). This instrument was developed and validated with acceptable test-retest reliability measures for the four primary scales (.71 to .85). The only modification to the instrument was to change the language within the items from business to classroom or project to relate more to the experiences of youth. The instrument was piloted using 50 intermediate level students attending a youth entrepreneurship conference and edited for age-appropriate wording, using their feedback. A confirmatory factor analysis verified that the revised scales had the same factor structure as the original scales. A subsequent reliability test (.72 to .79) indicated an acceptable range (Cohen & Cohen, 1975).

The instrument was administered to a sample of 502 students in the 28 classes, using a matching sample in a quasi-experimental research design. An approximation was used to survey an equal number of grades from the same school. Classes that did not have a match for the same grade level at the same school were dropped from the sample. Classes with special language needs or other unique educational characteristics were also eliminated. Teachers in the treatment group participated in standard KidsWay training to minimize differences in teacher effectiveness. Usable data was obtained from 224 students in the treatment group and 176 students in the control group, for a response rate of 80%. The study sample consisted primarily of ethnic minority students (56.4% Hispanic/Latin; 34.7% African American; 3.6% Caucasian; 1% Asian; and 4.4% no response). Frequency distribution by grades was: 4th grade—29%; 5th grade—30%; 6th grade—23%; 7th grade—15%; and 8th grade—3%. Males represented 49.3% and females 50.7% of the sample.

Measures

The 36-item entrepreneurial attitude survey measured the perceptions of the students relative to achievement, personal control, self-esteem, and innovation. Students were asked to rate on a scale of “1” to “5” how strongly they felt about items related to each of these four factors. In this scale “1” represented strongly disagree and “5” represented strongly agree. Each of the four main factors: ACHIEVE, CONTROL, ESTEEM, and INNOVATE, were measured by nine survey items. Item scores were summed to compute each factor score. Each main factor score was then summed to derive an overall entrepreneurial characteristic score labeled ATTITUDE. The variable, EDUCATE was coded “1” for the treatment group and “0” for the control group. Students who engaged in classroom enterprises were coded “VENTURE = 1”, while others were coded “0”. The control variable, age, was introduced as a covariate.

Data Analysis

An independent sample t-test indicated there were no significant differences in mean scores for the variables: GENDER and AGE, between the students in the treatment and control groups, supporting the absence of selection bias as a threat to internal validity (Campbell & Stanley, 1966). Descriptive statistics, frequencies, and correlation analyses were performed on the data. Because of the moderate correlation between the dependent variables and the dependence of the two samples, two multivariate analyses of variance (MANOVA) were performed; one comparing entrepreneurial characteristics between the treatment and control group, and the other comparing classes in the treatment group that engaged in a classroom-based enterprise with those who did not.

Results

Table 1 provides descriptive statistics for the sample population including mean, standard deviation, and bivariate Pearson correlations for the study variables. There are no indications of multi-collinearity that would violate assumptions of independence. Reliability factors, measured by Cronbach alphas, exceed acceptable thresholds for internal validity of the dependent variables (Cohen & Cohen, 1975). Table 3 presents the results of the MANOVA, comparing the scores of the four entrepreneurial characteristics and overall entrepreneurial attitude between the treatment and control groups, with age as a covariate. The control variable, AGE was not significant in the two MANOVA models. Results support hypothesis 1a, indicating a significant difference in overall entrepreneurial attitude scores ($p < .05$; mean = 3.04) between the treatment and control groups. Students in the training treatment group who engaged in a classroom-based enterprise also had a significantly higher overall entrepreneurial score ($p < .05$; mean = 4.27) than students that did not operate a business, supporting hypothesis 1b. Hypothesis 2a which proposed that ACHIEVE scores would be higher for students receiving training is supported ($p < .05$; mean = 1.35). As

proposed in hypothesis 3a, there was a significant difference in CONTROL scores in favor of the students trained in entrepreneurship ($p < .05$; mean = .89). Also, trained students who engaged in a classroom-based enterprise scored higher in CONTROL ($p < .05$; mean = 1.23), as proposed in hypothesis 4b. Results indicate a significant difference in ESTEEM scores ($p < .05$; mean = .73) in favor of the group trained in entrepreneurship, supporting hypothesis 4a. Trained students who also engaged in a classroom-based enterprise had higher ESTEEM scores ($p < .05$; mean = .96), as proposed in hypothesis 4b. There was a significant difference in INNOVATE scores ($p < .05$; mean = 1.34) in favor of the treatment group that engaged in a classroom-based enterprise, supporting hypothesis 5b.

Discussion And Conclusions

The purpose of this study was to investigate the effects of entrepreneurship training and enterprise on the entrepreneurial characteristics of intermediate level students. There have been many anecdotal claims that entrepreneurial training and enterprise creation, as an intervention strategy for young students, has positive benefits. This research provides empirical evidence to support these claims, finding that a composite of entrepreneurial characteristics was significantly greater for students engaged in entrepreneurial training and a classroom-based enterprise, as proposed in hypotheses 1a and 1b. In general, these results support the theory that entrepreneurial characteristics can be affected by instructional and experiential intervention (Gorman et al., 1997; Bechard & Toulouse, 1998). Furthermore this research suggests that entrepreneurial characteristics are universal, by extending this theory to students at the intermediate level.

Comparing similar treatment and control groups, the results specifically indicate that students receiving entrepreneurial training have higher motivation to achieve than a comparable cohort. These findings suggest that by providing entrepreneurial education at an early age a

student's need for achievement could increase. Since a link between achievement motivation and entrepreneurial propensity has been established, this intervention could affect self-employment tendencies as an adult (McClelland, 1965).

The results reveal that the students trained in entrepreneurship and who engaged in a classroom-based enterprise also had a higher sense of personal control and self-esteem than a comparable cohort. These factors are important in the short-term behavior of students and the likelihood of avoiding destructive and criminal behavior. Students with more personal control are less likely to resolve conflict and express anger through violence. Internal personal control and higher self-esteem, may result in students taking more responsibility for what happens to them, and decrease their propensity to participate in socially undesirable behavior.

The results make a strong link between enterprise and innovation. Students who received training and engaged in a classroom-based enterprise demonstrated higher scores on innovation than a comparable cohort. What is important to note is that entrepreneurship education alone, did not impact innovation. Only the involvement in an enterprise in a classroom setting stimulated innovation.

This paper presents findings related to the effects of entrepreneurship training and enterprise experience on entrepreneurial characteristics, with some limitations. Because the sample is predominately ethnic minorities in a low-income urban setting, the findings may not be generalizable to the general student population at the intermediate level. Subsequent research should address the effects of entrepreneurial training on a broader ethnic and age sample, academic performance, as well as other pedagogies and program modalities. Longitudinal studies that track participants into young adulthood would provide further data to support the long-term impact of

entrepreneurship education and enterprise creation. Also comparing students from different international educational settings could be enlightening.

This study has provided support for theories related to entrepreneurial characteristics in general. More specifically, the application to youth confirms the universal nature of these concepts. Previous literature has suggested that entrepreneurial training will improve attitudes *toward* entrepreneurship, but this research concludes that training and enterprising behavior can have a significant impact *on* entrepreneurial characteristics. Based on this study the educational system and the business community can be encouraged about investing in training to develop and nurture entrepreneurship at an early age. The investment in entrepreneurship for youth should, therefore, have long-term positive effects on economic development and global competitiveness by creating an entrepreneurial culture for our youth.

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Table 1. Descriptive Statistics, Reliability, and Pearson Bivariate Correlations

VARIABLES	Mean	s.d.	. 1	2	3	4	5	6	7	8		
<u>Dependent</u>												
1. ACHIEVE		36.64	6.60	.72	---							
2. CONTROL		36.10	4.99	.68	.52	---						
3. ESTEEM	37.26	4.36	.71	.43	.54	---						
4. INNOVATE		35.59	5.44	.69	.41	.51	.52	---				
5. ATTITUDE		145.59	16.78	.79	.79	.81	.76	.77	---			
<u>Independent</u>												
6. EDUCATE			.56	.49	.11	.09	.08	.02	.09	---		
7. VENTURE	.23		.42		.05	.07	.12	.11	.42	---		
<u>Covariate</u>												
8. GRADE	5.33	1.13			-.02	-.03	.09	.11	.05	-.11	.24	---

Correlation factors greater than .10 are significant at the $p < .05$ level.

Table 2. Statistical Comparisons of Education and Venture Treatment Groups

		ATTITUDE H1a	ACHIEVE H2a	CONTROL H3a	ESTEEM H4a	INNOVATE H5a
EDUCATE						
No training	Mean	143.85	35.84	35.75	36.87	35.33
	Stan. Dev.	18.01	6.93	5.07	4.54	6.56
Training	Mean	146.89	37.19	36.64	37.60	35.57
	Stan. Dev.	16.12	5.73	5.06	4.05	5.04
	F _{1,395}	3.03*	3.81*	2.68*	3.01*	.07
		H1b	H2b	H3b	H4b	H5b
VENTURE						
No venture	Mean	145.50	36.99	36.14	37.28	35.13
	Stan. Dev.	17.10	3.33	5.36	4.30	4.93
Venture	Mean	149.77	37.61	37.37	38.24	36.47
	Stan. Dev.	13.53	4.25	4.26	3.41	5.18
	F _{1,223}	3.45*	.46	3.86*	2.82*	3.37*

*P<.05