

The NFTE Difference: Examining the Impact of Entrepreneurship Education

Vanessa E. Beary

[Vanessa E. Beary](#) is a fifth year doctoral candidate, [Kauffman Dissertation Fellow](#), and Presidential Scholar at Harvard Graduate School of Education. She is interested in entrepreneurship education in developing countries with large youth populations. Vanessa recently spent thirteen months in Khujand, Tajikistan conducting her dissertation research as a [Fulbright Fellow](#) (2011-2012). Prior to starting her degree at Harvard, Vanessa worked in Iraq for two and a half years. In March 2009, she was awarded the Outstanding Civilian Service Medal from the U.S. Department of Defense for her service in Iraq.

September 2013

Abstract

This study examines the impact of NFTE (Network for Teaching Entrepreneurship) entrepreneurship education programs (EEPs) on alumni of the programs (n = 1,282, response rate = 10.3%). Specifically, this study examines the effects of an EEP on the academic achievement and professional success of NFTE alumni. This study uses data from the Current Population Survey (CPS), the National Center for Education Statistics, and other relevant studies for points of comparison. The study also examines the impact of a NFTE EEP on students' entrepreneurial attitudes such as their perceived desirability of becoming an entrepreneur and their sense of self-efficacy.

Summary of Key Findings

Educational Attainment

- *Minimum of a High School Diploma*
 - In this sample, 99.3% of NFTE alumni over the age of 25 have a minimum of a high school diploma. This compares favorably with the national average of 85% of Americans over the age of 25 with a high school diploma (CPS, 2009)¹.
 - 98.2% of NFTE alumni who are African American and over the age of 25 have a high school diploma. This also compares favorably with the national average of 81.4% of African Americans over 25 years of age holding a high school diploma or higher.
- *Graduation Rates*
 - While the NFTE alumni data set does not allow us to calculate high school graduation estimates, we are able to note that 89% of NFTE alumni over the age of 18 have graduated from high school.
 - A 2009 report commissioned by America's Promise Alliance captured the graduation rates for 50 of America's largest cities (Swanson, 2009), some of which are home to NFTE program offices. The report listed the following graduation rates in cities where there is a NFTE office: Baltimore—73.6%; San Francisco Bay Area—75.1%; Chicago—75.6%; Dallas—68.2%; Washington, D.C.—74.9%, New York City—71.4%; Philadelphia—77.2%; South Florida (Miami)—57.2%; Los Angeles—63.8%; and New England Area (Boston)—78.3%.
- *Enrollment Rates and Dropout Rates:* Recent participation (i.e., within the past two years) in a NFTE EEP is correlated with lower high school dropout rates². By examining the current school enrollment status of the NFTE alumni, we are able to estimate the dropout rate for this group of students.
 - The dropout rate for NFTE alumni between the ages of 16–19 is less than the national average (1% versus 3.4%, respectively). This means that 99% of NFTE alumni who should be enrolled in high school (i.e., do not yet have their high school diploma) are still enrolled in high school.
 - This study uncovers an interesting trend for younger African-American NFTE alums: this group of students has a high school dropout rate of 3%, which is lower than the national average for African-American students (5%). Of particular note is the finding for

¹ These CPS statistics are from the Ryan and Siebens report (2012). It can be accessed here: <http://www.census.gov/prod/2012pubs/p20-566.pdf>.

² In this study, we use the National Center for Education Statistics' definition for "dropout rate," which "represents the percentage of 16–24-year-olds who are not enrolled in school and have not earned a high school credential (either a diploma or an equivalency credential such as a General Educational Development [GED] certificate)." It can be accessed here: http://nces.ed.gov/programs/coe/indicator_sde.asp.

African-American males between the ages of 16–19: a 0% dropout rate. This means that 100% of African-American males between the ages of 16–19 who do not yet have their high school diploma are currently enrolled in high school.

- *STEM Degrees*
 - Half of NFTE alumni in this survey graduated with a STEM-related degree. Of these graduates, 47% were African American. In 2009, only 7% of STEM degrees were awarded to African Americans nationally.
 - NFTE African-American college graduates with a STEM degree earned approximately 25% more than their NFTE peers who do not hold a college degree. STEM degrees are associated with higher future earnings; a recent study confirmed that minority students with a STEM degree earn at least 25%—and up to 50%—more than their peers with humanities degrees (Balsone, 2012).

Employment

- 88% of NFTE alumni between the ages of 25–40 with a high school diploma are employed. In comparison, 69% of individuals between the ages of 25–40 with a high school diploma are employed nationally (CPS 2012).
- *Income*
 - The average annual income of NFTE graduates over the age of 25 with a minimum of a high school diploma is \$38,000 USD per year. The comparison to the national annual income of \$24,000 USD over the age of 25 favors NFTE graduates (CPS, 2011).
 - On average, NFTE male alumni over the age of 25 with a minimum of a high school diploma make \$43,000 a year. This compares favorably to the national average of \$30,600 for the same population (CPS, 2011).
 - On average, NFTE female alumnae over the age of 25 with a minimum of a high school diploma make \$34,000 a year. This compares favorably to the national average of \$18,000 for the same population (CPS, 2011).
 - The average income for **male** NFTE alumni between the ages of 25–34 is \$44,000 USD. The comparison to the national annual income of \$32,500 USD for males in the same age group favors NFTE alumni (CPS, 2011).
 - The average income for **female** NFTE alumni between the ages of 25–34 is \$32,200 USD. The comparison to the national annual income of \$25,700 USD for females in the same age group favors NFTE alumni (CPS, 2011).

- The average annual income of self-employed NFTE graduates over the age of who have a minimum of a high school diploma is \$44,000 USD. This average climbs to \$49,000 USD for individuals over the age of 30.
- *Self-Employment*
 - Among NFTE alumni, one out of every five employed individuals is self-employed³. NFTE alumni outperform the U.S. self-employment rate where one out of every nine employed individuals is self-employed (Hipple, 2010).

Job Creation

- 56 of 109 self-employed NFTE alumni reported hiring a total of 220 individuals, creating a total of 329 new jobs (109 self-employed NFTE alumni + 220 employees = 329 new jobs).

Start-up Activities

- NFTE alumni participated in an average of five start-up activities within the past year⁴. For comparison, a group of university science and engineering students who took an EEP participated in an average of three start-up activities.

Entrepreneurial Attitudes

- On a seven-point scale, the average rating given by NFTE alumni for desirability of becoming an entrepreneur is 4.7, meaning the average NFTE alum responded that they agree that starting a business is attractive. For sake of comparison, a group of German university students enrolled at a school of business gave an average rating of 4.4 on a similar construct for perceived desirability (Von Graevenitz et al., 2010).
- On a seven-point scale, the average rating given by NFTE alumni for their sense of self-efficacy is 4.5, meaning the average NFTE alum responded that they agree that they are capable of starting a business. For sake of comparison, a group of university students enrolled in science and engineering programs who were also enrolled in an EEP scored an average of 4.2 for on the same construct for perceived behavioral control (Souitaris, 2007).

³ Out of the survey respondents, 495 reported they were employed, with 109 of those reporting they were self-employed (22%).

⁴ Start-up activities include **business planning activities** (i.e., prepared a business plan, organized a start-up team, looked for facilities/equipment, acquired facilities/equipment, developed a product/service, conducted market research, devoted oneself full-time to her/his business), **financing activities** (i.e., saved money to invest, invested own money in start-up, applied for bank funding, received bank funding, applied for government funding, received government funding), and **interaction with the external environment** (i.e., registered the business, conducted sales promotion activities, hired employees).

I. Introduction

Throughout the world there is growing interest in helping people develop and acquire entrepreneurial knowledge, skills, and attitudes (World Economic Forum, 2011). It is generally believed that entrepreneurs can produce innovation, contribute to economic development and generate work for themselves and others (Kuratako, 2005). Entrepreneurship education is a popular intervention around the world, supported by private groups, governments, and development organizations as a way to help young people develop skills that enable them to create jobs for themselves and others (UNCTAD, 2012). Increasingly, entrepreneurship education programs (EEP) have been made available to youth in the United States and abroad.

The knowledge base that supports this increased programming in entrepreneurship is largely practice-based (Henry & Leitch, 2005a and 2005b). Despite the popularity of EEPs, evaluations of these programs have been limited by design constraints that disallow both causal inferences and the reliable estimation of the impact of these programs (Henry & Leitch, 2005a and 2005b)⁵. One of the anticipated, but untested, long-term effects of entrepreneurship education programs (EEP) is the creation of a new generation of entrepreneurs (Henry & Leitch, 2005a and 2005b). Some argue that the earlier students are exposed to entrepreneurship, the more likely they will exhibit entrepreneurial traits later in life such as curiosity and creativity (Kourilsky & Walstad, 1998; Block & Stumpf, 1992).

Today, there is a general consensus that students can acquire entrepreneurial skills and knowledge through courses on entrepreneurship (Vesper, 1985; Clark et al., 1984; Kantor, 1988). Most EEPs include near-term objectives such as teaching students about the process of starting a new business and increasing students' sense of self-efficacy—that is, their belief in their own ability to successfully launch an enterprise (Henry & Leitch, 2005a and 2005b). Early exposure to entrepreneurship education may also encourage students to consider self-employment as a career option.

A 2001 report commissioned by the D.C. Children and Youth Investment Trust Corporation developed a comprehensive list of anticipated short-term benefits of EEPs. It includes the following positive outcomes: 1) improved academic performance, school attendance, and educational attainment; 2) increased problem-

⁵ Very few existing evaluations of EEPs designed for youth and young adults are true experiments (a methodological approach that allows the estimation of causal effects of predictor variables on outcomes, by intentionally controlling for the potential effects of other influences on the outcome of interest). True experiments randomly assign participants to control and treatment groups; and this design, assuming a large enough sample, creates groups of participants that are equivalent on all unobserved characteristics. This approach enables researchers to account for rival explanations for potential differences in outcomes among the treated and untreated groups that other research designs are unable to address (Light, 1990, p. 5).

solving and decision-making abilities; 3) improved interpersonal relationships, teamwork, money management, and public speaking skills; 4) job readiness; 5) enhanced social psychological development (self-esteem, ego development, self-efficacy); and 6) perceived improved health status (Logic Models and Outcomes for Youth Entrepreneurship Programs, 2001).

II. Overview of Alumni Study

This study examines the longer-term effects of participation in an entrepreneurship education program (EEP) on a group of alumni (n = 1,282) who participated in EEPs organized by the Network for Teaching Entrepreneurship (NFTE). These outcomes include educational success, entrepreneurial attitudes, employment achievements, and engagement in start-up activities. Unlike many other organizations working in this space, NFTE articulates a clear theory of change for their programs: “If a young person participates in a NFTE program, then he or she will develop a set of knowledge, attitudes, and skills that support personal growth and ownership. If students develop the knowledge, attitudes, and skills, then they will become responsible entrepreneurial citizens that make good financial, business, and personal decisions in the future” (NFTE Stakeholder Presentation, 2012). In other words, NFTE programs aim to develop entrepreneurial knowledge, attitudes and skills in students in order to prepare them for life outside of school.

Based on NFTE’s theory of change, appropriate outcomes to measure in program evaluations are 1) entrepreneurial knowledge, meaning an understanding of how a business works and knowing how to evaluate a possible business venture (Cooper, 2007); 2) entrepreneurial skills like creativity and flexibility (Oosterbeek, 2008); and 3) entrepreneurial attitudes such as an individual’s risk-taking propensity and need for achievement (Oosterbeek, 2008). In this alumni study, we are able to explore the missing link between EEPs and longer-term objectives, such as business creation, which have not yet been formally tested (Henry, 2005a and 2005b).

III. Overview of NFTE & NFTE Programs

NFTE, founded in 1987, is an international, non-profit organization that delivers EEPs to youth from disadvantaged communities. The organization has a clearly articulated mission statement that defines the organization’s activities, intended target audience, and desired future outcomes. NFTE’s stated mission is “to provide programs that inspire young people from low-income communities to stay in school, to recognize business opportunities and to plan for successful futures” (NFTE website, 2013). To date, NFTE has worked with more than half a million youth in the United States and internationally.

NFTE Program Offerings

Students can participate in several types of programs: NFTE classroom programs, a NFTE BizCamp[®], or advanced programs that support business start-up.

- **NFTE Classroom Program** (duration: one semester to an academic year; ages 13–18): A NFTE classroom program delivers an in-depth introduction to entrepreneurship and consists of the following core components: opportunity recognition, market analysis, developing a marketing plan, and principles of successful selling. Concurrently, participants learn different skills to help them analyze their finances, specifically how to calculate monthly sales projections, how to conduct a break-even analysis, and how to read the structure of projected/yearly income statements. They also learn to calculate return on sales and return on investment and develop a financing strategy.

The NFTE classroom program combines in-class learning with immersive field trips and guidance from volunteer coaches. Students have the opportunity to interact with real-world entrepreneurs through a volunteer program that brings these business leaders into the classroom. At the end of the course, students participate in a business plan competition.

This classroom program is designed to help individuals achieve broader developmental and work-readiness goals by putting new skills and business competencies into practice. The intent is that participants will learn and develop a range of valuable hard and soft skills that are applicable in life, school, and the workplace.

The hard skills that are developed during the program are technical in nature and have immediate practical application. Some of these skills include computer and information technology skills, business communication, public speaking and oral communication, and planning and time management. Participants also develop soft skills such as leadership, personal growth, perseverance, and following through. Ultimately the practice and mastery of these skill sets enables individuals to contribute to economic growth through private sector creation. NFTE refers to this, in total, as instilling the entrepreneurial mindset in young people.

- **NFTE BizCamp[®]** (duration: two weeks over the summer or school breaks; ages 13–18): A NFTE BizCamp[®] is a time-compressed version of the NFTE Classroom Program: it covers the same material, includes immersive field trips, has guest speakers, and culminates in a business plan competition. In addition to teaching participants how to identify, evaluate, and develop potential business opportunities, the program organizes three field trips in the areas of business exposure, buying, and selling. At the end of the camp, individuals present a business plan and compete in a business plan

competition. The BizCamp[®] program is similarly designed to help youth to achieve developmental and work-readiness goals using a range of valuable hard and soft skills that are applicable in life, school, and the workplace; it also develops the same hard skills that are technical in nature and have immediate practical application.

- **NFTE Advanced Programs** (duration: 5–6 weeks during the summer, ages 16–18): This program is intended for students over the ages of 16 who have already completed their business plans through a NFTE program and are ready to implement. This program provides students with various supports to help them succeed including a stipend, an investment grant, and mentorship over the summer and into the following year.

NFTE Program Length

NFTE notes that “in just 65 hours, NFTE's highly academic and experiential program can change a young person's life” (NFTE website, 2013). NFTE is one of the few youth entrepreneurship education organizations that gives specific guidelines about what constitutes an appropriate length for a youth EEP by identifying an approximate number of contact hours needed to produce the desired long-term effects on students.

IV. Overview of NFTE Alumni Group and Comparison Data Sources

The NFTE alumni group responding to the survey consists of 1,282 individuals who are, on average, 20 years old. The majority of the NFTE sample falls between the ages of 13 and 28 years old. 58% of the sample is female and 42% is male. Approximately half of the sample self-describes as African American (51%), a quarter of the sample self-describes as Hispanic (24%), and one-fifth of the sample self-identifies as white (20%). 93% of the sample has American citizenship.

NFTE Program Participation

The majority of the alumni (90%) only participated in one NFTE program, while 9% of alumni participated in two NFTE programs. Less than 1% of this alumni cohort reported having participated in three or more NFTE programs.

- **Participation in one NFTE program:** The majority of alumni, who reported having participated in only one program, participated in the classroom program. Specifically, 86% of NFTE alumni that participated in one program took the NFTE classroom program, 9% were BizCamp[®] participants, and 5% participated through a community based organization (CBO) or reported having participated in NFTE in another format (other).

- **Participation in two NFTE programs:** The most popular NFTE program combination was a NFTE classroom program together with a NFTE BizCamp®. Approximately 60% of 2-program alumni reported this combination.
- **Participation in three or more NFTE programs:** Less than 1% of NFTE alumni reported having participated in three or more types of NFTE programs.

Comparison Data Sources

This study is non-experimental quantitative research, meaning there is no control over the independent variable of interest (i.e., participation in a NFTE entrepreneurship education program). This type of research design allows us to describe the current state of employment, levels of academic achievement, and entrepreneurial attitudes of NFTE alumni regarding certain outcomes of interest. The comparison data sets are only meant to provide a benchmark of national averages in order to put the findings from the NFTE alumni study into context. Below, we enumerate the various sources of comparison data that are used in this study.

Educational attainment

- National Center for Education Statistics' Common Core of Data, 2013
- Current Population Survey, 2011 (CPS)
- Melguizo, T. & Wolniak, G. (2012). The Earnings Benefits of Majoring in STEM Fields Among High Achieving Minority Students. *Research in Higher Education*, 53(4): 383–405.

Employment status and income

- Labor Force Statistics from the Current Population Survey, 2012
- Bureau of Labor Statistics, 2009

Start-up activities

- The measure for start-up activities was introduced in the following article (which is used as a basis for comparison): Souitaris, V., Zerbinati, S. & Al-Laham, A. (2007). Do entrepreneurship programs raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration, and resources. *Journal of Business Venturing*, 22: 566–591.

Attitudes towards entrepreneurship

- The measure for perceived desirability was introduced in the following article (which is used as a basis for comparison): Souitaris, V., Zerbinati, S. & Al-Laham, A. (2007). Do entrepreneurship programs raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration, and resources. *Journal of Business Venturing*, 22: 566–591.

- The measure for perceived behavioral control was introduced in the following article (which is used as a basis for comparison): Von Graevenitz, G. et al. (2010). The Effects of Entrepreneurship Education. *Journal of Economic and Behavior Organization*, 76: 90–112.

V. Educational Attainment

One of the anticipated positive benefits of entrepreneurship education programs is improved educational attainment. Some argue that participation in an EEP can help with student persistence in high school and later educational attainment. By extension, it is believed that entrepreneurship education programs can help curb the national high school dropout rate.

The NFTE alumni survey captures a snapshot of the educational achievement of recent NFTE participants. Given NFTE's stated mission to "target young people who are at risk of dropping out of school, and help them graduate with their own personal plans for success" (NFTE website), we can interpret low high school dropout rates as one indicator of NFTE's success. An important finding of this study is that recent participation in a NFTE EEP (i.e., within the past two years) is correlated with lower high school dropout rates.

In this survey, NFTE alumni were asked about their current school enrollment status (high school or college), the highest level of school or degree that the student completed, and the field of their degree if they are college graduates. All higher-education degrees were coded for whether or not they were STEM-related (science, technology, engineering, and mathematics).

In this section, we determine the percentage of NFTE alums with a high school diploma and examine high school graduation rates. We also look at high school dropout rate of the NFTE alumni respondents and compare it to the national average. We then analyze the composition of school enrollment for the NFTE alumni respondents. Finally, we examine overall school enrollment rates and STEM-related degrees.

Minimum of a High School Diploma

In this sample, 99.3% of NFTE alumni over the age of 25 have a minimum of a high school diploma. This compares favorably with the national average of 85% of Americans over the age of 25 with a high school diploma (Ryan & Siebens, 2012). 98.2% of African-American NFTE alumni over the age of 25 have a high school diploma, which also compares favorably to the national average of 81.4% of African Americans over 25 years holding a high school degree or higher.

High School Graduation Rates of NFTE Students

In this sample of NFTE alumni, 89% of NFTE alumni over the age of 19 have a minimum of a high school diploma, and this climbs to 99% of NFTE alumni over the age of 22. For purpose of comparison, in 2009 a report commissioned by America's Promise Alliance captured the differences in graduation rates for 50 of America's largest cities, some of which are home to NFTE Program Offices (Swanson, 2009). They reported the following graduation rates in the cities where there is a NFTE

office: Baltimore—73.6%; San Francisco Bay Area—75.1%; Chicago—75.6%; Dallas—68.2%; Washington, D.C.—74.9%, New York City—71.4%; Philadelphia—77.2%; South Florida (Miami)—57.2%; Los Angeles—63.8%; and New England Area (Boston)—78.3%.

Figure 1. NFTE High School Completion Rates by Age

- 72% of NFTE alumni over the age of 18 have a minimum of a high school diploma
- 89% of NFTE alumni over the age of 19 have a minimum of a high school diploma
- 97% of NFTE alumni over the age of 20 have a minimum of a high school diploma
- 98% of NFTE alumni over the age of 21 have a minimum of a high school diploma
- 99% of NFTE alumni over the age of 22 have a minimum of a high school diploma

Figure 1. NFTE High School Completion Rates by Age.

High School Dropout Rate of NFTE students

By examining the current school enrollment status of the NFTE alumni, we are able to estimate the dropout rate for this group of students. The U.S. Department of Education's National Center for Education Statistics' (NCES) Common Core of Data (CCD) defines a dropout as "a student who was enrolled at any time during the previous school year who is not enrolled at the beginning of the current school year and who has not successfully completed school"⁶. A recent report released by the NCES (2013) estimates the national dropout rate to be at an all-time low of 3.4% (Stillwell et al. 2013). Another finding of this national study is that the dropout rate tended to be higher for males (3.8%) than for females (2.9%). Finally, African-American students on average had one of the highest national dropout rates (5.0%).

Dropouts have also been defined as individuals between the ages 16 to 24 who are not enrolled in and have not completed high school (Lehr, 2004). Due to the nature of the NFTE dataset, I explore dropout rates within this age range. With 50% of the NFTE alumni respondents under the age of 19 years, I calculate the dropout rate for the younger half of the sample (ages 16–19) and the older half of the sample (ages of 20–24). See Figure 2 and Figure 5 for statistics on the dropout rates for the younger and older halves of the sample. I also include an overall estimate of the dropout rate for students between the ages of 16–24.

Dropout rate for NFTE alumni between the ages of 16 to 19

The dropout rate for NFTE alumni between the ages of 16–19 is less than the national average (1% versus 3.4%, respectively). While there is a difference in dropout rates between NFTE alumni females (2%) and males (0%) within this age range, both of these dropout rates are lower than the national average (3.4%).

⁶ The event dropout rate describes the proportion of students who drop out in a single year. The rate is the number of students who drop out of a given grade divided by the number of students enrolled in that grade at the beginning of that school year.

This study uncovers an interesting trend for younger African Americans NFTE alums relative to the general population. That is, this group of minority students has a high school dropout rate of 3%, which is lower than the 5% national average for African American students. Of particular note is the finding for African-American males in this age bracket: a 0% dropout rate. In this study, African-American female alums had a higher dropout rate than African American male alums (4% dropout rate versus 0% dropout rate). The finding for young African-American females runs counter to the direction of the gender difference in the NCES study in which females on average have lower dropout rates than males.

Figure 2. Dropout rates for NFTE alumni (ages 16–19)

- 99% of NFTE alumni respondents between the ages of 16 and 19 are currently enrolled in high school.
- 100% of NFTE alumni males between the ages 16 and 19 are currently enrolled in high school. Similarly, 100% of African American males are enrolled in high school.
- 98% of NFTE alumni females between the ages of 16 and 19 are currently enrolled in high school. 96% of African American NFTE alumni females between the ages 16 and 19 are currently enrolled in high school.

Dropout rates for NFTE alumni between the ages of 20 and 24

Figure 5 shows that NFTE alumni within the 20–24 age bracket have a dramatically higher dropout rate (27%) than NFTE alumni between the ages of 16–19 (1%). Despite this alarmingly high dropout rate for older NFTE participants, individuals between the ages of 20–24 who participated in a NFTE EEP *within the past two years* had an average dropout rate of 6%⁷. This is much closer to the overall national trend of 3.4%. This finding suggests that at-risk, overage high school students may be more likely to stay in school if they recently participated in a NFTE EEP⁸. In the last section of this paper (Recommendations for Future Studies), we suggest possible designs of future studies that could further investigate this promising finding of the effect of NFTE programs.

Even more dramatic is the difference in dropout rate for African American males between the ages of 20–24 who recently participated in a NFTE EEP (0% dropout rate) versus those who participated in a NFTE EEP more than 2 years ago (30%). The finding suggests that a high school African American male is more likely to still be

⁷ This compares to a dropout rate of 29% for those alums between the ages of 20–24 who participated in a NFTE program prior to 2011. The dropout rate for this group of students is nearly nine times the national average of 3.4%.

⁸ I define “recent EEP participation” as having participated in a NFTE program after 2011 (the median year of participation in a NFTE EEP reported by alumni).

enrolled in school if he participated in a NFTE EEP within the past 2 years⁹. To better understand this association, qualitative interviews with students could be conducted to help contextualize student motivations behind dropping out of high school versus staying in high school. Figures 3 and 4 compare the dropout rates for African American male alums between the ages of 20–24 based on whether they recently participated in an NFTE EEP.

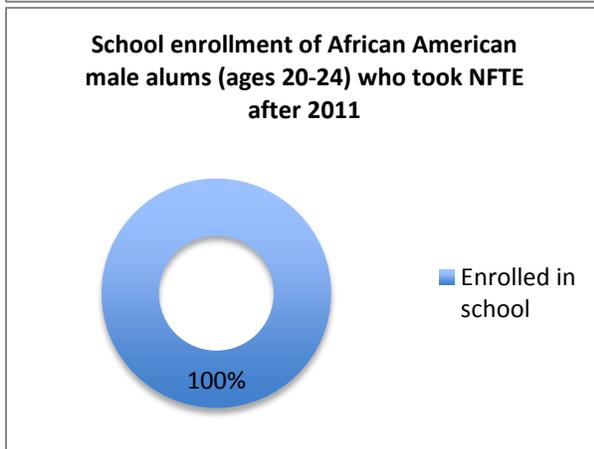
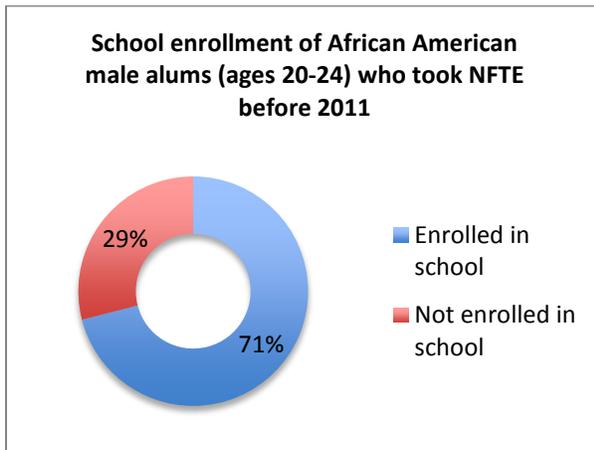


Figure 3. School enrollment of African American American Male NFTE Alums between the ages of 20–24, who took a NFTE course before 2011.

Figure 4. School enrollment of African American Male NFTE Alums between the ages of 20–24 who took a NFTE course after 2011.

⁹ While these findings are not causal in nature, there is an association between the recentness of a student’s NFTE experience and their high school dropout status.

Figure 5. Dropout rates for NFTE alumni (ages 20 – 24)

- 77% of NFTE alumni respondents between the ages of 20 and 24 are currently enrolled in high school.
- 78% of African American NFTE alumni males between the ages 20 and 24 are currently enrolled in high school.
- 76% of African American NFTE alumni females between the ages 20 and 24 are currently enrolled in high school.

Interestingly, a high percentage of high school dropouts between the ages of 20–24 are self-employed (18%). This is double the overall percentage of NFTE alumni who are self-employed (9%). These higher rates of self-employment could be due to the fact that students, not seeing the relevance of the classes they are currently enrolled in, choose to drop out of high school in order to pursue self-employment. Qualitative follow-up interviews with participants who met these criteria could help unpack these findings.

Overall Dropout Rates for NFTE Alumni between the ages of 16 and 24

The seemingly high dropout rate (10%) for NFTE alumni between the ages of 16–24 masks an important subtlety of this group of alumni (Figure 8): high school dropout rates are dramatically lower for students who participated in a NFTE course within the past two years. Specifically, the dropout rate for students who recently took a NFTE course is nearly half of the national average (2% versus 3.4% respectively). Figures 6 and 7 show the school enrollment rates of NFTE alums based on the recentness of participation in a NFTE course.

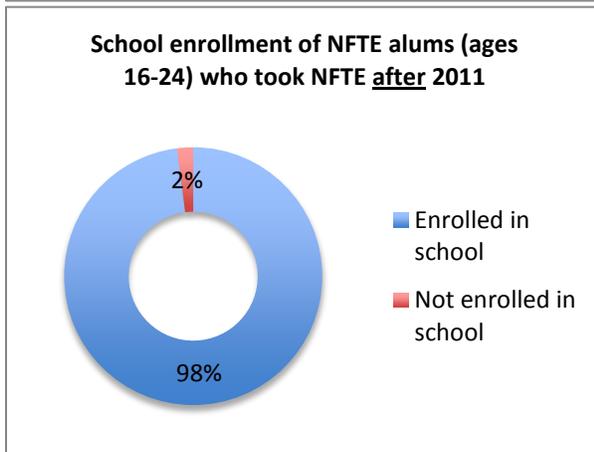
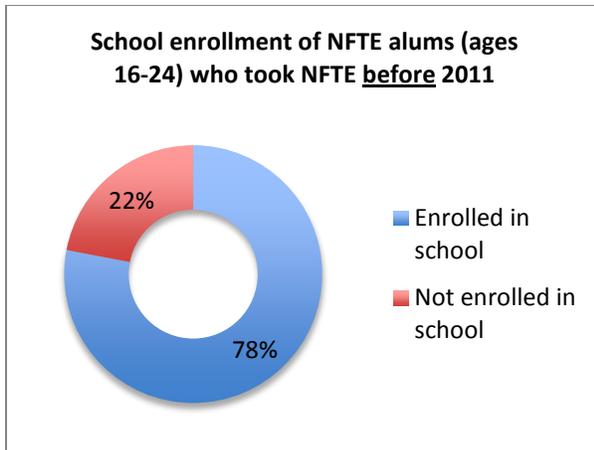


Figure 6. School enrollment of NFTE Alums between the ages of 16–24, who took a NFTE course after 2011.

Figure 7. School enrollment of NFTE Alums the ages of 16–24 who took a NFTE course

Figure 8. Dropout rates for NFTE alumni (ages 16–24)

- 90% of NFTE alumni respondents between the ages of 16 and 24 are currently enrolled in high school.
- 90% of African American NFTE alumni males between the ages 16 and 24 are currently enrolled in school.
- 88% of African American NFTE alumni females between the ages 16 and 24 are currently enrolled in school.

School Enrollment

The overwhelming majority (82%) of the NFTE alumni survey respondents are currently enrolled in either high school or college. Out of the respondents who are

not currently enrolled in school, 92% report having obtained the minimum of a high school degree (n=237)¹⁰. Contrasting with the national average of approximately 60% enrollment in high school or college for students between the ages of 16–24 (CPS, 2011), nearly 90% of NFTE alumni within the same age range are currently enrolled in school.

Science, Technology, Engineering, and Mathematics (STEM) Degrees

Half of NFTE alums in this survey graduated college with a STEM-related degree. Of these graduates, 47% were African American. Minority students are traditionally underrepresented in science, technology, engineering, and mathematics degree programs. For sake of comparison, in 2009 only 7% of STEM degrees were awarded to African Americans nationally. Furthermore, STEM-degrees are associated with higher future earnings, and a recent study confirmed that minority students with a STEM degree earn at least 25% more than their peers with humanities degrees (Melguizo et al., 2012). More generally, NFTE African Americans college graduates with a STEM degree earned approximately 25% more than their peers who do not hold a college degree.

VI. Employment Status and Income

NFTE’s theory of change is explicit about the link between the association of entrepreneurial knowledge, skills, and attitudes with future financial, business and personal success. It is unsurprising that another long-term anticipated benefit of participating in an entrepreneurship education program is employment. In this section, I examine the employment statistics, average income, and the prevalence of being a business owner within the NFTE alumni cohort. Data from the Current Population Survey provides one of the bases for comparison.

Employment statistics

88% of NFTE alumni with a high school diploma between the ages of 25 and 40 are employed. In comparison, 69% of individuals nationally with a high school diploma, between the ages of 25–40, are employed (CPS 2012).

Average Income

The average annual income of NFTE graduates with a minimum of a high school diploma and over the age of 25 make \$38,000 USD per year. The comparison to the national annual income of \$24,000 USD for both males and females over the age of 25 favors NFTE graduates (CPS, 2011). On average, NFTE male alumni over the age

¹⁰ Of the NFTE alumni that are currently not enrolled in school, 17% report having obtained a high school diploma, 25% have completed some college, 42% report having an associate’s degree or a bachelor’s degree, and 8% have higher degrees such as a master’s degree (M.A., M.S., M.Eng., M.Ed., M.S.W., M.B.A.), a professional degree beyond a bachelor’s degree (such as an M.D., D.D.S., D.V.M., LL.B., J.D.), or a doctorate degree (Ph.D., Ed.D.). Only 8% of NFTE alumni that are not currently enrolled in school do not have a high school degree.

of 25 with a minimum of a high school diploma make \$43,000 a year. This compares favorably to the national average of \$30,600 for males with a high school diploma (CPS, 2011). On average, NFTE female alumni over the age of 25 with a minimum of a high school diploma make \$34,000 a year. This compares favorably to the national average of \$18,000 for females with a high school diploma (CPS, 2011). The average annual income of self-employed NFTE graduates over the age of 25 who have a minimum of a high school diploma is \$44,000 USD. This average climbs to \$49,000 USD for self-employed individuals over the age of 30.

The average annual income for male NFTE alumni between the ages of 25 and 34 is \$44,000 USD. The comparison to the national annual income of \$32,500 USD for males in the same age group favors NFTE alumni (CPS, 2011). The average annual income for female NFTE alumni between the ages of 25 and 34 is \$32,200 USD. The comparison to the national annual income of \$25,700 USD for females in the same age group favors NFTE alumni (CPS, 2011).

The average income for NFTE alumni who are not currently enrolled in high school or college is approximately \$28,000 USD¹¹. Alumni who participated in NFTE more than five years ago (and are not currently enrolled in school) are making well above this overall average: specifically, an average of \$37,000 USD annually. Those who participated in NFTE more than 7 years ago are making an average of \$45,000 USD annually. And those who participated in NFTE more than 10 years ago are making an average of \$48,000 USD annually¹². Figure 9 depicts these averages.

¹¹ Because there was no measure for full-time versus part-time jobs in the survey, we have used school enrollment (high school and college) as a proxy to identify individuals who may be working full-time jobs. When the restriction of school enrollment is not applied, the average income for all NFTE alums is approximately \$10,000USD.

¹² The average age of alumni who participated in their program before 2008 is 25 years old. Those who participated in NFTE prior to 2005 are on average 28 years old. Those who participated in NFTE prior to 2003 are on average 30 years old.

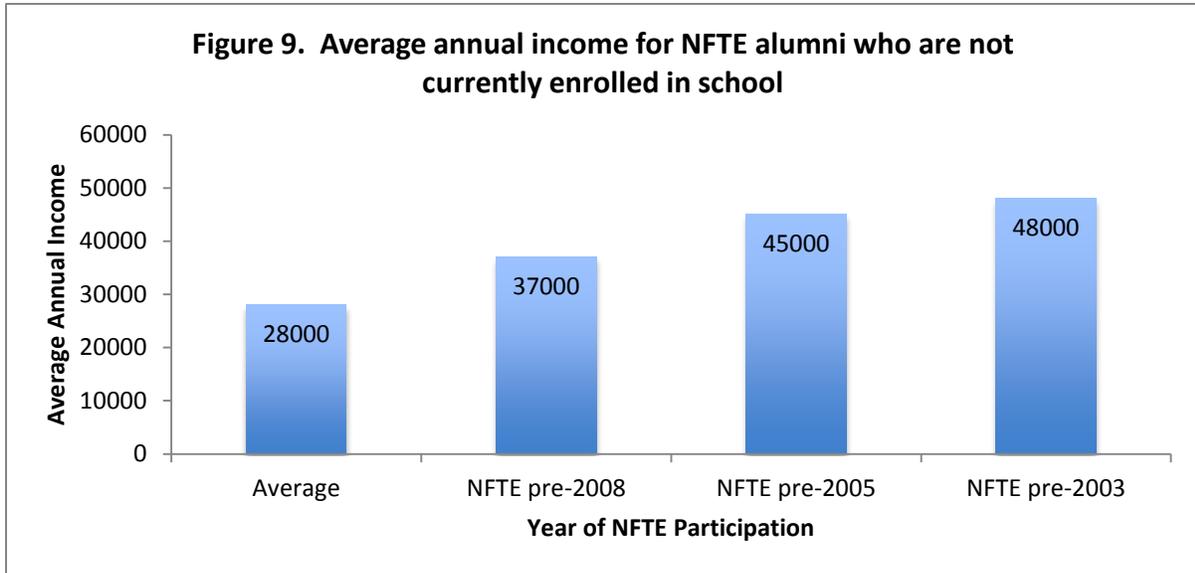


Figure 9. Average annual income for NFTE Alumni based on their year of participation in the NFTE program.

NFTE BizCamp[®] and Average Income

Participation in a BizCamp[®] is correlated with higher earnings. Employed alumni who only participated in a NFTE BizCamp[®] (n = 77; average age = 26 years old) earn, on average, \$33,000 USD per year. Employed alumni who only participated in a NFTE classroom program (n = 349; average age = 22) make an average of \$17,000 USD per year.

This association between NFTE BizCamp[®] participation and higher earnings, while interesting, does not imply causation. There are many different factors that can account for this difference in earnings. First, the group of alumni who only participated in the NFTE BizCamp[®] program are, on average, four years older than the students who only participated in the NFTE school program. As we saw earlier in this report, there is an association between the amount of time since participating in a NFTE program and higher earnings. Second, there may be a host of unobservable characteristics that distinguish NFTE BizCamp[®] participants from NFTE classroom participants.

NFTE Alumni and Self-Employment

Among NFTE alumni, one out of every five employed individuals is self-employed¹³. NFTE alumni outperform the U.S. self-employment rate where one out of every nine

¹³ The self-employment rate among NFTE alumni is approximately 22%. This rate is calculated by obtaining the “proportion of total employment that is made up of self-employed” (Hipple, 2010). This rate is calculated by obtaining the “proportion of total employment that is made up of self-employed” (Hipple, 2010). In this sample 109 individuals are self-employed. There are a total of 495 employed individuals in the NFTE sample. Therefore the self-employment rate in the NFTE sample is $109/495 = 0.22 \times 100 = 22\%$.

employed individuals was self-employed (Hipple, 2010). On average, NFTE business owners were profitable during the past year: approximately 70% were profitable with an average net profit of \$12,920.

Of this group of self-employed individuals, 6% have unincorporated businesses (n = 72), while 3% own legally incorporated businesses (n = 37). When we break this down and look at subsets within the survey respondent data set, we observe that 2.1% of alumni between the ages of 16–19 are self-employed. This compares to a national average of 0.9% individuals between the ages of 16–19 who are self-employed (Hipple, 2010)¹⁴. Approximately 10% of NFTE alumni between the ages of 20–24 are self-employed; this compares to a national average of 3.6% of individuals who are self-employed between the ages of 20–24 (Hipple, 2010).

Similar to the correlation observed between income and year of NFTE program participation, NFTE alumni appear more likely to be business owners the more time that has passed since their participation in a NFTE program. For example, a higher percentage of alumni who took a NFTE course more than five years ago are business owners (21%) than those who participated in a NFTE course less than five years ago (4%). Even more notable is the fact that 40% of alumni who participated in NFTE more than 10 years ago are business owners (compared to 7%). And finally, 50% of alumni who participated in NFTE more than 15 years ago are business owners (compared to 8%). This finding is consistent with untested hypotheses about the delayed effects of youth EEPs¹⁵; that is, entrepreneurial action is an anticipated, longer-term outcome of a youth EEP that may not be able to be measured until years after participation in an EEP¹⁶. Figure 10 depicts the percent of NFTE alumni who are business owners based on their year of NFTE participation (within the past 2 years, 5 years, 10 years, and 15 years).

NFTE Graduates Employing Others

¹⁴ All of these estimates include both incorporated and unincorporated businesses.

¹⁵ Block and Stumpf (1992) proposed the first set of metrics to gauge the long-term efficacy of an EEP. In addition to measures for the pre-test / post-test phase of an EEP evaluation, they suggest measures for up to ten years after the completion of a program. Between zero and five years post-EEP, they suggest that the “number and type of start-ups created” and the number of “entrepreneurial positions sought and obtained” should also be measured. Between three to ten years post-EEP, they suggest that researchers examine both the “survival and reputation of firms and start-ups” and “change in reputation and innovation level of established firms.” For ten years post-EEP, they propose metrics such as “contribution to society and economy,” “firm performance,” “career satisfaction,” and “personal self-actualization and psychological success.” These outcomes are a preliminary set of guidelines for the design of a longitudinal evaluation of an EEP. In order to determine the long-term impacts of EEPs, a comprehensive list of distal indicators, possibly informed by those suggested by Block and Stumpf, should be identified and incorporated into evaluations.

¹⁶ Many evaluations of youth EEPs use a measure for *entrepreneurial intent* as a proxy for students’ future entrepreneurial action (Brown et al., 2011; Cooper et al., 2007; Klapper, 2004; Souitaris et al., 2007; Von Graevenitz et al., 2010).

56 self-employed NFTE alums reported hiring a total of 220 individuals. This group of alumni created a total of 329 new jobs (109 total self-employed NFTE alums + 220 employees = 329 new jobs).

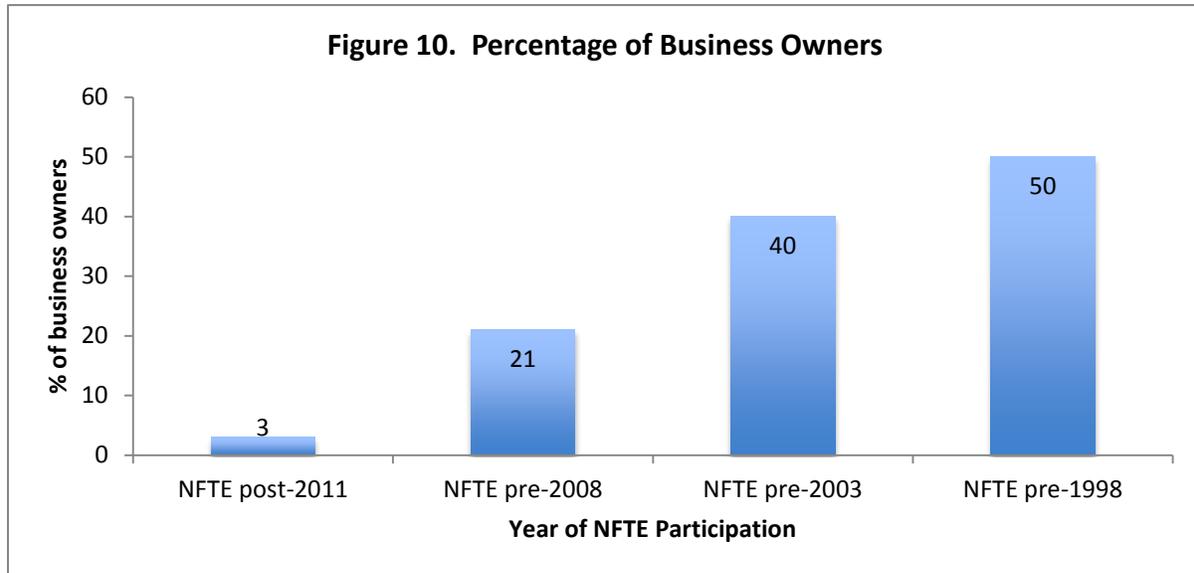


Figure 10. Percentage of NFTE Alumni who are business owners based on their year of NFTE participation (within the past 2 years, 5 years, 10 years, and 15 years).

NFTE BizCamp[®], Business Owners, and Profitability

There is a notable difference in self-employment rates between those who participated in a NFTE BizCamp[®] and those who did not. 27% of NFTE BizCamp[®] participants (who only participated in the BizCamp[®] program) report being self-employed, versus 6% of non-BizCamp[®] participants.

Former NFTE BizCamp[®] participants are also profitable business owners¹⁷. Of the alumni who reported that their business was profitable last year (n = 79), 40% were NFTE BizCamp[®] participants (n = 32). This is of particular interest seeing as only 16% of the alumni sample participated in a NFTE BizCamp[®].

VII. Start-up Activities and Business Planning

In this section, I examine NFTE students' engagement in nascent entrepreneurial behaviors. To assess their engagement, NFTE alumni were asked whether they had initiated or completed 19 different activities typically associated with starting a business (adopted from Souitaris et. al, 2007). These activities are grouped into three different subsections: business planning, financing the new firm, and

¹⁷ 30% of all male NFTE BizCamp[®] participants are business owners, whereas only 14% of female BizCamp[®] participants reported being business owners.

interaction with the external environment. Appendix B is a full list of these activities.

On average, NFTE participants participated in five start-up activities. For sake of comparison, a group of university students enrolled in science and engineering programs, who were simultaneously enrolled in an EEP, only participated in an average of 3 activities from the same list (Souitaris et al., 2007, pg. 582). Although the EEP evaluated in the Souitaris study targets university students, it is an “Exposure Entrepreneurship Program” that is similar to NFTE programs¹⁸.

Similar to the differences observed earlier in this report between NFTE students’ behavior based on when they took their NFTE course, older alumni report having participated in more activities than younger alumni. Figure 11 depicts the number of start-up activities based on year of NFTE participation.

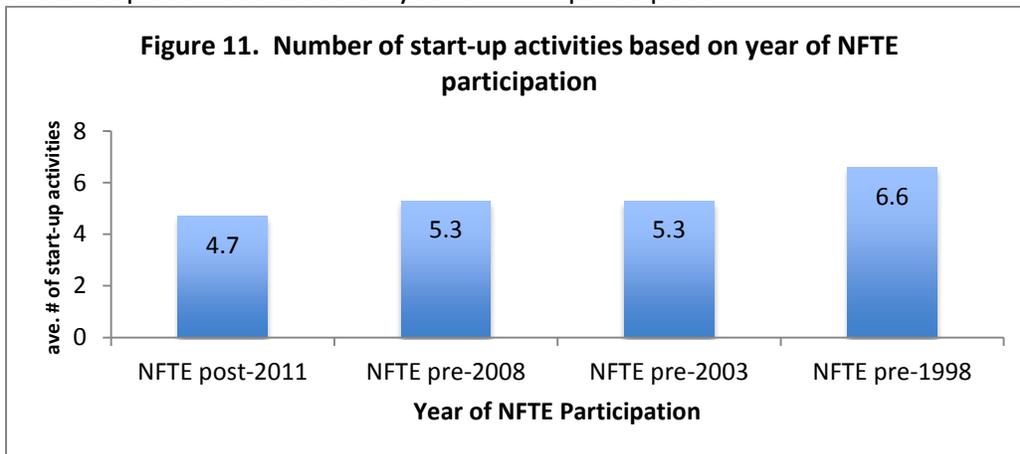


Figure 11. Number of start-up activities based on year of NFTE participation.

BizCamp[®] and Start-up Activities

NFTE BizCamp[®] alumni completed an average of six start-up activities within the past year. In keeping with the trend of active participation and engagement in entrepreneurial activities, older BizCamp[®] alums are participating in more start-up activities than their peers. Males who participated in NFTE BizCamp[®] completed more start-up activities than females (seven activities versus five activities, respectively). African-American females and males who participated in a BizCamp[®] completed an average of six start-up activities within the last year.

¹⁸ “Entrepreneurship Exposure Programs” are programs that assume students have no formal entrepreneurship education training and are not yet entrepreneurs themselves. Many of the programs that fall in this category are those that are intended to pre-university students (i.e., Kindergarten through 12th grade). Because students in the Souitaris study (2007) were enrolled in a program not directly related to entrepreneurship (i.e., business administration or economics), this program is categorized as an “Exposure Program”.

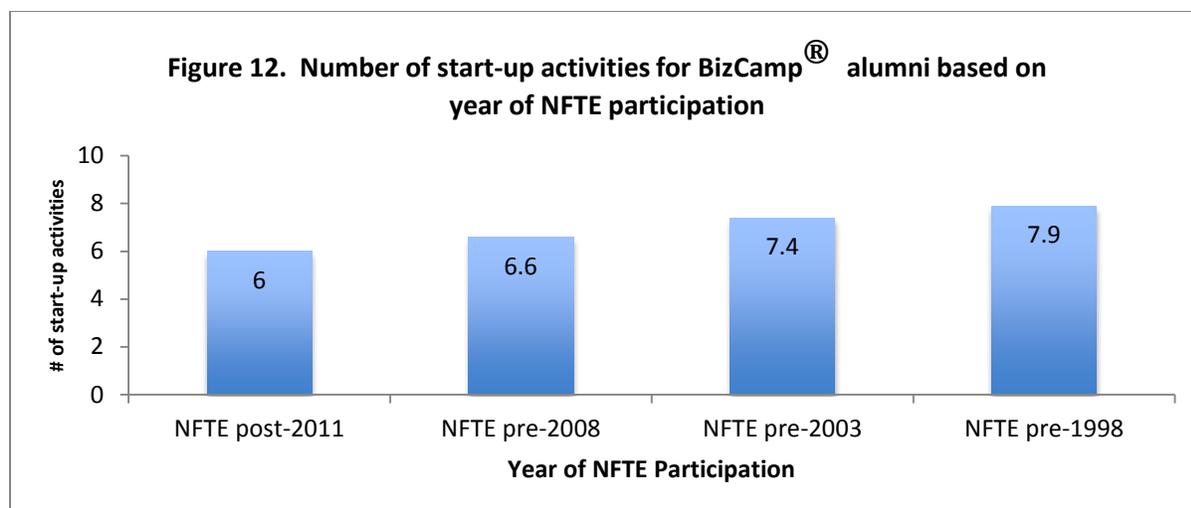


Figure 12. The number of start-up activities of NFTE BizCamp[®] alumni based on their year of participation in a NFTE program.

VIII. Attitudes towards Entrepreneurship

Given the nascent stages of the entrepreneurship education field, validated instruments that reliably measure entrepreneurship attitudes are unavailable. Existing instruments are limited because they only measure entrepreneurial attitudes at a point in time (post-intervention), instead of understanding how these attitudes evolve over time. The few published studies that were repeatedly cited in the field formed the basis for creating an assessment that measured the entrepreneurial attitudes of NFTE alumni (Souitaris et al, 2007; Von Graevenitz, 2010; Reimers, 2012)¹⁹.

Theoretical Models

The main theoretical model that has informed the way in which youth EEPs are evaluated is Icek Ajzen's *Theory of Planned Behavior* (1987). Ajzen's theory provides the theoretical foundation for the majority of EEP evaluations. Central to this theory is the notion that entrepreneurial attitudes and perceptions precede intention. In the application of this model to the field of entrepreneurship, entrepreneurial attitudes are understood to be strong predictors of future entrepreneurial action. Given the widespread prevalence of this theoretical model in the literature around EEPs, we measure students' **perceived desirability** of entrepreneurship (i.e., the degree to which they think starting a business is attractive) and their **perceived**

¹⁹ Ajzen's Theory of Planned Behavior is the underlying theoretical model based on which this, and other EEP evaluations, have been undertaken (Souitaris et al., 2007; Von Graevenitz, 2010; Cooper, 2007). The model establishes that attitudes inform intentions, which in turn, influence entrepreneurial behavior.

behavioral control (i.e., a student's sense of self-efficacy as it relates to being an entrepreneur)²⁰.

The unique aspect of this study is that we are able to examine the association between entrepreneurial attitudes and entrepreneurial action. Unsurprisingly, there is a moderate to strong correlation between a NFTE alum's startup activities and their status as a business owner (0.44). There is a moderate correlation between perceived desirability and the number of start-up activities one engages in (0.36) and a perceived behavioral control and start-up activities (0.25). Of particular interest is the weak correlation between perceived behavioral control and an individual's status as a business owner (0.13)²¹. The assumption in the field is that students with a higher sense of self-efficacy (perceived behavioral control) will be more likely to engage in entrepreneurial behavior. However, this weak association indicates that there is no notable relationship between a NFTE alum's sense of self-efficacy and whether she or he is an entrepreneur.

In this section, we see that NFTE students score above average and positively on both of these attitudes, meaning they find it desirable to become an entrepreneur and believe that they have what it takes to become an entrepreneur in the future. Perhaps most interesting is the finding for perceived desirability on the part of high school dropouts. Slightly over 50% of high school dropouts between the ages of 16–24 are employed. There is an 18% self-employment rate among these high school dropouts. That said, these students do not have a higher sense of self-efficacy than students who stayed enrolled in school. In a future study, it would be important to qualitatively capture the reasons that a student, who had already participated in a NFTE program, decided to dropout of high school.

Perceived Desirability of Entrepreneurship

Perceived desirability is defined as the degree to which an individual finds the prospect of starting a business to be attractive (Fayolle et al., 2006). In the questions that make up this construct, students were asked to report on a seven-point Likert scale (strongly disagree to strongly agree) about the extent to which being self-employed was attractive to them, and if they were willing to make sacrifices and work with a lesser or similar salary being self-employed than working for someone else. The average score for a NFTE alum for this construct was 4.7, meaning the average NFTE alum responded that they agree that starting a business is attractive. For sake of comparison, a group of German university students

²⁰ Perceived desirability refers to the degree to which an individual finds the prospect of starting a business to be attractive (Fayolle et al., 2006). Perceived behavioral control is a measure of a student's sense of self-efficacy. Specifically, this construct accounts for the way in which an individual perceives the "ease or difficulty of performing a given behavior" (Fayolle, 2006, pg. 707).

²¹ All of these correlations are statistically significant.

enrolled at a school of business scored an average of 4.4 on a similar construct for perceived desirability (Von Graevenitz et al., 2010)²².

Perceived Desirability Among High School Dropouts

Among the survey sample, the prospect of being an entrepreneur is more desirable for male high school dropouts (between the ages of 16–24) than for those males who are still enrolled in high school²³. However, while male high school dropouts may score higher on perceived desirability, there is no difference between their sense of self-efficacy for becoming an entrepreneur and their peers' sense of self-efficacy (perceived behavioral control). This trend is also visible for female high school dropouts who find entrepreneurship to be more desirable than their peers who are still enrolled in high school. The difference is even more pronounced between African-American female high school dropouts and their peers²⁴.

Perceived Desirability Among College Students

In general, NFTE males enrolled in college have a higher sense of perceived desirability than females (5.03 and 4.78 respectively). Similarly, male college graduates find being an entrepreneur more desirable than do female college graduates, but this difference gets washed away for employed female and male college graduates.

Perceived Desirability Among NFTE BizCamp[®] Students

NFTE alumni who are both college graduates and participated in a NFTE BizCamp[®] also have a higher sense of perceived desirability than their non-BizCamp[®] peers who are also college graduates (5.2 versus 4.8 respectively). The difference in perception of desirability in becoming an entrepreneur among high school graduates, between BizCamp[®] and non-BizCamp[®] participants, is even greater (5.3 versus 4.7)²⁵.

Perceived Desirability Among Employed Individuals

The average score for perceived desirability of becoming an entrepreneur for employed NFTE graduates is a 5.0.

Perceived Behavioral Control

Perceived behavioral control accounts for the way in which an individual perceives the “ease or difficulty of performing a given behavior,” in this case becoming an

²² This is currently the only other comparison group. Unfortunately, in many of the previous evaluations of youth EEPs there has been a lack of uniformity in the way in which attitudinal outcomes (such as perceived desirability and perceived feasibility) have been measured. These attitudinal measures have only recently started to be measured and reported in a consistent way across studies.

²³ This difference is statistically significant ($p < 0.05$).

²⁴ These differences are statistically significant ($p < 0.01$).

²⁵ These differences are statistically significant ($p < 0.01$).

entrepreneur (Fayolle, 2006, pg. 707). Typically, this entrepreneurial attitude has been measured as an average of six items measuring students' perceptions of their abilities in being self-employed. The construct consists of the following six indicators, each of which were measured on a seven-point Likert scale (strongly disagree to strongly agree):

- "I could easily make a career being self-employed."
- "I would have complete control of external situations were I self-employed."
- "Being self-employed would be very easy for me."
- "Were I self-employed, the chances of success would be very high."
- "There are many things outside my control that stop me from being self-employed."
- "Were I self employed, chances of failure would be very high."

The average score for a NFTE alum on this construct is a 4.5, meaning the average NFTE alum responded that they agree that they are capable of starting a business. For sake of comparison, a group of university students enrolled in science and engineering programs who were simultaneously enrolled in an EEP scored an average of 4.2 for on the same construct for perceived behavioral control (Souitaris, 2007).

Perceived Behavioral Control Among High School Dropouts

There is no statistically significant difference between a NFTE high school dropout and a NFTE student who is enrolled in high school in their sense of self-efficacy. This is consistent with findings from other studies regarding younger students' perceived behavioral control.

Perceived Behavioral Control Among College Students

There is no statistically significant difference between a NFTE college graduate and a student who is not a college graduate in their sense of self-efficacy. Similarly, there is no difference in sense of self-efficacy between an employed college graduate and an employed individual who has not graduated from college.

Perceived Behavioral Control Among NFTE BizCamp[®] Students

There is no statistically significant difference in the sense of self-efficacy between a college graduate who participated in a BizCamp[®] versus those who did not participate in a BizCamp[®].

Perceived Behavioral Control Among Employed Individuals

There is a statistically significant difference between the perceived behavior control for NFTE graduates who are employed (excluding self-employment) versus those who are not. However, there is a statistically significant difference of an individual's sense of self-efficacy on the grounds of whether or not they are self-employed (5.0 versus 4.5 respectively).

VIII. Limitations of this Study's Methodology

This study is non-experimental quantitative research, meaning there is no control over the independent variable of interest (i.e., participation in an entrepreneurship education program). This type of research design allows us to describe the current state of employment, levels of academic achievement, and entrepreneurial attitudes of NFTE alumni regarding certain outcomes of interest. The CPS comparison group and other comparison data is only meant to provide a benchmark of national averages for similar measures.

This research design does not adequately allow us to attribute any differences between the NFTE group and selected comparison group to participation in a NFTE program. Similarly, this design does not allow us to attribute differences within the NFTE alumni cohort to a particular aspect of the NFTE program (i.e., BizCamp[®] participation).

The only design that can establish causality in attributing changes to a program is one that randomly assigns participants to both control and experimental groups (Light, 107). Control groups are important because they allow researchers to vary the levels of the predictor (in this case a NFTE EEP) assigned to participants (Light, 103). The results from research that lack control groups are “indecisive” at best, and “at worst, might lead to erroneous conclusions” (Light, 105).

The results of this study should therefore be interpreted as tentative findings that can provide the justification for the proposal of future studies.

XI. Conclusions

Scholars acknowledge that there is general disorganization in the evaluations of entrepreneurship education programs, with “research running ahead of theoretical developments” (Henry & Leitch, 2005a) and with practice running much further ahead than research or theoretical work. At present there is no persuasive empirical evidence that supports or disconfirms the belief that EEPs actually cause students to become entrepreneurs.

That said, these findings raise important questions for policy makers and educators. Some findings suggest that an EEP may have an effect on motivating at-risk students to stay in high school, so one question is whether short-term EEPs could be cost-effective ways of increasing the motivation of overage minority students on the verge of dropping out to stay in high school. Another question is whether EEPs are contributing to the creation of the next generation of entrepreneurs. The evidence from this study suggests that there is a time lag between a student's participation in an EEP and becoming an entrepreneur.

Furthermore, the study raises questions of whether specific EEPs are more impactful than others. Based on the results of this study, NFTE BizCamps® are correlated with higher rates of self-employment, lower rates of high school dropouts, and more positive entrepreneurial attitudes. Owing to the constraints of this study's design, we are only able to provide suggestive answers to the questions above. As such, the field's perennial question—*Does entrepreneurship education create entrepreneurs?*—remains unanswered.

X. Recommendations for Future Studies

1. **Tailor an EEP specifically for overage, at-risk students who are still enrolled in high school. An NFTE EEP may be able to decrease the dropout rate for this especially vulnerable population of students.**
 - a. While 99% of NFTE alumni respondents between the ages of 16–19 are currently enrolled in high school, only 77% of respondents between the ages of 20–24 are currently enrolled in high school.
 - b. High school dropout rates are dramatically lower for students who participated in a NFTE course within the past two years. Specifically, the dropout rate for students (ages 16–24) who recently took a NFTE course is nearly half of the national average (2% versus 3.4%, respectively).
2. **Conduct follow-up interviews with self-employed, high school dropouts to understand their motivations for dropping out of school.**
3. **Capture the success stories of alumni from this data set to inspire and motivate current NFTE students.**
4. **Design a BizCamp® experience that has a STEM component to it. The intention of such a program would be to encourage students to consider a future career in STEM.**
5. **Encourage alumni to use the NFTE alumni platform as a networking opportunity to find possible co-founders, partners, collaborators, etc.**

Appendix A.

I. Entrepreneurial Outcome I: Perceived Desirability

Table 1: Details of indicators that determine Perceived Desirability.

| Variable name | Question |
|------------------------|--|
| Personalsacrifice | "I am willing to make significant personal sacrifices in order to stay in my own business." |
| workmore_ownbus | "I am willing to work more with the same salary in my own business, than being employed in an organization." |
| prefer_ownbus_vscareer | "I would rather own my own business than have a promising career employed by someone else." |
| prefer_ownbus_vsmoney | "I would rather have my own business than have a higher salary employed by someone else." |

II. Entrepreneurial Attitude Outcome II: Perceived Behavioral Control

Table 2: Details of indicators that determine Perceived Behavioral Control.

| Variable name | Question |
|------------------------|---|
| career_selfemp | "If I wanted to, I could easily make a career being self-employed." |
| selfemp_control | "If I were self-employed, I would have complete control over <u>my</u> situation." |
| selfemp_easy | "For me, being self-employed would be very easy." |
| selfemp_success | "If I become self-employed, the chances of success would be very high." |
| selfemp_outsidecontrol | "There are many things outside my control that could stop me from being self-employed." |
| selfemp_failure | "If I became self-employed, chances of failure would be very high." |

Appendix B.

Exhibit A.

Start-up activities for nascency (19 items adopted from Alsos and Kolvereid, 1998)

Segment 1) "Business Planning"

- Prepared business plan
- Organized start-up team
- Looked for facilities/equipment
- Acquired facilities/equipment
- Developed product/service
- Conducted market research
- Devoted full time to the business

Segment 2) "Financing the new firm"

- Saved money to invest
- Invested own money
- Applied for bank funding
- Received bank funding
- Applied for government funding
- Received government funding

Segment 3) "Interaction with the external environment"

- Applied for license patent, etc.
- Hired employees
- Sales promotion activities
- Business registration
- Received first payment
- Positive net income

Appendix C.

Works Cited

- Balasone, M. (2012). *For Minority College Students, STEM Degrees Pay Big*. University of Southern California. Accessed on 15 March 2013 from: www.usc.edu/uscnnews/newsroom/news_release.php?id=2760.
- Block, Z. and Stumpf, S.A. (1992). Entrepreneurship Education Research: Experience and Challenge. In Sexton, D.L. and Kasarda, J.D. (Eds), *The State-of-the-Art of Entrepreneurship* (17–42). Boston, MA: PWS-Kent Publishing Company.
- Brown, K. G., Bowlus, D. & Seibert, S. (2011). *Online Entrepreneurship Curriculum for High School Students: Impact on knowledge, self-efficacy, and attitudes*. In *USASBE 2011 Proceedings* (pp. 1351). United States Association for Small Business and Entrepreneurship.
- Cooper, S., Gordon, J., & Lucas, W. (2007). *Developing Entrepreneurial Self-Efficacy and Intent through Youth Enterprise Programs*. Paper presented at the Small Enterprise Conference. Manukau City, New Zealand.
- Fayolle, A., Gailly, B. & Lassas-Clerc, N. (2006). Assessing the Impact of Entrepreneurship Education Programmes: A new methodology. *Journal of European Industrial Training*, 30(9): 701–720.
- Henry, C., Hill F. & Leitch, C. (2005a). Entrepreneurship Education and Training: can entrepreneurship be taught? Part 1. *Education & Training*, 47(2/3): 98–111.
- Henry, C., Hill F. & Leitch, C. (2005b). Entrepreneurship Education and Training: can entrepreneurship be taught? Part 2. *Education & Training*, 47(3): 158–169.
- Hipple, S. (2010). Self-Employment in the United States. *Monthly Labor Review*. September: 17–32.
- Kantor, J. (1988). *Can Entrepreneurship: Be Taught? A Canadian Experiment*. *JSBE*, 5(4): 12-19.
- Klapper, R. (2005). Training entrepreneurship at a French grand ecole: The Project Entreprendre at the ESC Rouen. *Journal of European Industrial Training*, 29 (9): 678–693.
- Kourilsky, M.L., & Walstad, W. B. (1998). Entrepreneurship and female youth: Knowledge, attitudes, gender differences, and educational practices. *Journal of*

Business Venturing, 13(1): 77-88.

Kuratko, D.F. (2005). The Emergence of Entrepreneurship Education: development, trends, and challenges. *Entrepreneurship Theory and Practice*: 29(5): 577–598.

Lehr, C. A., Johnson, D. R., Bremer, C. D., Cosio, A., & Thompson, M. (2004). *Essential tools: Increasing rates of school completion: Moving from policy and research to practice*. Minneapolis, MN: University of Minnesota, Institute on Community Integration, National Center on Secondary Education and Transition.

Light, R., Singer, J., & Willett, J. (1990). *By Design: Planning Research on Higher Education*. Cambridge, MA: Harvard University Press.

Logic Models and Outcomes for Youth Entrepreneurship Programs, DC Children and Youth Investment Trust Corporation (2001).

Melguizo, T. & Wolniak, G. (2012). The Earnings Benefits of Majoring in STEM Fields Among High Achieving Minority Students. *Research in Higher Education*, 53(4): 383–405.

Oosterbeek, H., van Praag, M., Ijsselstein, A. (2008). *The impact of entrepreneurship education on entrepreneurship competencies and intentions*. Tinbergen Institute Working Paper TI 2008 -038/3.

Reimers, F. (2012). *Youth Education, Employment, and Entrepreneurship Survey*. Harvard Graduate School of Education.

Ryan, C. & Siebens, J. (2012). Educational Attainment in the United States: 2009. *U.S. Department of Commerce: Economics and Statistics Administration*. Retrieved 15 March 2013 from: <http://www.census.gov/prod/2012pubs/p20-566.pdf>.

Souitaris, V., Zerbinati, S. & Al-Laham, A. (2007). Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration, and resources. *Journal of Business Venturing*, 22: 566–591.

Stillwell, R. & Sable, J. (2013). Public School Graduates and Dropouts from the Common Core of Data: School Year 2009–10: First Look (Provisional Data) (NCES 2013–309). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved 15 March 2013 from <http://nces.ed.gov/pubsearch>.

Swanson, C. (2009). *Cities in Crisis 2009: Closing the Graduation Gap, Educational and Economic Conditions in American's Largest Cities*. Washington, DC: Education Research Center. Retrieved 15 March 2013 from:

[http://www.americaspromise.org/~media/Files/Our%20Work/Dropout%20Prevention/Cities%20in%20Crisis/Cities In Crisis Report 2009.ashx](http://www.americaspromise.org/~media/Files/Our%20Work/Dropout%20Prevention/Cities%20in%20Crisis/Cities%20In%20Crisis%20Report%202009.ashx)

United Nations Conference on Trade and Development (UNCTAD). 2012. *UNCTAD Entrepreneurship Policy Framework and Implementation Guidance*. Geneva, Switzerland: United Nations. Retrieved from: [http://unctad.org/en/Pages/DIAE/Entrepreneurship/UNCTAD Entrepreneurship Policy Framework.aspx](http://unctad.org/en/Pages/DIAE/Entrepreneurship/UNCTAD_Entrepreneurship_Policy_Framework.aspx)

Vesper, K H. (1985). New Developments in Entrepreneurship Education. *Frontiers on Entrepreneurship Research*, Babson College: Wellesley, MA: 489–497.

Von Graevenitz, G. et al. (2010). The Effects of Entrepreneurship Education. *Journal of Economic and Behavior Organization*, 76: 90–112.

World Economic Forum (WEF). (2011). *Unlocking Entrepreneurial Capabilities to Meet the Global Challenges of the 21st Century*. Final Report on the Entrepreneurial Education Workstream. Geneva, Switzerland: World Economic Forum. Retrieved from: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1396704