



SCIENCE & TECHNOLOGY POLICY INSTITUTE

A Survey of Entrepreneurship Education Initiatives

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Contents

1. Introduction.....	1
1.1. Purpose.....	1
1.2. Approach.....	1
1.3. Methodology	1
1.4. Scope	2
2. Importance of Entrepreneurship Education	3
2.1. Role of Entrepreneurship in the Global Economy.....	3
2.2. Interest in Entrepreneurship Education	3
2.3. Theory of Entrepreneurship Education.....	4
2.4. Summary	5
3. Current Landscape	7
3.1. Spread of Entrepreneurship Education	7
3.2. Government-Funded Programs	7
3.2.1. Federal Programs	8
3.2.2. State and Regional Programs	8
3.3. Academic Institution Programs	9
3.3.1. Secondary Education.....	10
3.3.2. Post-Secondary Education	11
3.4. Privately Funded Programs.....	12
3.4.1. Nonprofit Organizations and Foundations	12
3.4.2. Private Industry	14
3.5. Integration of Technology into Entrepreneurship Education.....	14
3.6. Benefits of Entrepreneurship Education.....	15
3.7. Summary	16
4. Federal Role.....	17
4.1. Strategic Planning Roles	17
4.1.1. Establishing Goals	17
4.1.2. Research and Development.....	18
4.2. Financing Roles	19
4.2.1. Secondary Education Incentives and Funding Mechanisms.	20
4.2.2. Post-Secondary Education Incentives and Funding Mechanisms.....	21

4.3. Operations Roles	24
4.3.1. Setting Program Standards	24
4.3.2. Establishing Certification and Accreditation Systems.....	25
4.3.3. Coordinating Federal Goals and Roles	26
4.3.4. Supporting Public-Private Partnerships	27
4.3.5. Supporting Educator Training and Facilities Enhancement..	27
4.3.6. Creating National Competitions and Prizes	27
4.3.7. Advancing Educator Networks and Public Forums	28
4.3.8. Supporting Education Technology Training	28
4.3.9. Supporting Non-Profit Entrepreneurship Education	28
4.3.10. Establishing and Certifying Evaluation Methodologies.....	29
4.4. Marketing and Promoting Roles.....	29
4.4.1. Implementation of a Promotional Awareness Campaign.....	29
4.4.2. Implementation of Program Awareness Support.....	31
4.4.3. Recognition of Entrepreneurship “Champions”	32
5. Conclusion	33
Appendix A: Entrepreneurship Theory, Education Goals, and Evaluation Indicators.....	A-1
Appendix B: Focus Areas for Research Community	B-1
Appendix C: Teaching and Learning Models: Selected Examples	C-1
Appendix D: Youth Entrepreneurship Education Programs.....	D-1
Appendix E: Opportunities to Leverage Federal Legislation and Programs.....	E-1
References.....	F-1

Figures

1.	Sample of Demand- and Supply-Side Factors Related to Entrepreneurship.....	4
2.	Entrepreneurship Education as a Lifelong Learning Process.....	25
3.	Phase 1 through 3 of Options for a Promotional Awareness Campaign	30
A-1.	The Determinants of Entrepreneurship.....	A-3
A-2.	Principal Levels of Evaluation Measures for Secondary and Post-Secondary Levels	A-6
B-1.	Conceptual Framework to Approach the Domain of Entrepreneurship Education	B-1
B-2.	Levels of Scholarly Debate among Principle Issues within the Entrepreneurship Education Field	B-2

Tables

B-1.	Comparison of Traditional and Alternative Teaching Approaches.....	B-3
C-1.	Regional Junior Achievement (JA) Office Distribution	C-2
C-2.	Regional Network for Teaching Entrepreneurship (NFTE) Office Distribution.....	C-4
C-3.	Regional International Baccalaureate (IB) School Distribution	C-6
D-1.	Non-Profit Entrepreneurship Education Organizations	D-3
D-2.	High Schools with Entrepreneurship Education Programs.....	D-6
D-3.	University Entrepreneurship Education Programs	D-7
D-4.	Community College Entrepreneurship Education Program.....	D-16
E-1.	Opportunities for Entrepreneurship Education within Existing Federal Policies	E-4
E-2.	Corporation for National and Community Service Programs	E-10
E-3.	Department of Agriculture Programs.....	E-10
E-4.	Department of Commerce Programs.....	E-11
E-5.	Department of Defense Programs.....	E-12
E-6.	Department of Education Programs	E-13
E-7.	Department of Health and Human Services Programs	E-20
E-8.	Department of Housing and Urban Development Programs.....	E-21
E-9.	Department of Interior Programs.....	E-22
E-10.	Department of Justice Programs.....	E-22
E-11.	Department of Labor Programs	E-24
E-12.	Department of Transportation Programs.....	E-28
E-13.	Environmental Protection Agency Programs	E-28
E-14.	Small Business Administration Programs	E-28

1. Introduction

1.1. Purpose

The Science and Technology Policy Institute (STPI) looked into the state of entrepreneurship education in the United States to assess if a greater Federal Government role might improve entrepreneurship education and thereby increase entrepreneurs' chances of success. STPI explored the following questions regarding entrepreneurship education:

- What is the current landscape?
- What specific goals could be embraced?
- What specific policy measures are proposed to achieve those goals?
- What collaborations across the government and other sectors would facilitate meeting these goals?

1.2. Approach

Our approach to answering these questions was to (1) delineate the importance of entrepreneurship and entrepreneurship education to the United States (Chapter 2); (2) describe the present state of entrepreneurship and entrepreneurship education in the United States, including types of programs, goals, approaches, and stakeholders (Chapter 3); and (3) identify and examine the areas of entrepreneurship education that might benefit from Federal Government attention (Chapter 4).

1.3. Methodology

The information presented here is drawn from analysis and evaluation of information obtained from a review of the entrepreneurship education literature and interviews with experts in the field. STPI searched for publications, reports, working papers, conference proceedings, testimonies, articles, and other relevant literature (on the shelf and within databases) published through 2008 with titles containing selected key words (entrepreneurship or entrepreneur, combined with theory, education, training, learning, model, course, teaching, or curriculum/curricula). A snowball technique was applied to citations included in previous literature reviews and in thorough pieces of work on entrepreneurship education.

STPI also conducted interviews with representatives from relevant organizations, educators, and their suggested network/contacts experienced in

the study of entrepreneurship-related topics (see acknowledgements in the inside of the front cover).

1.4. Scope

This document is not intended to resolve, nor even deeply probe, all the issues relevant to entrepreneurship education. Instead, it provides sufficient information to make preliminary decisions and lay a foundation for investigations, discussions, and decisions to follow. STPI has included detailed information in appendices to support future research into the issues this document raises.

- Appendix A summarizes the major theories of entrepreneurship and the influence of those theoretical perspectives on the goals of entrepreneurship education. The appendix includes a discussion of benchmarking and program evaluation indicators.
- Appendix B presents background for potential areas of research in entrepreneurship education, with a view toward areas where a Federal role might assist in coordination of research efforts.
- Appendix C describes seven widely recognized educational programs that provide models and best practices for entrepreneurship education or entrepreneurship-related programs.
- Appendix D describes entrepreneurship programs for youths, including those at high schools and universities and those supported by non-profit organizations.
- Appendix E addresses opportunities for leveraging existing and proposed Federal legislation and programs.

2. Importance of Entrepreneurship Education

2.1. Role of Entrepreneurship in the Global Economy

Three global trends drive the current interest in entrepreneurship and reinforce the need for an assessment of entrepreneurship education.

First, global competition among countries and among firms is intensifying in almost all aspects of trade. The competition for resources and human and financial capital within any economy increasingly involves firms from around the world.

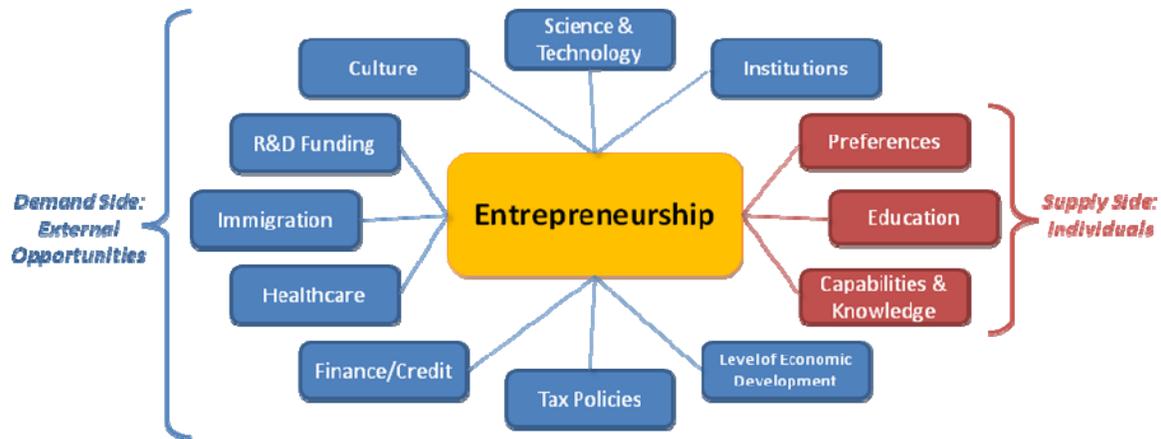
Second, entrepreneurship is one driver of innovations that propel and sustain economic growth. As Klaus Schwab, Founder and Executive Chairman of the World Economic Forum, states, "Entrepreneurship is the engine fuelling innovation, employment generation, and economic growth" (World Economic Forum 2009). Carl Schramm of the Kauffman Foundation argues, in a comment more relevant to the current economic situation, "Historically through the last seven recessions it's been entrepreneurs who essentially restarted the economy" (Riley 2009). With rare exception, entrepreneurship is perceived to be the engine driving all economies regardless of the political system, as countries emulate and adapt the best the United States has to offer.

Finally, cultural values, behaviors, and political expectations are affected as the world moves toward more entrepreneurship-based economies.

2.2. Interest in Entrepreneurship Education

Economic, social, and cultural factors all contribute to the generation of entrepreneurship (Hart 2003). Figure 1 identifies demand-side (in blue) and supply-side (in red) factors that are generally associated with entrepreneurship. The *demand-side factors* describe the external conditions that influence entrepreneurship creation, including the societal, technological, economic, and political aspects of the surrounding environment. On this side, the questions concern why, when, and how opportunities for entrepreneurship occur. The *supply-side factors* refer to the individual entrepreneur's abilities to create new enterprises. The questions on this side concern why, when, and how some individuals and not others are able to discover, develop, and exploit the entrepreneurial opportunities. Education, specifically, entrepreneurship

education, may have a direct influence on the knowledge, capabilities, and preferences for becoming an entrepreneur.



Source: Modified from determinants in Wennekers, Uhlaner, and Thurik, 2002; Shane, 2003; Audretsch, Thurik, Verheul, and Wennekers, 2002; and Audretsch, Grillo, and Thurik, 2007.

Figure 1. Sample of Demand- and Supply-Side Factors Related to Entrepreneurship

Figure 1 shows that many factors influence, and may be employed to stimulate, entrepreneurship. Because this report emphasizes entrepreneurship education, it focuses on a subset of the factors depicted.

We now turn to understanding how the two concepts of education and entrepreneurship meld together. That understanding provides a critical context through which to view the current landscape of entrepreneurship education.

2.3. Theory of Entrepreneurship Education

Educational programs typically begin with a theory of education for the subject matter to be taught. Take the rocket scientist as an example. A rocket scientist may have certain generally agreed-upon skills and competencies. Further, educational institutions and employers generally agree on how to teach those skills and develop the competencies needed to create an accomplished rocket scientist.

Entrepreneurship education, however, lacks such an accepted pedagogical paradigm (Singh 2008). There are no universally accepted definitions of an entrepreneur, no generally agreed upon qualities that an entrepreneur must possess, and no certified metrics of entrepreneurial behavior (OECD 1998; Lumpkin and Dess 1996; Bull and Willard 1993). Since a common conception of entrepreneurship does not exist, there is no agreed-upon paradigm for how and what to teach in entrepreneurship education. As a result, programs are

generally meant to develop the skills and capabilities outlined in the particular theories of entrepreneurship favored by the program.

The various theoretical perspectives of entrepreneurship in the literature can be categorized into those that address:

- Individual cognitive abilities, such as the personality traits, perceptual abilities, communication skills, and analytical proficiencies (Caird 1992; Kourilsky 1990; Gibb 1993);¹
- Strategic actions, such as gathering resources, and starting or managing a company (van der Sijde et al. 2008);² and
- A combination of abilities and actions (Wennekers and Thurik 1999; Davidsson 2004; van der Veen and Wakkee 2004).³

Entrepreneurship education programs attempt to teach a combination of the cognitive abilities and strategic actions favored by the various theoretical perspectives of entrepreneurship. See Appendix A for further discussion of conceptual perspectives and goals and mechanisms for teaching entrepreneurship.

2.4. Summary

Among the educational disciplines deemed important to the nation, entrepreneurship education can facilitate moving the discoveries, innovations, and insights of the other disciplines into the American economy. Entrepreneurship education programs teach a variety of skills and capabilities to accomplish this.

¹ Caird (1992) refers to the following personality variables: communication skills, analytical skills, career skills, knowledge, and attitudes; Kourilsky (1990, p. 138) refers to the entrepreneurial *spirit* as intrinsic in nature and that guides divergent ideas with resources in a unique manner.

² Shane and Venkataraman (2000) define entrepreneurship as the process through which opportunities to create future goods and services are discovered, evaluated, and exploited; Shane (2000) further describes the view of entrepreneurship that incorporates opportunity recognition and exploitation as central roles.

³ Wennekers and Thurik (1999) define entrepreneurship as “the perception and creation of new economic opportunities” combined with “decision-making on the location, form and use of resources.”

3. Current Landscape

3.1. Spread of Entrepreneurship Education

Courses designed to teach the creation and development of new business ventures first appeared in the United States during the 1960s. In 1971 the University of Southern California created the first Master of Business Administration concentration in entrepreneurship; the following year the same university launched the first undergraduate concentration in entrepreneurship (Katz 2003).

By the 1980s, entrepreneurship courses were being offered at 300 universities; by the end of the 1990s, at 1,050 universities; and since 2000, at over 1,600 universities. Entrepreneurship is a fast-growing topic in the business and engineering schools in the United States (Kuratko 2003).

The World Economic Forum's *Educating the Next Wave of Entrepreneurs* report drew recent international attention to entrepreneurship education (Volkman et al. 2009), and European governments have increasingly sought to cultivate entrepreneurship throughout the developed West and post-communist East (Dana 2005). In 2005 the European Commission made entrepreneurship education one of the main objectives in its Lisbon Agenda (Euractiv 2004a), and created an Action Plan on Entrepreneurship that proposed developing entrepreneurial "mindsets," increasing "awareness of the entrepreneurial spirit by presenting best practice models and fostering entrepreneurial attitudes and skills among young people" (Euractiv 2004b). Business schools throughout China and India have launched educational programs as well as scientific publications and journals in entrepreneurship (Dana 2001).

In the United States three groups drive the development and promotion of entrepreneurship education programs: (1) Federal, state, and local governments; (2) academic institutions; and (3) nonprofit and other private institutions. (See Appendix C for teaching and learning models; and see Appendix D for a list of additional entrepreneurship education programs and organizations.) The following subsections describe the current landscape for each group in terms of the technology and benefits of entrepreneurship education.

3.2. Government-Funded Programs

The approaches and levels of government involvement in entrepreneurship education widely vary, as described in the subsections that follow. (See Appendix E for information on opportunities for leveraging existing and proposed Federal legislation and programs.)

3.2.1. Federal Programs

Entrepreneurship education programs specifically funded at the Federal level are limited to a handful of agencies, notably the U.S. Small Business Administration (SBA), the Minority Business Development Agency (within the Department of Commerce), and the U.S. Department of Agriculture (USDA).

The SBA's educational efforts come in two forms: one for the entrepreneur and one for the youth. The SBA's Office of Entrepreneurship Education manages the Counselors to America's Small Business (referred to as SCORE), a volunteer-staffed organization that provides services for the nascent and in-business entrepreneur. SCORE's regional offices and Web site provide resources, business tools, expert advice, and workshops that assist and train entrepreneurs to better perform their tasks. In addition to the SCORE Web site, which maintains a youth entrepreneurship page with applicable information and resources, the SBA provides "Teen Business Link" and, in partnership with Junior Achievement, "Mind Youth Own Business." These sites organize entrepreneurial and general business information and resources into youth-friendly packages, and provide examples and ideas that relate to the student experience.

In October 2009, the Department of Commerce announced the creation of the Office of Innovation and Entrepreneurship. This new office will focus on encouraging entrepreneurs through education, training, and mentoring; strengthening interagency collaboration and coordination; and providing data, research, and technical resources for entrepreneurs among other goals (United States Department of Commerce 2009). Moreover, the Minority Business Development Agency under the Department of Commerce previously offered two youth entrepreneurship programs, the Emerging Business Leaders Summit and the Emerging Minority Business Leaders program. The current status of these programs is unclear.

Within the USDA, programs such as 4-H help youth develop life-skills, experience the actual performance of business tasks, and learn principles of economics, business, and marketing (4-H 2009). Some of the courses offered by USDA's Graduate School also provide content that relates to entrepreneurial skills (e.g., "Establishing and Operating a Small Business") but there is no formal program on entrepreneurship in the Graduate School.

3.2.2. State and Regional Programs

Entrepreneurship education programs have generated more interest at the state and regional government levels than at the Federal level. A primary motivation for the state government interest is the influence of economic growth and job creation on state elections.

According to the 2007 Education Commission of the States, 18 states have taken legislative action to support entrepreneurship education for kindergarten

through 12th grade (K-12) or post-secondary school students. Nine states have enacted legislation supporting some form of entrepreneurship education in grades K-12: California, Florida, Illinois, Iowa, Minnesota, Nebraska, Oregon, Virginia, and West Virginia. The legislation in California, Florida, and Iowa simply requires that the K-12 curriculum include the entrepreneurship concept, while Minnesota and Virginia mandate entrepreneurship programs.

Fourteen states have legislation supporting entrepreneurship at the post-secondary level: Florida, Illinois, Iowa, Kentucky, Massachusetts, Mississippi, Missouri, Nebraska, New York, North Dakota, Oklahoma, Oregon, South Carolina, and West Virginia. The programs supported by the legislation differ greatly across states. Iowa, Kentucky, and Oregon have policies supporting “entrepreneurial commercialization” at their universities. Florida and New York allow universities to act as “incubator facilities” and Kentucky, Mississippi, and Oklahoma have encouraged rural economic growth through entrepreneurship. Though Illinois has not adopted K-12 or post-secondary legislation, it has developed a state-wide Institute for Entrepreneurship Education charged with supporting entrepreneurship education throughout the state (Zinth 2007).

None of these programs has been rigorously evaluated, so beyond the establishment of a program or concept, the impact of these initiatives remains unclear. Further, no program or initiative has emerged as the model for other states to follow.

There have also been regional efforts to support entrepreneurship education. A noteworthy example originated with the Appalachian Regional Commission (ARC). The ARC is a Federal-state partnership for economic, community, and workforce development covering a 420-county region between New York and Mississippi and a population of 23.6 million people (ARC 2009a). In addition to physical projects like water and transportation improvements, between 1997 and 2005 the commission instituted an entrepreneurship initiative to provide financial, technical, and educational support to local entrepreneurs. The initiative also included a variety of local youth entrepreneurship efforts, such as regional conferences, scholarships, youth entrepreneurship awards, and a resource Web site (ARC 2009b).

3.3. Academic Institution Programs

The United States remains the world leader in implementing entrepreneurship education programs at academic institutions, especially in post-secondary institutions (McKeown et al. 2006). The landscape differs greatly between and among the secondary and post-secondary entrepreneurship education programs.

3.3.1. Secondary Education

Programs sponsored by academic institutions at the secondary education level differ both in consistency and form. Some school districts may have a district-wide curriculum, while others rely on resources available at a particular school. In the latter case, a qualified or particularly interested teacher might offer an entrepreneurship course in one school that is not available elsewhere in the district.

One of the following four types of programs is typically offered:

- *Incorporated Model.* Entrepreneurship content is incorporated as a module into other business or marketing courses. Entrepreneurship receives less coverage in such courses than it might in a dedicated course but often the program will run an entrepreneurship competition with support from local chapters of organizations, such as the Future Business Leaders of America (FBLA), to give students some applied experience.
- *Start-up Model.* Entrepreneurship education is offered as a means to keep at-risk students in school by helping them plan and operate a small school-based or independent business. The program may involve courses during regular school hours or in an after-school program. These programs have the benefits of offering a traditional education of entrepreneurial and business principles, a real-world application in business operation, and the generation of valued income for the students.
- *Intern Model.* Students study entrepreneurship principles in regular courses while working with businesses in the local community where they have the opportunity to apply those principles. For example, the entrepreneurship program in a rural school might emphasize business ideas that focus on agricultural products or services. These programs offer the benefits of developing student skills with academic and applied training while also promoting the local economy.
- *Partnered Model.* The local school or school district partners with or works in support of community and faith-based organizations to offer entrepreneurship programs. The courses and training may take place at the school or at other facilities.

The Appalachian Regional Commission (ARC), with support from the Kauffman Foundation, illustrated the variety of some of these programs (see “Local Success Stories”).

Local Success Stories

Randolph County Vocational-Technical Center, West Virginia: Located in an economically depressed region of West Virginia, the center teaches students to develop a cookbook containing traditional recipes from the region and stories from community elders. The students learned not only about supply and demand, marketing, and business management but they also learned about the region's history and interacted with the surrounding community. Students in another class learned about market analysis, losing money on some of their craft products before reassessing customer demand and input cost to revenue ratios.

Walhalla High School, South Carolina: Students studied famous entrepreneurs before developing their own business plans and presenting their ideas to professionals. The students then launched their businesses during school hours, selling mostly food items requiring capital fundraising, business management, and hours working at the business.

South Shore School of Entrepreneurship, Illinois: A school dedicated to teaching entrepreneurship and low-income, minority, and at-risk students, South Shore helps students remain in school and shifts them away from illegal activities. The courses weave entrepreneurship themes into standard coursework and raise awareness of opportunities. Early results show increases in academic achievement after the program.

Source: ARC (2004).

3.3.2. Post-Secondary Education

The range of entrepreneurship education programs in the nation's higher education institutions vary from basic courses to entrepreneurship programs and dedicated research centers. The Ewing Marion Kauffman Foundation reported that by 2006 there were more than 5,000 entrepreneurship courses were being offered at 2- and 4-year colleges and universities throughout the United States and over 500 of these higher education institutions were offering a formal entrepreneurship program involving majors, minors, or certificates (Kauffman Panel on Entrepreneurship Curriculum in Higher Education 2007). Typically the entrepreneurship programs and coursework are provided through the schools of business or engineering, or through business-engineering partnerships. Recent initiatives attempt to expand the traditional base of students benefiting from entrepreneurship education (see "Academic and Nonprofit Partnerships for Entrepreneurship Education").

Academic and Nonprofit Partnerships for Entrepreneurship Education

The Kauffman Foundation recently emphasized entrepreneurship education in institutes of higher education through its **Kauffman Campuses** initiative. The initiative's mission is to "transform" higher level education to provide students with entrepreneurial training to strengthen the national economy. The Kauffman campuses first phase began in 2003 and provided up to \$5 million in three-to-one matching funds to eight universities with diverse characteristics: Florida International University, Howard University, the University of Illinois at Urbana-Champaign, the University of North Carolina at Chapel Hill, the University of Rochester, the University of Texas at El Paso, Wake Forest University, and Washington University in St. Louis. These universities have directed at least \$100 million towards the development of interdisciplinary entrepreneurship education programs. Toward the end of 2006, six additional universities were chosen to receive grant funding to support new entrepreneurship education programs. During this second phase, Arizona State University, Georgetown University, Purdue University, Syracuse University, the University of Maryland at Baltimore County, and the University of Wisconsin at Madison received a total of \$19.5 million in grant funding. As part of the Kauffman Campuses initiative, universities have begun to shift their entrepreneurship programs away from their traditional business school home towards a more interdisciplinary reach. The supported programs now include technology transfer efforts and entrepreneurship education for liberal arts programs and minority groups in an effort to transfer entrepreneurial skills to a wider proportion of the nation's workforce.

Sources: Kauffman Foundation Web site (2009a) and NACCE Web site (2009)

3.4. Privately Funded Programs

Private organizations play a significant role in entrepreneurship education as sponsors of some of the more notable educational activities. Composed of the nonprofit organizations, foundations, and private industry, the programs sponsored by these organizations differ widely in terms of budgets, goals, scope, and approach.

3.4.1. Nonprofit Organizations and Foundations

The nonprofit organizations and foundations involved in entrepreneurship education range from the large institutions sponsoring national activities to the state and local groups addressing the needs of specific communities. The programs might incorporate any of a number of services, including complete curricula, content standards, student mentoring, business plan competitions, resource and networking Web sites, and summer camps. The large number and variety of organizations involved in entrepreneurship education coupled with the absence of any national coordination or oversight body has resulted in a fair amount of overlap and duplication in curriculum materials, resources, Web site materials, and business plan competitions. See "Significant Non-Government Players" for information about the three most influential and well-recognized program efforts in this sector.

Significant Non-Government Players

Junior Achievement: The Junior Achievement (JA) program began in 1919. During the 1970s the organization shifted towards volunteer-led educational programs in economics and business in both classroom-based and after-school programs. At the high school level, JA currently offers a range of 8 distinct classroom-based programs (Banks in Action, Business Ethics, Careers with a Purpose, Economics, Exploring Economics, Success Skills, Titan, and NEFE High School Financial Planning Program), with each program involving about 7 volunteer-led classroom sessions. JA also offers a 12-session after-school high school Company Program and a 1-day Job Shadow capstone program. An additional 5 programs are available at the middle school level, and 8 more are available for elementary school students. All programs and activities are presented by JA volunteers. In 2006, these programs' domestic reach included 14,963 elementary schools, 2,289 middle schools, 2,968 high schools, and 2,190 other non-school sites.

The Kauffman Foundation: The Ewing Marion Kauffman Foundation was established in the 1960s with a strong focus on supporting entrepreneurship and fostering "a society of economically independent individuals who are engaged citizens, contributing to the improvement of their communities." The foundation supports five youth-specific initiatives: "All Terrain Brain" teaching materials and Web site for students aged 8-12, two entrepreneurship weeks (national and global), a business simulation game for student predominantly in the 9-12 age group in partnership with Disney, and an entrepreneurship education curriculum for high schools. The foundation also supports entrepreneurship education at the college and university level, provides grant funding and partnerships to a variety of entrepreneurship education initiatives across the country, and conducts research concerning entrepreneurship and education. Of particular note is the Kauffman Campuses initiative.

The Network for Teaching Entrepreneurship: The Network for Teaching Entrepreneurship (NFTE) was founded in 1987 in an effort to reduce dropout rates and improve academic performance of students. NFTE targets students from low-income communities with the view that entrepreneurial education reveals the real world relevance of classroom learning, helps students build skills and creativity, and improves quality of life. The organization's boards and committees are staffed by professionals from the business and academic communities. NFTE claims to have reached over 230,000 students since 1987 with more than 1,300 "active Certified Entrepreneurship Teachers." NFTE currently operates offices in 12 major metropolitan areas with an additional five licensed regional partners. The organization provides entrepreneurship curriculum materials, regional and national business plan competitions with grant prizes, a two week "BizCamp" day camp with field trips and guest speakers, and teacher training and certification. Three distinct curriculum packages are available for purchase for middle school, high school, and post-secondary students. The high school course materials support students as they start and operate their own small business. The post-secondary materials are tailored to either introductory courses or advanced principles. Teacher training involves a four day program through NFTE institutional offices.

Sources: Junior Achievement Web site (2009a-b), Kauffman Foundation Web site (2009b), and NFTE Web site (2009a-e).

3.4.2. Private Industry

While a number of corporations run youth entrepreneurship programs that provide mentoring, business training, business plan competitions, and other entrepreneurial activities, businesses more often serve as sponsors or partners for activities managed by nonprofits and foundations like NFTE, the Kauffman Foundation, and the Coleman Foundation. Additional industry support often comes in the form of successful business men and women contributing to nonprofit and foundation efforts through mentoring, teaching, and writing for blogs or resource Web sites.

3.5. Integration of Technology into Entrepreneurship Education

Another critical factor in the landscape of entrepreneurship education is the integration of technology, especially in the method of program delivery. As in other educational arenas, technology offers the benefits of cutting long-term costs while expanding training capabilities and opportunities. Other than the use of computer-business tools, the most prevalent cutting-edge technology in entrepreneurship education is virtual learning.

Virtual learning is a technology that offers students the realistic simulation of a business environment in which to develop their skills in sense-making and complex decision-making. Several entrepreneurship education programs have used virtual learning as a vehicle for teaching entrepreneurship skills. At the secondary education level, programs might complement academic curricula with several virtual programs using television, film, or video game media. As an example of how these media can promote education, Neck, Gerde, and Neck (2007) demonstrate that film can be an effective means for capturing complex issues and interactions among diverse people. They describe eight entrepreneurial lessons for the theatrical film *Dead Poets Society* and discuss its effectiveness in creating dialogue about the entrepreneurial mindset. They argue that even nonbusiness-related films can help students see the various perspectives of a problem and “expand their scope of analysis” (Garaventa 1998, p. 535).

Computer games are an especially intriguing technology for teaching entrepreneurship skills at the secondary education level. These simulation games offer an engaging way of teaching entrepreneurship in the classroom while exposing students to requisite 21st-century technological skills. There are two notable applications of this technology. The National Federation for Independent Business (NFIB), through its Young Entrepreneur Foundation, developed the interactive computer game *Johnny Money*, a free small-business simulation game that engages students as they explore the risks and

rewards of business ownership.⁴ Disney, in collaboration with the Kauffman Foundation, developed a similar interactive business simulation game called Hot Shot Business.⁵

Technology is also being used at the post-secondary level of entrepreneurship education to provide better tools for the students and the educators. A particularly noteworthy example of a tool previously provided for educators is George Washington University's Entrepreneurship Knowledge Portal. The portal was developed for the management and entrepreneurship organization Delta Epsilon Chi (DECA) and offered a centralized forum where educators can interact, share, and learn.⁶ This portal was described by Solomon, Duffy, and Tarabishy (2002) as "the next educational technological frontier," which improved on previous pedagogical approaches to entrepreneurship education by offering a one-stop shop for educators to review and implement entrepreneurship education programs while collaborating on innovative educational approaches.⁷

3.6. Benefits of Entrepreneurship Education

We conclude this overview of the current landscape by briefly considering the potential benefits from the entrepreneurship education programs described previously.

The term "potential benefits" is intentionally used to convey the fact that there are no definitive studies that clearly and unequivocally demonstrate the impact and benefits of entrepreneurial education for the nation. Such studies are difficult because of (1) the lag between the time of learning and the time an opportunity to perform occurs and (2) the lack of agreed-upon definitions for entrepreneurial behavior. The approach taken here is to briefly discuss potential benefits and allow the reader to judge whether any particular program contains sufficient content and training to validly attribute a specific benefit to that program.

Potential benefits from entrepreneurial education include the following:

- *Increased entrepreneurial activity.* By encouraging youth and adults to consider entrepreneurship as a viable career path, entrepreneurship education could "not only expand the pool of potential entrepreneurs but also help trigger wider interest in and support for those seeking to start and grow new companies (Hart 2003 p.250).

⁴ Available at <http://www.nfib.com/YoungEntrepreneurFoundation/YEFPrograms/JohnnyMoneyClassroomGame.aspx>.

⁵ Available at <http://www.hotshotbusiness.com>.

⁶ The portal is currently undergoing revisions; however, the content areas it emphasized can be found at: http://www.gw-cfee.org/initiatives_DECA.html.

⁷ Conversation with Professor George Solomon, Center for Entrepreneurial Excellence, George Washington University. May 19, 2010.

- *Greater diversity in entrepreneurship.* Entrepreneurship education allows a wider diversity of groups to learn the skills and develop the networks to successfully engage in entrepreneurial activities. Such diversity among potential entrepreneurs means a broader source of ideas and perspectives in opportunity recognition and solution development.
- *More entrepreneurial successes.* Ronstadt (1985) argues that if entrepreneurship is taught effectively, it may generate more and better entrepreneurs and increase entrepreneurial success rates.
- *Better motivation for at-risk groups to complete formal education.* Entrepreneurship education may serve as an effective means to engage youth while training them to contribute to economic development and sustainable communities (Aspen Institute 2008). In some cases, entrepreneurship education programs may be especially appealing to at-risk youth and may help stem the tide of school dropouts.
- *More business-savvy population.* Entrepreneurship education teaches lifelong learning and 21st-century skills (Fiet 2001 and Gibb 2002) as well as the practical application of business management competencies (Young 1997). The more available those programs are, the more opportunities there are for youth and adults to acquire those competencies and live more productive lives.
- *Improved creative and critical thinking.* Entrepreneurship education puts great emphasis on improving the cognitive abilities of the students in creativity, opportunity recognition, and critical thinking. Students who choose to learn through entrepreneurship programs may have heightened creativity and critical-thinking abilities.

3.7. Summary

The entrepreneurship programs in the United States are sponsored by government, academic institutions, and private organizations. Within the government, entrepreneurship education programs have generated more interest at the state and regional levels than at the Federal level, in which only the Department of Commerce and the Department of Agriculture have sponsored programs. The United States is a leader in the entrepreneurship programs sponsored by academic institutions; more than 1,600 universities offer such courses to adults. A significant number of programs have been developed to teach entrepreneurship to the youth, based on a variety of models. Though the impact of these programs can be difficult to evaluate, the list of potential benefits is substantial.

4. Federal Role

This section describes the potential roles the Federal Government might take in the promotion and support of entrepreneurship education. The roles are organized into four major functions: strategic planning, financing, operations, and marketing and promotions. Specific roles may have implications for more than one functional area.

4.1. Strategic Planning Roles

The strategic planning roles are focused primarily on the future: Where should entrepreneurship education be in the future? What are reasonable goals for the nation's programs? What can be learned about the relationship between entrepreneurship education and entrepreneurship activity that will allow more effective programs in the future? The roles outlined here involve setting goals for entrepreneurship education and managing the research and development that drives future opportunities and strategies.

4.1.1. Establishing Goals

The Federal Government could set goals for entrepreneurship education in the nation, especially for any Federal initiatives established to promote or support it. Even in the absence of any other Federal effort, a set of national goals could help program managers develop priorities and evaluate if their programs are achieving desired goals for entrepreneurship education nationwide.

Based on STPI's research, some important areas where goals could be beneficial include:

- Exposure of youth to entrepreneurship approaches, business principles, and lifelong skills in secondary education;
- Accessibility of entrepreneurship training for diverse groups of youth and adults, including women, minorities, and the disadvantaged;
- Availability of entrepreneurship education and training in the commercialization of technological innovation at the post-secondary education level, especially business and engineering schools;
- Accessibility of entrepreneurship education in economically depressed areas for displaced workers, homeless individuals, and persons receiving state support; and
- Integration of modern technology, including virtual learning, in entrepreneurship training.

4.1.2. Research and Development

Another set of strategic planning roles the Federal Government might play involves research into entrepreneurship education and development of tools and technology for teaching entrepreneurship. Some of these roles overlap with the financing functions discussed in Section 4.2 to the extent that research and development roles also involve funding.

4.1.2.1. Establishing a National Research Agenda

Like the discipline of entrepreneurship education itself, research on entrepreneurship education is in its early stages. As is widely recognized, the discipline suffers from a lack of accepted pedagogical paradigms, models, and theories.⁸ A nationally established research agenda could create a framework for a systematic approach to entrepreneurship education research, and potentially lead to the general acceptance of a pedagogical paradigm (see Appendix B). A research agenda could also provide a strong foundation for recommendations concerning the funding and timelines for research to address issues.

4.1.2.2. Guiding Scientific and Empirical Research

For several reasons, progress in general research into entrepreneurship education and the development of educational innovations has been slow. The discipline has developed a few fundamental core concepts that have been the focus of much of the research, including the effectiveness of teaching techniques, course content, selection of concepts, and differences between countries. This core research has concentrated on teaching methods and particular content, producing findings that are too specific to be generalized or broadly applied. Further, studies in the discipline are often methodologically inconsistent because they use cross-sectional survey designs and measure variables without building upon existing indexes (Alberti, Sciascia, and Poli 2005). Finally, the course designs and educational innovations in entrepreneurship education that are implemented often lack any established scientific theoretical framework (Block and Stumpf 1992). Federal guidance (even without a national research agenda and possibly accompanied by Federal funding support) could result in an expansion of research areas, a greater incorporation of empirical and theoretical findings into educational innovations, and a needed coordination of the scientific and empirical research.

4.1.2.3. Recognizing Scholars

The United States lacks sufficient PhD programs and tenure positions for entrepreneurship (Katz 2003a and Kuratko 2003). The United States

⁸ See, for example, Alberti (1999), Sexton and Bowman (1984), Hills (1988), McMullan and Long (1983), and Vesper (1982).

Association for Small Business and Entrepreneurship (USASBE), the National Consortium for Entrepreneurship Centers, and the Academy of Management's Entrepreneurship Division, along with the Coleman and Kauffman Foundations, support recognition for entrepreneurship scholars as part of their missions. Greater Federal recognition of entrepreneurship scholars at the post-graduate levels, through a variety of funding and award mechanisms, could help set the direction for research in the field and increase the visibility and attractiveness of entrepreneurship education to researchers, educators, and students. The Federal Government could provide support for graduate fellowships focused on education in entrepreneurship, in much the same way that funding for the National Science Foundation graduate fellowships tripled in the 2010 budget due to a "renewed commitment to education in mathematics and science" (Jones 2009).

4.1.2.4. Recognizing "Pioneers"

Another way that the Federal Government could guide and support research is through the creation of a program to recognize entrepreneurship "pioneers." Pioneers could be selected based on their breakthroughs in research on entrepreneurship education, and would then receive grants/awards to conduct transformative research, write thought pieces or annual reviews for the field, and generally promote their research fields at conferences and meetings. These pioneers could serve as role models and guides to attract other researchers into the potentially fruitful lines of research they have explored.

4.2. Financing Roles

The set of roles in this subsection focus on the provision of Federal funds to incentivize, sponsor, and support entrepreneurship education programs. A variety of Federal policies and programs that currently incorporate aspects of entrepreneurship education, such as economic and business management literacy (see Appendix E), could be enhanced to:

- Provide funds directly for pilot and demonstration programs;
- Leverage funding through Federal youth training programs;
- Fund competitive grants offered through local or state governmental and non-governmental organizations to scale-up entrepreneurship education programs; and
- Offer matching funds to select private-sector organizations conducting research and evaluations on entrepreneurship education programs (Volkman et al. 2009).

Potential roles and options specific to secondary and post-secondary education levels are described in the next subsection.

4.2.1. Secondary Education Incentives and Funding Mechanisms

4.2.1.1. Funding Rewards for Academic Institutional Performance

Federally funded rewards and recognition for students, teachers, and academic institutions could provide incentives for them to perform at a higher level. Federal funding for academic institutions to provide Advanced Placement courses and/or part-time college placement for high-level entrepreneurship courses might ensure a sustained commitment to the program and foster greater student interest in entrepreneurship.⁹

4.2.1.2. Funding Prizes and Competitions

Funding for prizes or competitions could simultaneously encourage innovation and foster entrepreneurship education. Federal agencies could fund competitions for best new business concepts, business plans, or commercialization strategies at the secondary education level either directly or indirectly through local or state governments or through nonprofit partners. This funding could be independent of or in conjunction with prizes and competitions offered through other governmental or non-governmental programs. Examples of funded competitions from non-governmental organizations include NFTE's Young Entrepreneur of the Year Award,¹⁰ DECA's Competitive Events Program,¹¹ and National Federation of Independent Business (NFIB) Young Entrepreneur Foundation Award.¹²

4.2.1.3. Funding to Align with Other Disciplines

Aligning entrepreneurship education with Federal funding in other disciplines could potentially broaden the variety of students exposed to entrepreneurial principles and instilled with an entrepreneurial mindset. For example, Federal funding for science, technology, engineering, and mathematics (STEM) is intended to help the U.S. educational system produce more qualified scientists, engineers, and technicians. STEM funding, as outlined in the 2010 Presidential Budget, accounts for \$3.7 billion in education investment, in addition to \$276 million enacted through the American Recovery and Reinvestment Act of 2009 for funding through 2010. Entrepreneurship education could be incorporated within programs targeted by STEM funding and that focus on technology education, such as the U.S. Department of Energy's Regaining our Energy Science and Engineering Edge (RE-ENERGYSE) (OSTP 2007). STEM education could include entrepreneurship content that

⁹ McCormick, Mary Ellen. Entrepreneurship Teacher, DECA Advisor, Marketing Coordinator; Marshall Academy. Personal telephone interview with V. Peña and S. Shipp. 10 May 2009.

¹⁰ For more information, go to <http://www.nfte.com/impact/alumniprofiles/2009/default.asp>.

¹¹ For more information, go to <http://www.deca.org/celisting.html>.

¹² For more information, go to <http://www.nfib.com/tabid/347/Default.aspx>.

merges entrepreneurship and technology education. In this way, an innovative education program that consists of science, technology, engineering, entrepreneurship, and mathematics (STEEM) could be implemented.¹³

4.2.1.4. Funding to Align with Related Initiatives

Since financial literacy and economic education are closely linked to entrepreneurial capabilities and 21st-century life skills, some entrepreneurial benefit could be achieved at low cost by integrating entrepreneurship education into the programs for the former initiatives. Financial literacy has gained new ground since January 2008 when President Bush established the President's Advisory Council on Financial Literacy to help increase financial education efforts for youth in school and adults in the workplace (U.S. Department of the Treasury 2009). Economic education has seen similar attention through the No Child Left Behind Act of 2001, which, in 2004, appropriated \$1.5 million for the Excellence in Economic Education program through the U.S. Department of Education. Incorporating entrepreneurship education within these initiatives (among other relevant policies and programs discussed in Appendix E) could, at potentially little additional cost, broaden the youth exposure to entrepreneurship education.

4.2.1.5. Funding in Target Communities

Federal legislation to fund entrepreneurship training in at-risk/high-risk youth communities could have positive educational and economic outcomes. For example, the administration could implement conditionality of funding for education improvements, such as within the Elementary and Secondary Education Act's Title 1, to include entrepreneurship education as a viable form to engage youth, help reduce the drop-out rate, and improve school performance (see Appendix E).

4.2.2. Post-Secondary Education Incentives and Funding Mechanisms

4.2.2.1. Funding Rewards for Academic Institutional Performance

The Federal Government might provide flexible direct funding for post-secondary education institutions to allow them to develop those areas of entrepreneurship education best suited to the academic institution's unique situation and strengths. For example, the National Science Foundation funds a grant program focused on reforming education within engineering departments.¹⁴ Interestingly, while the underlying themes of reform were

¹³ Michael Caslin, former Chairman and CEO, NFTE - International Programs; URGENT VC, The Sustainable City Solution. Personal telephone interview with V. Peña and S. Shipp, 20 April 2009.

¹⁴ The NSF Department Level Reform grants were awarded between 2003 and 2005. For more information, go to http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5462&org=EHR.

similar in that effort the 20 universities that received funding each took a different approach to restructuring their engineering curriculum.¹⁵ Each school enhanced the areas where it was particularly strong and eliminated weak areas and unsuccessful practices from the program.

4.2.2.2. Funding Prizes and Competitions

Prizes and competitions are well-documented as successful mechanisms that allow flexibility and creativity in solution approaches while remaining responsive to government goals. For example, the Department of Energy initiated the Solar Decathlon in 2002. University student teams compete to design, build, and operate an energy-efficient solar-powered house.¹⁶ Participants receive a hands-on education in innovative approaches to solar energy use and energy efficiency, while engaging in cutting-edge and multi-disciplinary research and development (R&D) and implementation. In the same way, national prizes and competitions for entrepreneurship at the post-secondary level may help students, educators, and academic institutions achieve government goals in that arena.

4.2.2.3. Funding University Networks and Spin-outs

The Federal Government could also promote entrepreneurship education in post-secondary education through financial support for university networks and commercialization of scientific university knowledge. In 1999, the Science Enterprise Challenge (SEC) Fund was created as a first step towards a cultural transformation in the direction of scientific entrepreneurialism throughout higher education in the United Kingdom (Tomes 2003). The SEC funded 13 entrepreneurship centers aimed at establishing

[a] network of centers in universities specializing in entrepreneurship teaching in science and technology, supported by funding from government, aimed to foster commercialization of research and new ideas, stimulate scientific entrepreneurialism, incorporate teaching of enterprise into science and engineering curricula, centers of excellence for transfer and exploitation of scientific knowledge and expertise, raise awareness of entrepreneurship at all levels within university and legitimize commercial activity as valid aspect of academic life, promotes cooperation between academics and business world that offer input on research (European Commission 2004a).

A similar challenge could be created involving U.S. universities and community colleges to simulate the development of university networks and business spin-outs.

¹⁵ The reforms focused on integrating concepts across engineering as well as across many other disciplines, including architecture, business, and entrepreneurship. They also included incorporating design projects every semester, service learning projects (hands-on projects that benefit the community), and outreach to high schools and community colleges. See Shipp, Mitchell, and Lal (2009).

¹⁶ For more information, see the Solar Decathlon Web site at <http://www.solardecathlon.org/about.html>.

4.2.2.4. Funding Proof-of-Concept Centers

Federally funded proof-of-concept centers could potentially allow more students to achieve the entrepreneurial experience, provide more realistic training, and speed some products to market faster. The Kauffman Foundation recently examined how two proof-of-concept centers, the Deshpande Center at MIT¹⁷ and the von Liebig Center at the University of California San Diego,¹⁸ facilitate commercialization of innovations.¹⁹ Each center focuses on the cultivation of innovation at its respective engineering school. Federal funding of proof of principle, which targets the idea creation that occurs before concept realization, in conjunction with funding for small businesses,²⁰ could be directed to university and affiliated entrepreneurship centers that could help guide students.

4.2.2.5. Direct Funding of Programs

Direct funding to academic institutions for post-secondary education innovation and improvement has been successful although limited in use in the United States. Internationally, the Higher Education Innovation Fund (HEIF) in the United Kingdom funds activities that will increase a higher education institution's capability to respond to the needs of businesses.²¹ HEIF, through successive rounds of funding (2001, 2004, 2006/7), has modified institutional behavior and supported entrepreneurship curricular innovation (European Commission 2008a). In the United States, the Fund for the Improvement of Post-Secondary Education (FIPSE) through the U.S. Department of Education supports and disseminates innovative reform projects that promise to be models for improving the quality of post-secondary education.²² Curriculum reform that outlines an innovative approach to comprehensively teach entrepreneurship could be given greater attention under FIPSE. Recent FIPSE grants given in October and September 2008 have funded entrepreneurship programs and educator networks in two universities and one community college.²³ However, the impact of this funding has not been evaluated and only a few universities and community colleges are receiving FIPSE grants for their entrepreneurship initiatives.

¹⁷ For more information, go to <http://web.mit.edu/deshpandecenter>.

¹⁸ For more information, go to <http://www.vonliebig.ucsd.edu>.

¹⁹ For more information, go to <http://www.kauffman.org/advancing-innovation/accelerating-commercialization-of-university-innovation.aspx>.

²⁰ Similar to Small Business Innovation Research (SBIR) funds for Phase 1.

²¹ For more information, go to http://www.dius.gov.uk/science/knowledge_transfer/heif.

²² For more information, go to <http://www.ed.gov/programs/fipsecomp/index.html>.

²³ The FIPSE database is available at <http://www.fipse.aed.org>.

4.3. Operations Roles

The roles described in this section address the opportunities for the Federal Government to improve effectiveness and efficiency of entrepreneurship education programs by influencing the standards, procedures, facilities, and methods used in day-to-day operations of the programs.

4.3.1. Setting Program Standards

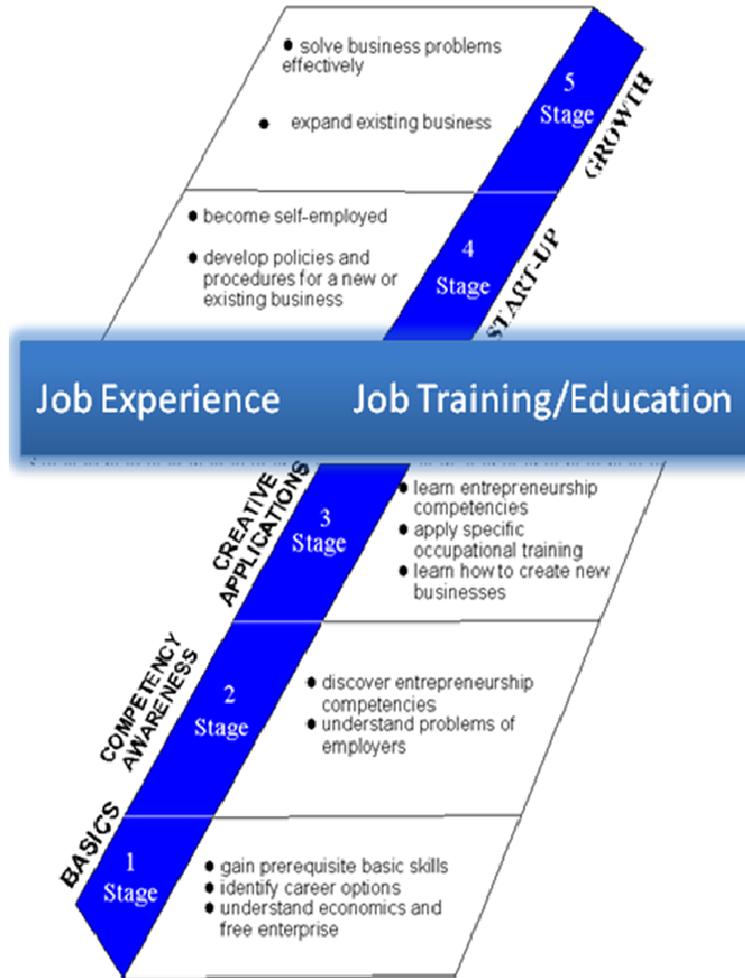
The Federal Government might assume the role of setting program standards and curricula guidelines for entrepreneurship education. While no nationally accepted standards currently exist, several nonprofit organizations, foundations, and scholars have developed and disseminated proposed standards and guidelines. The Kauffman Foundation has developed curricula and student activities for programs at both the secondary and post-secondary education levels. Junior Achievement and NFTE have developed curricula for secondary education.

The most comprehensive standards are the National Content Standards published by the Consortium for Entrepreneurship Education (2004a).²⁴ The National Content Standards contain fifteen major standards built on a framework to highlight the acquisition of entrepreneurial skills through the lifelong learning process, depicted in Figure 2.

The Federal Government could play an important role in integrating those proposed standards and curricula into one set of standards at all levels of education. This role could allow the Federal Government to incorporate into those standards aspects of innovation, economic growth, and an emphasis on science and technology.²⁵

²⁴ Determined from analysis of content standards of relevant entrepreneurship education organizations. The Consortium's National Content Standards can be applied throughout the K-12 and post-secondary education system and contains 403 reference indicators and/or skills that may be applied to entrepreneurship education.

²⁵ James Shelton, Department of Education, Office of Innovation and Improvement. Personal telephone interview with V. Peña and S. Shipp. 27 May 2009.



Source: Consortium for Entrepreneurship Education (2004b).

Figure 2. Entrepreneurship Education as a Lifelong Learning Process

4.3.2. Establishing Certification and Accreditation Systems

The Federal Government may be able to substantially improve entrepreneurship education programs, or at least enforce some consistency, by creating a national system for accreditation and certification. Several nonprofit organizations have developed or endorsed certification and accreditation systems, resulting in a variety of systems in use across the nation. The Kauffman Foundation's Scholar Program and NFTE's Entrepreneurship Program offer certification to students who have completed the requisite hours of entrepreneurship education courses. NFTE's Entrepreneurship Teacher Certification offers entrepreneurship educators certification and career development opportunities.²⁶ DECA's Gold School-

²⁶ For more information, go to <http://www.nfte.com/startupprogram/teachers>.

Based Enterprise Certification offers accreditation to academic institutions based on their entrepreneurship education program.²⁷

The criteria and evaluation methods vary from system to system, allowing students, educators, and institutions to shop for the most favorable system. A Federal system has the potential to add legitimacy to the entrepreneurship education field; provide consistent methods for monitoring and evaluating students, educators, and institutions; create strong incentives for students to complete programs so that they can be certified; and offer national levels of certification and accreditation that could enable meaningful program comparisons.

4.3.3. Coordinating Federal Goals and Roles

Aspects of entrepreneurship education appear in diverse programs throughout a variety of Federal agencies, including those for education, labor, trade, and immigration (Audretsch 2007a). Currently these programs are in almost every respect independent of one another. No agency or mechanism exists to coordinate the goals, methods, tools, or evaluation of these programs. A Federal role to coordinate these programs might ensure a consistent and effective entrepreneurship education in Federal programs.

The implementation of this role could take a number of forms. An individual organization could be charged with the continual oversight and coordination of Federal entrepreneurship education. If the coordination were to be a sporadic or one-time event, then a task force with members selected from a variety of agencies and organizations could be established to develop goals, guidelines, and methodologies. Moreover, the newly created National Advisory Council on Innovation and Entrepreneurship (Federal Register 2009), which will be led through the Department of Commerce, may have a role in addressing the critical issues related to Federal oversight and coordination.

A Federal coordination role might also include the formation of partnerships among Federal agencies to tackle one or more specific problem areas. For example the Department of Labor has successfully partnered with the U.S. Departments of Education, Health and Human Services, and Justice to create the Shared Youth Vision Federal Partnership (U.S. Department of Labor 2009), formed in response to the need for highly collaborative and integrated systems to address disadvantaged youth at the Federal, state, and local levels (U.S. Department of Health and Human Services 2003). Similarly a Shared Vision for Entrepreneurship Education could be created to coordinate efforts and leverage investments among relevant Federal agencies; streamline existing initiatives, infrastructure, and programs; address the gaps and challenges in the domain; and engage states by supporting state-level teams, proactive networking, and the common needs of state partners.

²⁷ For more information, go to <http://www.schoolbasedenterprises.org>.

4.3.4. Supporting Public-Private Partnerships

Another possible role for the Federal Government would be to coordinate public-private partnerships to implement initiatives and encourage long-term commitments from both public and private interests and a broad and transparent search for potential collaborators. Public-private partnerships in entrepreneurship education have been used for:

- Financing pilot projects in academic institutions;
- Sponsoring and supporting specific initiatives, such as business plan competitions;
- Implementing nontraditional teaching methods that incorporate entrepreneurs and industry in teaching, mentoring, and coaching;
- Developing corporate social responsibility and ethical behavior; and
- Linking academic institutions with industry.

The Federal Government could look to the following examples of public-private partnerships when developing new partnerships:

- The Appalachian Regional Commission partners state governments with the Federal Government over a 420-county region to share resources and build capacities in a rural region (ARC 2008).
- Detroit's New Economy Initiative partners city government with the Kauffman Foundation FastTrac program, the Urban Entrepreneurship Program, and nine Michigan-based foundations.
- The FastTrac Launchpad program partners New York City government and the Deluxe Check Corporation to provide entrepreneurship education for those recently unemployed due to the recession (FastTrac Web site 2009).

4.3.5. Supporting Educator Training and Facilities Enhancement

Academic institutions and educators play major roles in fostering lifelong skills and encouraging the active learning that allows a student to incorporate knowledge into behavior (European Commission 2006a). The education that a student receives is strongly influenced by the conditions of the teaching institution (Dreisler 2008), and by the motivation of educators and institutions to develop appropriate programs (European Commission 2004a and Hills 1988). Thus, one way to improve the quality of entrepreneurial education is to improve the quality of the educators and the facilities of the teaching institutions. The Federal Government could undertake any of a number of roles in supporting educator training and facilities enhancement.

4.3.6. Creating National Competitions and Prizes

Creating a National Competition for Entrepreneurship Education Projects could motivate educators and academic institutions to improve their programs through better teaching methods, greater industry collaborations, and

increased outreach to more diverse students. The critical challenge will be ensuring that the competition incentives match the government objectives.

4.3.7. Advancing Educator Networks and Public Forums

An additional support mechanism the Federal Government could undertake would be the establishment of public workshops, conferences, and forums where educators could meet either online or in person to enhance their professional networks and teaching skills. The public forums could include regional observatories that could provide training to educators and academic institutions, serve as regional centers for resources and educational tools, and disseminate and encourage best practice information-sharing among local education agencies, state education agencies, academic institutions, and other regional observatories (European Commission 2004a). These forums could be designed to include industry, government, and academic stakeholders to foster the relationships necessary for greater collaboration.

4.3.8. Supporting Education Technology Training

Despite the growth in entrepreneurship courses and degrees, a survey of entrepreneurship education in the United States showed a negative trend regarding the incorporation of technology into entrepreneurship education (Solomon, Duffy, and Tarabishy 2002). Evidence suggests that entrepreneurship is difficult to teach with conventional, low-technology teaching approaches (McMullan and Long 1987). Further, some entrepreneurs indicated that the secondary education classes that covered or used technologies were influential in their decisions to become high-technology entrepreneurs (Kourilsky and Walstad 2002). Given these findings, the use of advanced technology in entrepreneurship education might increase if the Federal Government established or facilitated (either alone or in partnership with industry) a training program to familiarize educators with advanced technology and supported technology-incorporated teaching techniques.

4.3.9. Supporting Non-Profit Entrepreneurship Education

Non-profit organizations play a significant role in entrepreneurship education. These organizations provide educational and mentoring programs, and such groups as the Consortium for Entrepreneurship Education, Network for Teaching Entrepreneurship (NFTE), Kaufman Foundation, and National Collegiate Inventors and Innovators Alliance help to foster the entrepreneurial culture in secondary and post-secondary education (see Appendix D). When considering the Federal Government's role in supporting entrepreneurship education, it will be important to identify successful programs with proven track records and determine what type of support could be provided to scale up effective practices. A regional or national expansion plan of entrepreneurship education to the *entire* secondary education youth population would require an approximate budget of \$1 to \$20 billion (primarily based on financial costs of current entrepreneurship education programs; see

Appendix C), which shows a wide budget range due to differences in program models, resources, and extended education or training services that may be provided by the program. Under any expansion scenario, the Federal Government might play a role in fostering collaboration and coordinating the efforts of the nonprofits with other nonprofits, private industry, and governmental programs in order to help leverage funding.

4.3.10. Establishing and Certifying Evaluation Methodologies

The Federal Government could establish and publish reasonable program evaluation methods and certify the methodology of organizations proposing to formally evaluate programs. Since the research community differs on the appropriate methods for evaluating entrepreneurship education (Alberti, Sciascia, and Poli 2005 and Volkman et al.), the Federal Government could provide valuable guidance in establishing approved methods. Further the Federal Government could potentially prevent wasted evaluation funds by establishing a mechanism to certify evaluation methodology prior to the fielding of the evaluation. See Appendix A for further discussion of benchmarking and program evaluation indicators in the literature.

4.4. Marketing and Promoting Roles

One set of potential Federal roles would involve promoting a spirit of entrepreneurship and generating interest in entrepreneurship education through media programming and communication.

4.4.1. Implementation of a Promotional Awareness Campaign

A Federal promotional awareness campaign could play an important role in building interest in entrepreneurship education programs and fostering a national culture of entrepreneurship (Reynolds et al. 2002). Such a campaign might be an effective tool to stimulate the entrepreneurial mindset and shift cultural values towards a “spirit of enterprise” among all stakeholders (e.g., students, educators, scholars, and industry).

A promotional awareness campaign could be tailored to address specific community needs, such as reducing severe high school drop-out rates or generating business activity in economically depressed locales. Messages might then be targeted to specific groups within local communities, such as students, educators, parents and businesses in areas with a significant proportion of at-risk or high-risk youth. Similarly, campaigns could also be designed to address the science, engineering, and technology communities.

A promotional awareness campaign could present entrepreneurship education as a component of sustained economic growth and the acquisition of 21st-century life skills and be rolled out in stages, as shown in Figure 3. As a first step, there could be a presidential announcement or speech that makes entrepreneurship education a highly visible issue to the public. This speech

could be a follow-up to the President's remarks to the Hispanic Chamber of Commerce (New York Times, 2009), where he called on the

nation's governors and state education chiefs to develop standards and assessments that don't simply measure whether students can fill in a bubble on a test, but whether they possess 21st century skills like problem-solving and critical thinking and entrepreneurship and creativity.

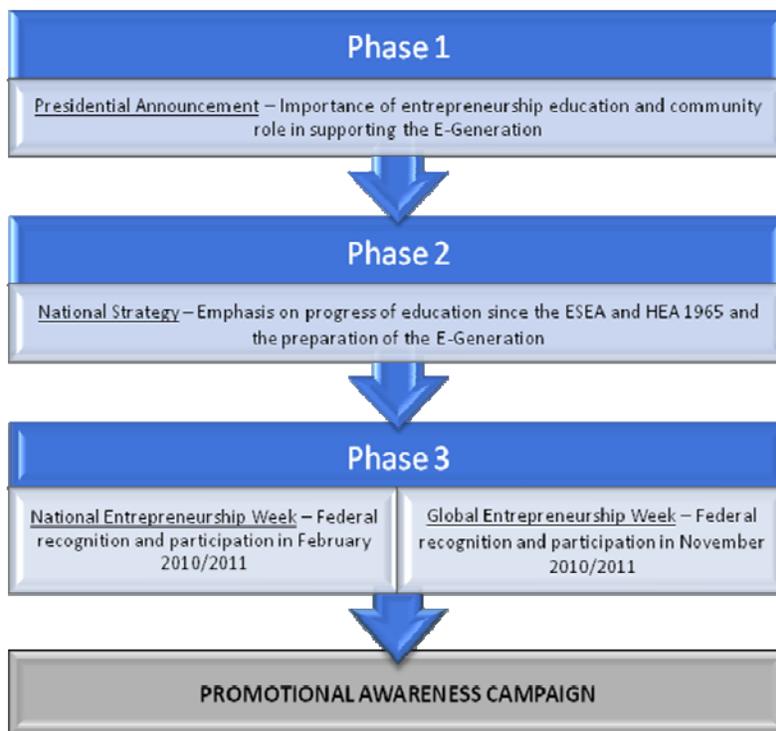


Figure 3. Phase 1 through 3 of Options for a Promotional Awareness Campaign

An entrepreneurship and 21st-century life skills promotional awareness campaign seems in line with the sentiments of this speech. Additionally, a presidential announcement about entrepreneurship education could emphasize the public's role in contributing to the entrepreneurial economy and the needed support from local communities for "E" generation.²⁸

The promotional awareness campaign may also build on the progress in education since the adoption of the Elementary and Secondary Education Act (ESEA) and Higher Education Act (HEA) in 1965. A Federal entrepreneurship education initiative could be unveiled in 2010 as part of the 45th anniversary of the ESEA and HEA (Ministry of Education and Research 2004 and Office of

²⁸ Term coined by Kourilsky and Walstad (2000).

the Prime Minister 2007).²⁹ Further, the increased participation of Federal organizations in National Entrepreneurship Week (occurring annually in February) and Global Entrepreneurship Week/USA (occurring annually in November) might increase the momentum of the campaign.³⁰ In the past, both Federal and state governments have supported National Entrepreneurship Week, hosted by the Consortium for Entrepreneurship Education. Additional Federal actions for promoting these types of efforts might include developing public and online forums, conferences and expositions, and supporting existing network organizations.

4.4.2. Implementation of Program Awareness Support

As the number of interest in entrepreneurship education programs increases, students and programs need a single source able to provide objective information. The Kauffman Foundation, the Consortium for Entrepreneurship Education, and the Jump\$tart coalition have begun to compile entrepreneurship education program databases. Unfortunately, their databases have been limited to projects funded by their respective organizations and some international programs (Consortium for Entrepreneurship Education 2008).³¹ A Federal role in compiling and publishing, via the Internet, information on publicly and privately sponsored entrepreneurship education programs could help to maintain interest, provide an objective source of program information, and provide a mechanism to compare program offerings and approaches.

This database could include information on faculty, course descriptions, degree or certification curricula, accreditation, contacts, and standards at all levels of entrepreneurship education nationwide. An effective means of acquiring comprehensive information may be through the launch of a national survey of entrepreneurship education programs.³² Similar initiatives have been funded at the Federal level through the National Science Foundation (NSF) Partnerships for Innovation (PFI) grants for industry innovation.³³ At the

²⁹ Models for a national strategy may draw from components of strategies adopted internationally. For example, from 2004 to 2008, Norway implemented its national strategic plan for entrepreneurship in education and training, which outlines goals, measures, evaluation, and follow-up. The strategic plan is supported by the 2006 introduction of a Core Curriculum Model for Knowledge Promotion Reform, which provides a framework and guidelines for primary and secondary curriculum and includes entrepreneurship as part of basic instruction in school.

³⁰ The National and Global Entrepreneurship Weeks are celebrated for everyone interested in encouraging entrepreneurship and innovation. For further information, go to <http://www.nationaleweek.org> and <http://www.kauffman.org/entrepreneurship/global-entrepreneurship-week-2009.aspx>.

³¹ The latter point is especially true for the Consortium for Entrepreneurship Education, which stated that its database includes those organizations that have contacted them and are not directly associated with the organization (Ashmore, Cathy. Executive Director, Consortium for Entrepreneurship Education. Personal telephone interview with V. Peña and S. Shipp. 16 April 2009).

³² The focus of a national survey may include programs at all levels of education – primary and adult – if deemed appropriate with the goals for a national strategy.

³³ Mary Ann Feldman (economist at University of North Carolina-Chapel Hill) is currently evaluating the outcomes of these programs, according to the Kauffman Foundation.

private level, the Kauffman Foundation has given funds to the National Bureau of Economic Research (NBER) for the past 6 years to research and develop entrepreneurship datasets that may be helpful in program and impact evaluations.³⁴

4.4.3. Recognition of Entrepreneurship “Champions”

Another way the Federal Government might promote entrepreneurship education programs would be to recruit a group of entrepreneurship champions nationwide, in essence establishing an entrepreneurship-corps (E-Corps) program. The E-Corps might be composed of scholars whose primary function could be to enhance the relationships, collaborations, and networks of entrepreneurship-related scholars, executives, and agency managers by building bridges between their respective institutions. A similar concept was recently proposed by Secretary Hillary Clinton at the Presidential Summit on Entrepreneurship held in Washington, D.C., on April 26, 2010. This initiative would develop an E-Mentor Corps by providing an online resource in which an entrepreneur seeking a mentor could locate individuals offering entrepreneurship advice (Kauffman Foundation 2010).

Additionally, many post-secondary education institutions have a Chair of Entrepreneurship that serves as an expert in the domain of entrepreneurship education. In most cases, however, their roles and the expected outcomes are not clearly defined (Katz 2003b). The Federal Government might seek ways to expand the role of these chairs to emphasize entrepreneurship at all levels within the local community, and, in particular, to serve as links to businesses, state or local education agencies, and academic institutions.

³⁴ Lesa Mitchell, Vice President, Advancing Innovation, Ewing Marion Kauffman Foundation. Personal telephone interview with M. Hughes and V. Peña. 30 July 2009.

5. Conclusion

This document presents the results of STPI's research into entrepreneurship education in the United States. The research indicates that more significant participation by the Federal Government could yield substantial benefits in the education of entrepreneurs. The appendices to this report contain documentation about the major stakeholders and programs in entrepreneurship education.

The United States has been the leading center of global innovation and entrepreneurialism in the post-Second World War era. A better understanding of the role of entrepreneurship education may be of benefit as the United States works to remain competitive in the global economy. The opportunities for Federal intervention exist in a variety of arenas, with entrepreneurship education likely to be an important one.

Appendix A: Entrepreneurship Theory, Education Goals, and Evaluation Indicators

Conceptual Perspectives of Entrepreneurship

Traditional Perspectives

Entrepreneurship theory and literature can follow several schools of thought in economic theory. For instance, two thoughts on entrepreneurship are (1) the German (Schumpeter, 1911) and (2) the Austrian traditions (Kirzner 1979 and 1997). The German tradition of entrepreneurship is largely led by Joseph Schumpeter's (1911) notion that entrepreneurship is a process by which new firms displace less-innovative incumbent firms and stimulate higher economic growth.³⁵ The Austrian tradition of Israel Kirzner (1979) defines entrepreneurship as a process of discovery and spontaneous knowledge.³⁶ Due to the variety of thought on entrepreneurship in the entrepreneurship education literature, no universal definition, indicators, or set of entrepreneurial qualities have been established to define the process or the individual.³⁷ This may be caused in part by entrepreneurship's multi-disciplinary nature and function and by its applicability to all organizational forms (e.g., projects, firms, industries, and regions). See the sidebar "Three Perspectives Regarding Entrepreneurship" to understand the variety of general academic thought on the subject.

Entrepreneurship's complexity reaches beyond the controversy over academic definitions and perspectives to include entrepreneurship teaching content. The various definitions and perspectives of entrepreneurship can be categorized by emphasis: (1) the individual's personality traits and qualities,³⁸ (2) required behaviors and actions,³⁹ or (3) a combination of the two.⁴⁰ The sidebar

³⁵ Schumpeter terms this process as *creative destruction*, often referred to as "a good cold shower for the economic recovery system," in which labor and capital from failing sectors are repositioned within the economy and innovative newcomers are enabled in the marketplace. See Schumpeter (1950 and 1954).

³⁶ Kirzner's notion of spontaneous knowledge is described as "spontaneously increasing awareness of information hitherto veiled in ignorance". This process drives subconscious actions towards or individual realizations of previously unnoticed opportunities in the marketplace. See Kirzner (1979: 146).

³⁷ See OECD (1998), Lumpkin and Dess (1996), and Bull and Willard (1993).

³⁸ Caird (1992) refers to the following personality variables: communication skills, analytical skills, career skills, knowledge, and attitudes; Kourilsky (1990, p. 138) refers to the entrepreneurial *spirit* as intrinsic in nature and that guides divergent ideas with resources in a unique manner.

³⁹ Shane and Venkataraman (2000) define entrepreneurship as the process through which opportunities to create future goods and services are discovered, evaluated and exploited; Shane (2000) further describes the view of entrepreneurship that incorporates opportunity recognition and exploitation as central roles.

“Entrepreneurship as the Nexus between Evaluation and Exploitation” summarizes these distinctions and the nexus between evaluation (competencies) and exploitation (practical use) of resources. As a result, entrepreneurship education content can simply convey entrepreneurial competencies (Fiet 2001 and Gibb 2002) or employ active learning processes that exercise entrepreneurial competencies in practical applications (Young 1997).

Three Perspectives Regarding Entrepreneurship

Economics Perspective: Hebert and Link (1989) distinguish between the supply of financial capital, innovation, allocation of resources among alternative uses and decision-making. Thus, an entrepreneur encompasses the entire spectrum of these functions: “The entrepreneur is someone who specializes in taking responsibility for and making judgmental decisions that affect the location, form, and the use of goods, resources or institutions.”

Management Perspective: Sahlman and Stevenson (1991) differentiate between entrepreneurs and managers in that, “entrepreneurship is a way of managing that involves pursuing opportunity without regard to the resources currently controlled. Entrepreneurs identify opportunities, assemble required resources, implement a practical action plan, and harvest the reward in a timely, flexible way.”

Change Perspective: Audretsch (1995 and 2007b) argues that entrepreneurship is about change and the change process, just as entrepreneurs are agents of change. This view is supported by the Organization for Economic Co-Operation and Development (OECD), that stated, “Entrepreneurs are agents of change and growth in a market economy and they can act to accelerate the generation, dissemination and application of innovative ideas....Entrepreneurs not only seek out and identify potentially profitable economic opportunities but are also willing to take risks to see if their hunches are right” (OECD, 2000, p.11).

Entrepreneurship as the Nexus between Evaluation and Exploitation

Entrepreneurship = set of competencies: entrepreneurship as set of competencies of entrepreneurs that drive the entrepreneurial process, this determines what is being taught and the focus is on extension of behavioral repertoire of the entrepreneur as learning outcomes (Gibb 1997). Competencies may include communication and analytical skills.

Entrepreneurship = process of realizing opportunities: focus on the process and the entrepreneur as part of the creation of enterprise and bringing opportunities to market where the learning outcome is on a theoretical level understanding for the process and its resources and on the practical level the elaboration of the resources in a business case or a business plan; deeply rooted in the literature on opportunity recognition (Davidsson 2004 and van der Veen and Wakkee 2004).

Entrepreneurship = starting a company: practical approach that focuses on entrepreneurship as starting company, mostly about writing a business plan for presentation to financiers, target – oriented; suitable for starting entrepreneurs who seek finance for their venture (van der Sijde, Ridder, Blaauw, and Diensberg 2008).

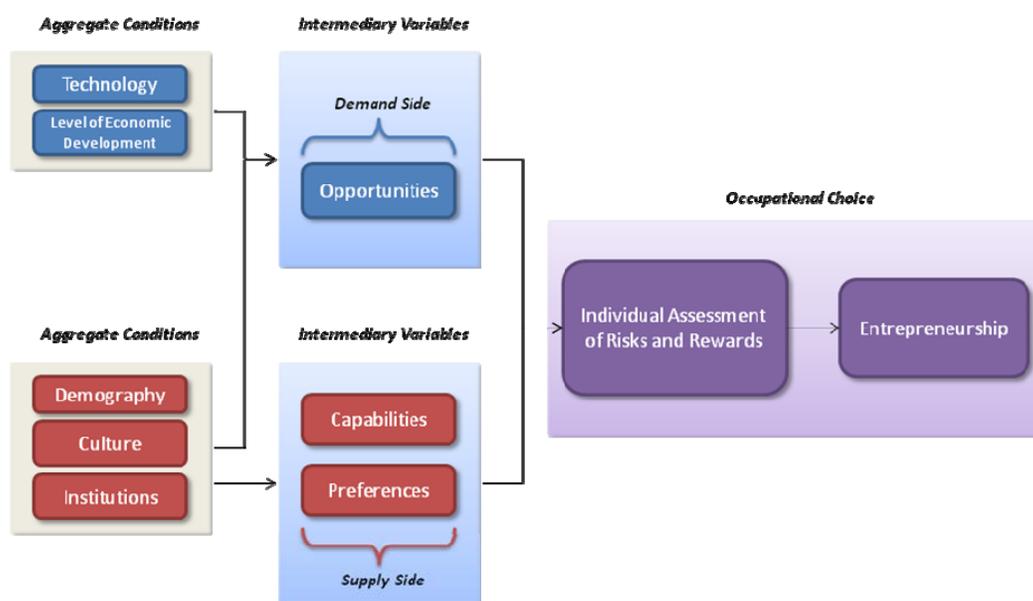
Entrepreneurship = management of a small company: emphasis on managing the process in a young company and is often used in MBA curricula for post-experiential students (van der Sijde, Ridder, Blaauw, and Diensberg 2008).

⁴⁰ Wennekers and Thurik (1999) define entrepreneurship as “the perception and creation of new economic opportunities” combined with “decision-making on the location, form and use of resources.”

To further complicate the academic background, in practice, there is confusion between the terms “entrepreneurship,” “enterprise,” and “small business,” and teaching content may differ depending on the perspective taken (Alberti 1999 and Bechard and Gregoire 2002). However, it is generally accepted that terms like “enterprise” and “small business” limit entrepreneurship concepts to the business community whereas “entrepreneurship” encompasses a broader range of education objectives and audiences (Shane and Venkataraman 2000). Such language distinctions can be significant as educational programs aim to encourage favorable student opinions regarding entrepreneurship (Dreisler 2008).

Determinants of Entrepreneurship

A variety of variables contribute to a student’s occupational choices, especially in the case of entrepreneurial endeavors. Figure A-1 identifies the various conditions and determinants influencing emerging entrepreneurship and reveals the variety of opportunities academic institutions have when encouraging entrepreneurship through educational programs.



Source: Modified from Wennekers, Uhlaner, and Thurik (2002); Shane (2003). See also Audretsch, Thurik, Verheul, and Wennekers (2002), and, for policy framework for entrepreneurship, see Audretsch, Grillo, and Thurik (2007).

Figure A-1. The Determinants of Entrepreneurship

Aggregate conditions shape the demand side factors (external environment and opportunities) and the supply side factors (individual capabilities and preferences) that are considered when making the occupational choice as an entrepreneur. In particular, entrepreneurship education can contribute to entrepreneurship’s supply side by increasing student’s capabilities and preferences and in turn, influencing their perceptions of entrepreneurship’s

risks. The focus of this paper emphasizes the significant roles and challenges of education in influencing entrepreneurship.

Goals and Mechanisms for Teaching Entrepreneurship

Secondary Education Level

Entrepreneurship at the secondary education level could incorporate knowledge of skills, attitudes, and personal qualities appropriate to the age and development of students throughout the various levels of secondary education and foster creativity, spirit of initiative, and independence (European Commission 2004). Secondary education could also raise awareness by students of self-employment and entrepreneurship as future career options and include learning by doing and specific training on how to create a business through practical projects and activities (European Commission 2006). Additionally, according to NFTE, the fundamentals of entrepreneurship education for youth may include the following (Volkman et al. 2009):

- Ownership and wealth creation,
- Market opportunity recognition and research,
- Comparative advantage,
- Laws of supply and demand,
- Marginal utility (“economics of one unit”),
- Return on investment and break-even calculation, and
- Compound interest (Rule of 72).

Moreover, it is suggested the acquisition of 21st-century life skills may help youth recognize opportunities, become valuable citizens, and create high-growth businesses in the future (Volkman et al. 2009). The benefits of entrepreneurship education at the secondary education level include: use of strategies for idea generation, capability to assess the feasibility of ideas, and ability to translate problems into opportunities (Consortium for Entrepreneurship Education 2009).

Post-Secondary Education Level

Goals for entrepreneurship education at the post-secondary level are in line with individuals that can start new business and may change their personal and career attitudes and the Kauffman Foundation’s vision to foster a “society of economically independent individuals who are engaged citizens, contributing to the improvement of their communities” (Consortium for Entrepreneurship Education 2009 and Kauffman Foundation Web site 2009b). The goals at the post-secondary education level will depend highly on the culture, mission, and infrastructure of the academic institution (e.g. vocational, community college, technical university, etc.). Nonetheless, goals for innovative entrepreneurship

programs recognized by the U.S. Association for Small Business and Entrepreneurship (USASBE) include:

- The development of student business plans evaluated by an outside panel of business leaders (e.g., Ball State University);
- An internal business plan competition where qualifying MBA teams present business plans to a panel of six judges (e.g., University of Louisville); and
- Coursework, internship activities and networking events, and university-based venture funds and incubator facilities (e.g., Miami University of Ohio).

Specifically, at the post-secondary education level, it will be necessary to clarify an institutional role in implementing and commercializing innovation and knowledge transfer as part of an entrepreneurial mission and strategy. According to *The Economist* (2009), "University research departments have helped to drive innovation in everything from design to entertainment." The European Commission has stated similar entrepreneurship goals for education by emphasizing the importance of entrepreneurial training for students and faculty in order to create a supportive environment for start-ups and academic spin-offs (European Commission 2004). Measurable goals to create a favorable business environment at the post-secondary education level may include establishing university policies to promote entrepreneurship in scientific labs, institutional policies for intellectual property rights and licensing, links to incubators or science parks,⁴¹ extensive networks with private industry and financial resources, and grants for students in multi-disciplinary programs that include an entrepreneurial or innovation focus.⁴² Overall, students and faculty involved in start-ups will need training on how to start and run a business, capacity to draft a business plan, and skills in identifying and assessing opportunities that are not limited to economics or business courses (European Commission 2004). Thus, goals at the post-secondary education level rely more on a large-scale practical application of entrepreneurial competencies.

Benchmarking and Program Evaluation Indicators

A potential Federal role is to identify evaluation methods for entrepreneurship education. One of the main weaknesses of this area is the disagreement within the research community on how to evaluate entrepreneurship education (Alberti, Sciascia, and Poli 2005 and Volkman et al. 2009). Thus far,

⁴¹ Specifically, successful science and research parks promoting clusters of innovation and new technology-based firms have a "profound impact on a region and its competitiveness," in which a prime example is the Research Triangle Park in North Carolina (Lugar and Goldstein 1991, p.47).

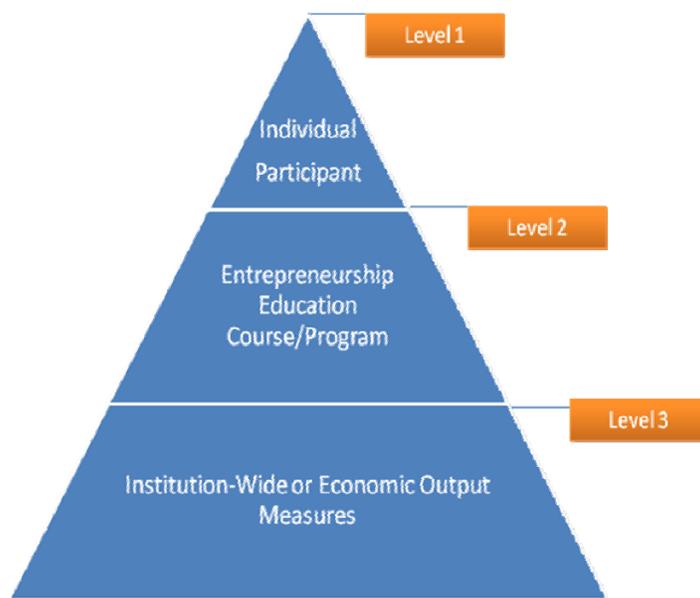
⁴² Students in the Carnegie Mellon Engineering & Technology Innovation Management (E&TIM) Program do not meet the criteria for receiving NSF grants. NSF's Graduate Research Fellowship will not support studies in any field of management, even if it has an engineering, innovation, and technology focus. (Conversation with Eden Fisher, Director of Carnegie Mellon's E&TIM program on April 2, 2009)

identifying how to measure entrepreneurship education has received little attention (McMullan and Gillin 2001).

Areas to consider to benchmark and evaluate entrepreneurship education may include:

- Publication of indicators and evaluation guidelines and
- Development of international efforts of institutionalizing and sharing methods for assessing entrepreneurship education

Generally, there are three principal levels of assessment that emphasize evaluation at the individual, program, and institutional or economic levels, as shown in Figure A-2. Evaluation indicators may differ between secondary and post-secondary education levels. The following subsections indicate for each level the array of evaluation methods and indicators available.



Source: Modified from Volkman et al., 2009.

Figure A-2. Principal Levels of Evaluation Measures for Secondary and Post-Secondary Levels

Secondary Education Indicators of Success

At the secondary education level, indicators fall into four categories: (1) personal values and aspirations, (2) academic knowledge about entrepreneurship, (3) general academic performance, and (4) business formation and wealth generation (Volkman et al. 2009). Personal values are in line with the evaluation of the individual participant and may be measured by an increase in positive answers to such questions as (Volkman et al. 2009):

- Do you feel comfortable discussing your ideas to a roomful of adults?
- Do you think you will graduate from college?

The second level of indicators is academic knowledge and performance, which specify the level of impact from the perspective of the entrepreneurship education course or program. Academic knowledge may be easily evaluated through a pre- and post-survey or test that gauges improved knowledge of basic facts or concepts (e.g., revenue, profit, and return on investment). Indicators of academic performance include improved attendance, engagement in school, and graduation rates.

Thus, the final level of evaluation, business formation and wealth generation, provides an indication of the socio-economic impact produced from entrepreneurship education programs (Block and Stumpf 1992 and McMullan and Long 1987). These indicators include but are not limited to the number, types, and growth rate of companies produced (McMullan and Long 1987), the longevity and nature of businesses created by students who take youth entrepreneurship courses (Volkman et al. 2009), the contribution to the economy in terms of employment, and the degree of career satisfaction of students (Block and Stumpf 1992 and McMullan and Long 1987). Less frequently used indicators include longitudinal data on whether personal income increases due to entrepreneurship education and the number of youth entrepreneurship students who join start-ups, which may be a measure of an increased disposition to risk (Volkman et al. 2009). Indicators at the final level of evaluation may be difficult to acquire considering the long-term aspects of several indicators.

Post-Secondary Education Indicators of Success

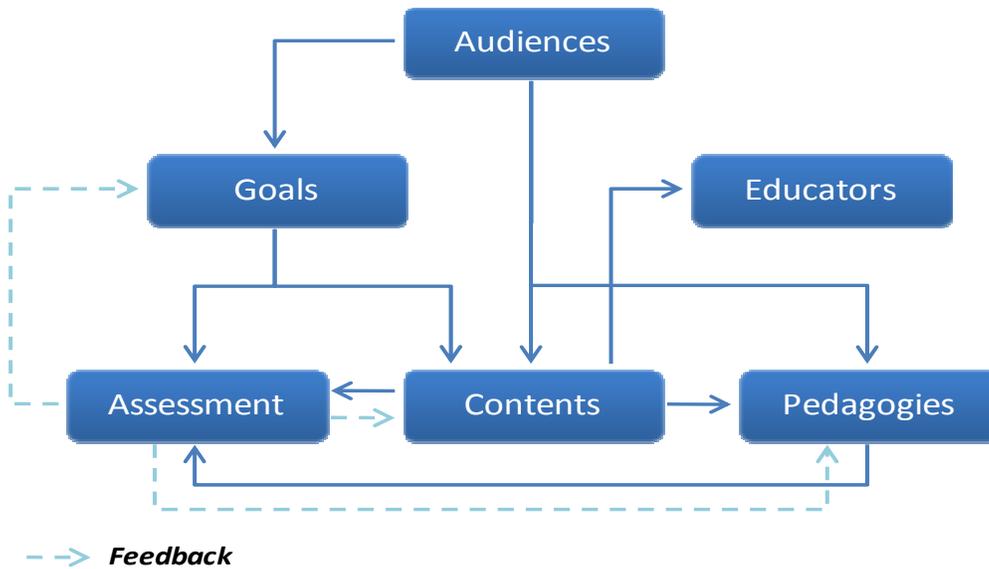
At the post-secondary education level, evaluation may incorporate both quantitative and qualitative indicators. Similar individual and program indicators as in the secondary education level may be used, in addition to the following:

- Individual: the progress in attitudes, perceptions, and intentions of students taking entrepreneurship modules and changes in the image of and attitudes towards entrepreneurs (Volkman et al. 2009).
- Course or Program: the number of students who want to take the course, student enrollments and the increase in the number of participants, the level and quality of employment for students who have taken entrepreneurship education, for example, 5 years after completion of their studies (European Commission 2008).⁴³
- Institution-Wide: the performance of university-business links, technology transfers measured by the number of spin-offs or start-ups out of the university, university incubators, commercialized inventions, the number of new patents or licenses, revenues from and the number of workplaces created by the new start-ups, and quality or growth of the start-ups and new workplaces (Nelson and Byers 2005 and Wu 2007).

⁴³ Future measurements are important because there is often a substantial time lag between entrepreneurship education and its impact (Storey 2003).

Appendix B: Focus Areas for Research Community

Figure B-1 displays possible areas for consideration within the entrepreneurship education domain. The relationships and feedback among the six areas are as shown in the figure.



Source: Modified from Alberti, Sciascia, and Poli (2005).

Figure B-1. Conceptual Framework to Approach the Domain of Entrepreneurship Education

Generally, the goals of entrepreneurship education are as follows (Curran and Stanworth 1989; Block and Stumpf 1992; and Garavan and O’Cinneide 1994):

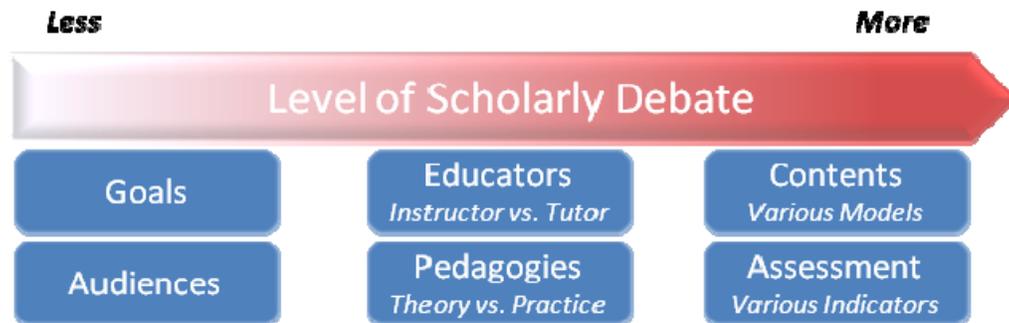
- Acquire knowledge germane to entrepreneurship and the entrepreneurial mindset;
- Acquire skills in the use of business techniques, in the analysis of business situations, and in the synthesis of action plans;
- Identify and stimulate entrepreneurial drive, talent, and skill;
- Undo the risk-averse bias of many analytical techniques;
- Develop empathy and support for the unique aspects of entrepreneurship;
- Revise attitudes towards change; and
- Encourage new start-ups and other entrepreneurial ventures.

While these objectives are the most commonly cited, they are not inclusive of all possible goals within the entrepreneurship education domain, including the

functional goals of writing a business plan and acquiring appropriate funding for business start-ups.

The majority of entrepreneurship perspectives discuss teaching entrepreneurship education to a broad audience that includes business and non-business students and actors. Generally, these can consist of students/learners, entrepreneurs, managers, scholars, and entrepreneurial “sympathizers” who support entrepreneurship in society (Alberti, Sciascia, and Poli 2005).

Areas of greater scholarly debate include the role of educators and the methods or models related to pedagogies, contents, and assessment (see Figure B-2). Debate is less about “whether entrepreneurship can or should be taught, but rather how to continuously improve its content and delivery to meet the needs of our current students” (Gendron 2004).



Source: Interpretation based on issues from Alberti, Sciascia, and Poli (2005).

Figure B-2. Levels of Scholarly Debate among Principle Issues within the Entrepreneurship Education Field

Entrepreneurship educators, whether academic or not, serve as facilitators to the learning process and utilize role-playing and management simulations, as well as structured and hands-on exercises. Entrepreneurship educators are challenged to present effective learning opportunities to students as the traditional instructor role is confronted with the educator as tutor view (Ducheneaut 2001). In this view, learning is a two-sided process. Alternative approaches of teaching and promoting entrepreneurship are shown in Table B-1, in which entrepreneurship education is portrayed as a bottom-up approach. Generally a mix of traditional and alternative approaches is recommended.

Table B-1. Comparison of Traditional and Alternative Teaching Approaches

	Traditional approach	Alternative approach
Knowledge	Instructed to learners	Constructed by learners
Learners (e.g. students, participants)	Received knowledge and contain knowledge	Constructors, discoverers and creator of knowledge
Institutions (e.g. Colleges, Universities, Faculty)	Classify and sort learners	Develop learners' competencies and talents
Relationships	Impersonal relationship among learners and between institutions and learners	Personal interactions among learners and between institutions and students
Activity type	Individualistic – static	Mixture of individualistic and interactive learning activities – dynamic
Example of teaching method	Lecturing, reading, question and answer session, advice and feedback, etc.	Activities, presentations, simulation, role-play, scenario, games, etc
Assumptions	Teaching and learning is through 'top-down' instructive approach – transmissive methodology	Teaching and learning is through 'bottom-up' constructive approach – transformative methodology

Source: Wright, Bitner, and Zeithami (1994).

Pedagogies and contents are continuously changing as field knowledge and market interest in entrepreneurship education broaden. Design may depend on the academic institution's goals, level of bureaucracy (McMullan and Long 1987), flexibility (Gibb 1993), resources (Sexton and Bowman 1984), and competencies (Klofsten and Jones-Evans 2000). Various pedagogical models exist for entrepreneurship, including: the multiple/holistic approach; problem-based learning dealing with complexity and ambiguity; learning through apprenticeship; action and experiential learning; competition; role-playing scenarios, simulation, and games; opportunity identification activities; learning from reflection; multi-media case studies; and problem-base or goal-oriented activities that lead to reflection, presentation, and discussion (Lourenco and Jones 2006). Overall, educators need to recognize the functionality and importance of each approach in order to design a complementary and collaborative teaching style (Lourenco and Jones 2006).

Finally, assessment is a significant portion of feedback within the Entrepreneurship Education framework and one of the issue areas in most need of attention and further investigation (Alberti, Sciascia, and Poli 2005). In a similar way to the macro- and micro-economic entrepreneurship education benefits perspectives, the macro-, meso-, and micro-levels of analyses that may be evaluated include: (1) the economic contribution to society, (2) the educational contribution to the entrepreneurship process, and (3) the individual's self-perceptions and development (Falkäng and Alberti 2000). Evaluation (assessment) is further exacerbated by the lack of frameworks and standardized indicators for measuring effectiveness across the

various entrepreneurship education factors. Moreover, while scholars indicate that contributions to society and other satisfaction indicators may be measured within a 10-year time perspective, note that performing constrained time assessments may underestimate entrepreneurship education's impacts (Block and Stumpf 1992).

Appendix C: Teaching and Learning Models: Selected Examples

Overview

Details of selected programs are presented to provide context for enhancing these programs or shaping future programs that will focus on entrepreneurship education. These programs build skills that will allow students to increase their knowledge of business and entrepreneurship. These skills are important for future workers whether they start their own business or work in a company.

The programs described in this appendix are:

- The Junior Achievement (JA) Program
- The Network for Teaching Entrepreneurship (NFTE)
- The International Baccalaureate (IB) Program
- Businesses United in Investing, Lending, and Developing (BUILD)
- National Federation of Independent Businesses (NFIB) Young Entrepreneur Foundation
- Ewing Marion Kauffman Foundation
- Partners for Youth with Disabilities-Young Entrepreneurs Program (YEP)

The Junior Achievement Program

Description⁴⁴

The Junior Achievement (JA) program began in 1919. Between 1920 and 1970 the program developed from a collection of "Achievement Clubs" similar to 4-H to locally run "Achievement Companies" with nationally organized conferences and events. During the 1970s the organization shifted towards educational programs in economics and business in both classroom and afterschool programs. These new programs were staffed by corporate volunteers and have expanded over the past three decades. JA's current purpose and vision is "to inspire and prepare young people to succeed in a global economy."

At the high school level, JA currently offers a range of 8 distinct classroom-based programs (Banks in Action, Business Ethics, Careers with a Purpose,

⁴⁴ Information in this section is from the Junior Achievement Web site, available at <http://www.ja.org/default.asp>.

Economics, Exploring Economics, Success Skills, Titan, and the NEFE High School Financial Planning Program), with each program involving about 7 volunteer-led classroom sessions. JA also offers a 12-session afterschool high school Company Program and a 1-day Job Shadow capstone program. An additional 5 programs are available at the middle school level and 8 more are available for elementary school students. All programs and activities are presented by JA volunteers. The organization reached roughly 8.4 million students worldwide for the 2006–2007 program years, including about 4 million in the United States. Domestically, the program interacted with 14,963 elementary schools, 2,289 middle schools, 2,968 high schools, and 2,190 other non-school sites (total of 22,410 sites). These values represent market penetration levels of 10.7%, 6.9%, and 2.3% for elementary, middle, and high schools respectively. Table C-1 summarizes the JA offices' regional distributions based on census regions.

Table C-1. Regional Junior Achievement (JA) Office Distribution

Region	% Population Aged 5–24	JA Offices	% of Total JA Offices
Northeast	17.4%	26	10.1%
South	36.6%	111	43.2%
Midwest	22.0%	82	31.9%
West	24.0%	38	14.8%

Source: JA Web site, available at http://www.ja.org/near/near_map.asp.

Since 1993 JA has employed independent, third-party evaluators to evaluate its programs' impact on knowledge gains and student attitudes. The organization reports the following findings at the high school level:⁴⁵

The majority of students (79%) agreed that JA positively influenced their attitudes toward continuing their education. JA students were more likely than students in general to matriculate to college immediately after high school (77% versus 69%). Most students reported that JA made the transition to college easier, encouraged them to work hard, and provided them information that was relevant.

As a Player

The JA program has established a valuable network for teaching business-related material to students but would require significant expansion before taking on a large role in a national entrepreneurship initiative. First, while JA has a deeper nationwide high school penetration than the IB program (2.3% vs. 1.6%), overall penetration remains low, JA offices have a reduced presence in the Northeast and West (see Table C-1), and high schools make up only 13% of schools visited by JA volunteers. Significant expansion would

⁴⁵ Summaries and full reports of these evaluation findings and those for other grade levels are available at http://www.ja.org/programs/programs_eval_overview.shtml.

be required if the program were to handle a nation-wide, high school initiative. Second, while JA has several educational programs for high schools students, of its traditional program set, only the afterschool JA Company program specifically covers entrepreneurship, accounting for about 12.5% of total high school student participation. To feature a national entrepreneurship education initiative, JA must dramatically increase participation in the JA Company program and/or introduce an entrepreneurship-specific program. Along these lines, the organization has recently developed the JA Be Entrepreneurial program aimed at teaching high school students business-starting skills.

JA's volunteer profile may also present obstacles. During the 2006–2007 program period the majority of volunteers visited elementary schools (78.2%) with only 8.8% visiting middle schools, 6.4% visiting high schools, and 6.6% visiting mixed grade schools.⁴⁶ Roughly two thirds of the volunteers are women. This JA volunteer profile may limit JA's ability to rapidly increase entrepreneurship education at the high school level. Volunteers accustomed to contributing based on their own priorities will be more difficult to transfer to new initiatives and grade levels. The current profile may also indicate a general lack of volunteer availability for high school entrepreneurial education. The JA programs do not appear to have developed generalized teaching materials for instruction by teachers rather than JA volunteers.

As a Model

Volunteer-based organizations bring industry experience to the classroom and by definition reduce program costs. Unfortunately, volunteer organizations also require complex local and national management and quality assurance and may not respond well to rapid expansion. Founded in 1919 with a new business education focus arising in the 1970s, the JA program has developed its programs, management, and volunteer network over decades. A new, volunteer-based entrepreneurial education program would not have the benefit of such time or experience. It would rely on diverse, dispersed, and busy volunteers and would compete with other organizations and programs for these volunteers and their target schools. Extensive recruitment and organizational efforts would be required to create a national-scale volunteer effort for teaching entrepreneurship in high schools.

The Network for Teaching Entrepreneurship (NFTE)

Description⁴⁷

The Network for Teaching Entrepreneurship (NFTE), formerly known as the National Foundation for Teaching Entrepreneurship, was founded in 1987 by a

⁴⁶ From http://www.ja.org/about/about_who_stats.shtml.

⁴⁷ Information in this section is from the NFTE Web site, available at <http://www.nfte.com>.

business executive and entrepreneur turned New York City public high school teacher in an effort to reduce dropout rates and improve academic performance from failing students. NFTE targets students from low-income communities with the view that entrepreneurial education reveals the real world relevance of classroom learning, helps students build skills and creativity, and improves quality of life. The organization’s boards and committees are staffed by professionals from the business and academic communities and NFTE claims to have reached over 230,000 students since 1987 with more than 1,300 “active Certified Entrepreneurship Teachers.” Enrollment over the past 5 years has increased by 160% from about 17,300 students to 45,000 students.⁴⁸ NFTE commissioned three studies to evaluate its program’s effectiveness between 1993 and the present, and each found large increases in college and occupational aspirations.⁴⁹ NFTE currently operates offices in 12 major metropolitan areas with an additional 5 licensed regional partners. The organization also operates internationally in 13 countries through licensed partners. Table C-2 summarizes the domestic NFTE offices’ regional distributions based on census regions.

Table C-2. Regional Network for Teaching Entrepreneurship (NFTE) Office Distribution

Region	% Population Aged 5–24	NFTE Offices	% of Total NFTE Offices
Northeast	17.4%	5	29.4%
South	36.6%	6	35.3%
Midwest	22.0%	3	17.6%
West	24.0%	3	17.6%

Source: NFTE Web site, available at <http://www.nfte.com/locations>.

NFTE teaches entrepreneurship as a “mindset” or a fundamental life skill to educate youth to pursue post-secondary education or work in a business as an “entrepreneur” displaying the entrepreneurial mindset. NFTE provides entrepreneurship curriculum materials, regional and national business plan competitions with grant prizes, a two-week “BizCamp” day camp featuring field trips and guest speakers, and teacher training and certification. Three distinct curriculum packages are available for purchase for middle school, high school, and post-secondary students that can stand alone as semester- or year-long courses, or can be incorporated into existing courses, afterschool programs, or similar activities. The middle school curriculum focuses on fundamentals while the high school course materials support students as they start and operate their own small business. The post-secondary materials are tailored to either introductory courses or advanced principles. Teacher training involves a 4-day program available through NFTE program offices at

⁴⁸ Data acquired from NFTE annual reports available at <http://www.nfte.com/about/annualreports>.

⁴⁹ The research studies can be found at <http://www.nfte.com/impact>.

institutions “where at least 40% of students are eligible for free or reduced-price lunch.”

As a Player

Although NFTE has limited presence outside its 17 metropolitan office areas, the organization is well situated to play an important role in a national entrepreneurship education initiative. Note that NFTE’s nationwide presence is more concentrated in the Northeast than the other programs. NFTE already markets a well-recognized entrepreneurship curriculum with course materials and can provide complementary teacher training. The main barriers to program expansion relate to NFTE’s focus on students from low-income communities. First, teacher training is currently limited to schools with significant populations of low-income students, curtailing national expansion possibilities in higher income areas. Second, the curricula may focus on low-income students so much as to decrease applicability to other student groups. NFTE’s programs provide an important foundation for a larger entrepreneurship education initiative but the curricula and school requirements could incorporate greater flexibility to accommodate a range of student characteristics. The curricula and training could be more applicable to students with a range of skill and knowledge levels and include material that is independent from a student’s choice to start a business. For example, a course covering business theory and concepts could be offered independently from a hands-on course walking students through the business starting process.

As a Model

The general NFTE model fits the entrepreneurial education initiative well by providing respected curricula, course materials, and teacher training for interested schools while allowing the schools to retain autonomy and adjust the curricula to fit their needs. The organization’s new priority to integrate business coaching and mentoring into its programming could enhance the model. Quality control may be an issue, however, when applied on a large scale. For comparison, the NFTE model is similar to the LEED program run by the U.S. Green Building Council (USGBC). The USGBC generates building standards and professional training and certification but does not conduct any onsite work. Architects, contractors, and LEED professionals design, analyze, and construct, leaving the USGBC to devote its resources to standards, training, and final building certification. Note that the USGBC is a non-profit organization operating without Federal instruction or guidelines. This suggests that when sufficient interest surrounds a topic, non-governmental organizations can manage large initiatives to some extent. If a similar model were applied to entrepreneurial education, an organization like NFTE could fill the role played by the USGBC, managing standards, training, and quality control. Such an arrangement would require little or no involvement from Federal officials or institutions.

International Baccalaureate Program

Description⁵⁰

The International Baccalaureate (IB) program was founded in 1968 as a non-profit by teachers at the International School of Geneva, Switzerland, with input from other international schools. The program originally focused on college-bound students at private international schools but has since expanded to include the earlier education programs and state schools. IB schools provide a complete curriculum, examination, teacher training, and school evaluation package in an effort to “provide students with a truly international education.” Currently 670 U.S. schools offer the Diploma Program and 298 schools over the Middle Years Program (some of these schools offer both). With the U.S. containing roughly 40,700 public and private secondary schools,⁵¹ IB schools represent about 1.6% of all secondary schools in the country. Table C-3 summarizes the regional distributions of IB schools based on census regions.

Table C-3. Regional International Baccalaureate (IB) School Distribution

Region	% Population Aged 5–24	IB Schools	% of Total IB Schools
Northeast	17.4%	83	12.4%
South	36.6%	294	43.9%
Midwest	22.0%	114	17.0%
West	24.0%	179	26.7%

Source: Population data derived from 2008 Census estimates available at <http://www.census.gov/popest/states/asrh/SC-EST2008-01.html>.

The IB Diploma Program provides curricula for a 2-year, full-time course of study for enrolled students ages 16–19. The curricula involves six subject areas (first language, second language, individuals and societies, experimental sciences, mathematics and computer science, and arts) and requires that three subjects be studied at a “higher level” (courses with 240 teaching hours) and three subjects be studied at a “standard level” (courses with 150 teaching hours). The program also requires participation in three core requirements: an “Extended Essay,” the “Theory of Knowledge” course, and the “Creativity, Action, Service (CAS)” program. The recognition of IB diplomas/certificates by institutions of higher education varies by institution and no nationwide recognition policy currently exists. The IB Middle Years Program is designed for students aged 11–16. The curriculum involves eight subject areas (first language, second language, humanities, physical education, technology, sciences, mathematics, and arts) and a final personal project requirement. A Primary Years Program is also available for students aged 3–12.

⁵⁰ General information for the Diploma Program is from <http://www.ibo.org/diploma> and general information for the Middle Years Program is from <http://www.ibo.org/myp>.

⁵¹ Based on data from U.S. Department of Education (2009).

As a Player

The IB Diploma Program curriculum's "Individuals and Societies" subject area already includes a business and management section and an economics section; the Middle Years Program's "Humanities" subject area includes economics but not business and management. While detailed information about the curricula was not immediately forthcoming, it does not appear that the provided courses place special emphasis on entrepreneurship.⁵² The existing IB courses might provide an opportunity to bring entrepreneurship education to the IB program's motivated students although the organization's centralized, international curriculum development and standards will limit efforts to include specific entrepreneurial material.

Beyond its current students, the IB program's very limited presence in the country's school system probably eliminates it as a significant player in any national entrepreneurial education initiative. While the program has seen continuous growth in North America since 1971, it is unlikely to represent a significant fraction of schools in the near future. In addition, the school application process and required fees would, by design, hinder any program ramp-up efforts.⁵³ The application process involves 2.5 years of feasibility study, candidacy review, and site visits before a school can begin implementing the IB program. Between \$17,000 and \$23,000 in application fees are required for authorization with an additional \$9,600 in school fees due annually. A fee of \$129 per student for registration is also required with an \$88 subject fee paid for "each subject taken by an individual student." Such fees and application constraints limit rapid program growth opportunities and participation, reducing the IB program's practicality for national entrepreneurship education initiatives. However, the IB program displays how a curriculum may be adopted within academic institutions and could provide insight into the requirements for an entrepreneurship curriculum or the creation of an Entrepreneurship Diploma.

As a Model

The IB program provides complete educational packages, including the curriculum, student assessments, teacher training, and school evaluation. This centralized approach standardizes education across schools and regions, providing theoretically identical schooling and assessment for all students. Complete standardization could be difficult to institute for a national entrepreneurship education initiative, but some level of standardization may increase uniformity and confidence in the student outcomes. The IB program's complete package model may work best in an entrepreneurship charter school

⁵² Study guides and teacher support materials are available for purchase at http://store.ibo.org/index.php?cPath=23_30.

⁵³ Go to <http://www.ibo.org/ibna/educators/documents/DiplomaApplicationProcessandFees.pdf> for more information.

approach or as a complete entrepreneurship course package. In addition, while not universally recognized within the United States, the IB program's final certificate/diploma can provide added credentials for students applying to institutions of higher education. An analogous entrepreneurial education certificate or diploma could play a similar role, providing additional incentives for study and/or a competitive edge if generally recognized by the country's employers and higher education institutions.

Businesses United in Investing, Lending, and Developing (BUILD)⁵⁴

Description

Started in 1999 in East Palo Alto, California, the BUILD program employs entrepreneurship education and mentorship to break "the cycle of poverty," enabling underserved students to make money, develop skills, and prepare for college by starting their own businesses. Through private funds, the program provides a complete academic package based on NFTE curricula and teacher training, recruiting students, teachers, and mentors and providing curriculum materials for a 4-year elective curriculum taught in partner high schools. During their freshman year, students take a 7–10 hour per week "Planning a Business" elective that teaches fundamental business knowledge and skills with the support of volunteer mentors, culminating in a comprehensive business plan competition. During the sophomore-year "Youth Building Incubator," students spend 3–6 hours per week after school starting their businesses and learning about ethics, negotiations, and venture capital. Venture Capital Advisors act to finance the businesses and students work with Academic Program Managers to maintain their academic standards (>2.0 GPA). During years 3 and 4, the students continue to run their businesses while preparing for and applying for college. BUILD arranges college tours and SAT prep and aids students with admissions and financial aid applications. Students must maintain a 2.7 GPA to remain in the program during this period.

BUILD operates in the San Francisco Bay Area and in Washington, DC, reaching more than 500 students in 13 schools and "serving more than 1,000 students" since 1999. Five students have won NFTE's National Youth Entrepreneur of the Year award and NFTE has named three BUILD teachers Entrepreneurship Teacher of the Year. Despite coming from "low-income communities with a 50%–70% high school dropout rate" with historically underrepresented ethnic backgrounds, 100% of BUILD graduates have completed high school and attended college.

⁵⁴ General information about BUILD is from <http://build.org>.

As a Player

Despite its dedication and impressive program, BUILD's limited reach and "High Touch Approach" will prevent it from acting on a large-scale in national entrepreneurship education initiatives. By emphasizing significant student-staff-mentor contact, the program will have difficulty growing substantially to meet nationwide needs without sacrificing quality. The program's curricula and experience could be considered when developing any national standards, curricula, and/or programs.

As a Model

The BUILD model concentrates on providing a dedicated, comprehensive program for students with high dropout risk and a mix of socioeconomic challenges. The model goes beyond simply providing entrepreneurship education by also providing mentoring and academic and college counseling support. This intensive model works well for a small number of students facing difficulties but is not intrinsically designed to give basic entrepreneurship education to a large number of students with diverse backgrounds. As a result, the BUILD model might be more appropriate for targeted, low-income entrepreneurship education initiatives than for a general nationwide effort. However, several BUILD design elements like the Venture Capital Advisors and the business ethics and negotiations topics could be useful features in general entrepreneurship education curricula.

National Federation of Independent Businesses (NFIB) Young Entrepreneur Foundation⁵⁵

The Young Entrepreneur Foundation is the NFIB's program for educating high schools students about "the critical role of small business and the American free enterprise system." The foundation supports four programs, including a three-module entrepreneurship curriculum, an online small business simulation game, an annual awards program, and a mentoring program. Of these programs the simulation game and mentoring opportunities offer intriguing possibilities for a national entrepreneurship education initiative. Additional comparison between the NFIB curriculum and others (such as NFTE) would be necessary before advocating for a particular set of materials.

⁵⁵ General information about the NFIB Young Entrepreneur Foundation is from <http://www.nfib.com/tabid/85/Default.aspx/tabid/85/Default.aspx>.

Ewing Marion Kauffman Foundation⁵⁶

The Ewing Marion Kauffman Foundation was established in the 1960s with a strong focus on supporting entrepreneurship and fostering “a society of economically independent individuals who are engaged citizens, contributing to the improvement of their communities.” The foundation supports four initiatives: “All Terrain Brain” teaching materials and Web site for students aged 8–12, two entrepreneurship weeks (national and global), and a business simulation game developed in partnership with Disney for students predominantly in the 9–12 age group.⁵⁷ Note that the foundation also supports entrepreneurship education at the college and university level. While Kauffman’s resources target younger students, the teaching materials, Web resources, and business simulation games represent effective techniques for reaching students in a national entrepreneurial initiative. Several programs sponsored through the Kauffman Foundation may serve as models for an entrepreneurship education curriculum.

Partners for Youth with Disabilities—Young Entrepreneurs Program (YEP)⁵⁸

Founded in 1992, Partners for Youth with Disabilities’ YEP leads primarily Massachusetts students aged 14–24 through the process of starting a small business based on NFTE curricula and training. In addition to the small business focus, students benefit from career development activities like resume writing, college visits, and mock interviews. Interested students can also be paired with mentors from the business and professional community according to interest or professional goals. The program’s focus on students with disabilities could inform national efforts for this student group and its mentoring opportunities could be a valuable feature in a national entrepreneurship education initiative.

⁵⁶ General information about the Kauffman Foundation is from http://www.kauffman.org/entrepreneurship/youth-entrepreneurship.aspx?ekmense1=e4e07dfa_10_0_3532_1.

⁵⁷ Available at <http://disney.go.com/dxd/index.html?channel=108602#/disneygroup/hotshotbusiness>.

⁵⁸ General information about YEP is from at http://www.pyd.org/mentoring_programs/young_entrepreneurs.htm.

Appendix D: Youth Entrepreneurship Education Programs

Youth entrepreneurship programs are presented in Tables D-1 through D-4 for the following types of organizations:

- **Non-Profits (Table D-1) and High School (Table D-2) –** Information was reviewed from the Consortium for Entrepreneurship Education Web site (http://www.entre-ed.org/_arc/home1.htm). Programs from non-profit organizations geared towards youth were reviewed online to verify organizations that were still active and appropriate for this study.
- **Four-Year Schools (Table D-3) –** From entrepreneur.com, this list comprises the top 27 undergraduate and graduate 4-year schools in entrepreneurship, as well as all programs from Ivy League schools and other schools with well-know entrepreneurship programs.
- **Community Colleges (Table D-4) –** The member list from National Association for Community College Entrepreneurship (www.nacce.com) was reviewed. A sample of the members (25% of their members, or 75 colleges) and the main trends in community colleges were identified from the sample list.

Overall, there is no distinction made between small business development and entrepreneurship for the purposes of this appendix.

The list of non-profit organizations geared toward youth entrepreneurship education is not a comprehensive list. Many youth entrepreneurship programs are attractive to low-income students, although this is not the case for all of the programs identified in the list. Often, students participate in classes, workshops, or week-long camps during the summer months. Applications are often necessary and scholarships are often given out.

For high schools, no comprehensive list of schools offering curricula in entrepreneurship exists and most schools do not have extensive Web sites. Therefore, the schools listed in the appendix are examples of efforts at the high school level and do not represent typical entrepreneurship curricula.

For community colleges, out of 75 members reviewed, 9 were excluded because they were not community colleges. Of the 66 remaining, 19 did not offer any entrepreneurship classes, did not have an entrepreneurship curriculum, and did not have a small business or entrepreneurship center. Of the 47 (or 71%) that did, 13 colleges offered individual classes in entrepreneurship, 21 community colleges had a non-degree certificate in entrepreneurship, 6 schools had an entrepreneurship option within another major (all were business administration, except for one cosmetology major),

6 schools had associated degree's in entrepreneurship, and 15 schools had a center or organization focused on entrepreneurship.

The Consortium on Entrepreneurship Education explains the difference between community college entrepreneurship efforts as "mostly concerned with adult education and entrepreneurship training needs in their local communities, as well as the full-time students on their campuses. However, they have often separated those interested in business careers from those specializing in other industries where entrepreneurship abounds." This insight was supported by the reviewed colleges, as many colleges focused on local economic development, such as Sitting Bull College, North Dakota that created a tribal business information center. Common initiatives in entrepreneurship or small business centers in community colleges are:

- Business counseling,
- Offering of non-credit classes,
- Seminars and continuing education classes for small business owners,
- Support for business plan writing, and
- Operation of business incubators.

Four-year schools typically operate their entrepreneurship curriculum within the business school, although a few do so in the engineering schools. Of the 81 schools identified, 68 had entrepreneurship centers, 7 offered Ph.D. majors in entrepreneurship, 6 offered M.S. degrees in entrepreneurship, 4 were identified as offering M.B.A. majors in entrepreneurship, and 26 offered bachelor's degrees in entrepreneurship. Most schools offered certificates in entrepreneurship, either at the undergraduate or graduate level.

According to the Consortium on Entrepreneurship Education, 4-year schools see entrepreneurship education as "a source of research, as well as an opportunity for business students to become successful business owners in the future." Entrepreneurship centers at 4-year schools typically:

- Focus on research, having associated faculty who conduct research and collaborative projects;
- Have business plan concentrations;
- Have entrepreneurship clubs for students;
- Conduct outreach in developing countries;
- Concentrate on entrepreneurship in specific sectors, such as technology or health care; and
- Have internship programs.

Table D-1. Non-Profit Entrepreneurship Education Organizations

Organization	Description	State	Source
Alabama REAL Enterprises	University of Alabama's Division of Community Affairs Center for Community Based Partnerships and Culverhouse College of Commerce and Business Administration/ Department of Management and Marketing. The project goal is to provide support to K-12 teachers and students through Rural Entrepreneurship through Action Learning (REAL). REAL was created as a nationwide organization to advance education and training in entrepreneurship across rural and small city America.	AL	http://communityaffairs.ua.edu/real.html
BUILD	BUILD provides entrepreneurial experience that empowers youth from under-resourced communities to excel in education, lead in their communities, and succeed professionally.	CA	http://www.build.org/
Burton D. Morgan Foundation	The Burton D. Morgan Foundation focuses on grant-making in three areas: youth, collegiate and adult. Youth grants range from money to support Boy Scout entrepreneurship badges and summer camps focused on economics and invention to funding for an entrepreneurship preparatory school in Cleveland. At the college level, the Foundation has long supported Kent State University's School of Fashion Design and Merchandising. More recently, the Foundation began collaboration with the Ewing Marion Kauffman Foundation of Kansas City, Mo., that will provide nearly \$7 million to establish a culture of entrepreneurship on five Northeast Ohio liberal arts campuses.	OH	http://www.bdmorganfdn.org
Business Professionals of America (BPA)	A national student organization for students enrolled in business programs. Holds a National Leadership Conference and contests where students develop small business plans. [Also available at the middle and post-secondary school levels.]	Nationwide	http://www.bpanet.org/public/
DECA, Inc; Delta Epsilon Chi	A national association for students pursuing marketing, management, or entrepreneurship careers. Provides curricular activities and two business/business plan competitions. Also manages a resource Web site in partnership with the Kauffman Foundation.	Nationwide	http://www.deca.org
Economics Center for Education and Research	The center trains teachers, develops classroom materials, and revolutionized economics learning for students from kindergarten through high school. Annually, the Economics Center trains 800-1000 educators. They serve a diversity of students and teachers, from urban to rural.	OH	http://www.economicscenter.org/
Education, Training, & Enterprise Center	Provides a complete entrepreneurship curriculum covering topics from business opportunities to business plans.	Nationwide	http://www.edtecinc.com/
Engaging Youth Entrepreneurs	This organization works to empower and prepare youth to become competitive in a global economy through entrepreneurial skill building. Program focuses on entrepreneurship, financial literacy, and leadership through leadership conferences, summer camps, and an entrepreneur in schools program.	Nationwide	http://www.eyeforchange.org/
Entreunty	Offers several in-school and afterschool courses and training programs, in business management, finance, and entrepreneurship with training games, materials, and workbooks. Also offers a summer business camp for minority students.	IL	http://www.entreunty.com/Programs.htm
Ewing Marion Kauffman Foundation	Sponsors two entrepreneurship weeks (national and global) and three general audience business development courses. [Also offers teaching materials, a Web site, and a business simulation game for middle school students.]	Nationwide	http://www.kauffman.org/Section.aspx?id=Entrepreneurship
Four H	An entrepreneurship curriculum and activity materials for middle and high school students.	Nationwide	http://www.4-hcurriculum.org/catalog.aspx?cid=178&c=Entrepreneurship

Organization	Description	State	Source
Future Business Leaders of America-Phi Beta Lambda, Inc. (FBLA-PBL)	Organization for business students providing competitive events, publications, conferences, and seminars. [Provides these services for middle, high, and post-secondary school students.]	Nationwide	http://fbla-pbl.org/index.asp
Generation E Institute	Offers youth entrepreneurial education programs and consulting services to schools and community-based organizations	MI	http://www.genei.org/
Juma Ventures	Juma Ventures is a program for under-resourced youth who are motivated to earn a college degree. Juma youth engage in a program that integrates employment in social enterprises, college preparation, and financial literacy/matched savings scholarships.	Nationwide	http://www.jumaventures.org/
Junior Achievement (JA)	Offers volunteer-led classroom and afterschool programs and learning tools teaching concepts concerning entrepreneurship, financial literacy, and professional development. [Also offers programs for elementary and middle school aged students.]	Nationwide	http://www.ja.org/
Making Cents	Offers entrepreneurship curricula and business simulation games. [Also offers a teacher training course.]	DC	www.makingcents.com
National Association for the Advancement of Colored People (NAACP)	Provides a five week summer institute, an eight session Saturday institute, and an Advanced Summer Internship program in nine US cities. Based on NFTE curricula and training.	Nationwide	http://www.naacp.org/youth/yei/
National Endowment for Financial Education	Course materials including instructor's guide, student manual, and Web sites covering financial planning, budgeting, debt, investing, insurance, and careers. [Also offers a program evaluation toolkit, a personal finance online course for college students, and a resource clearinghouse.]	Nationwide	http://www.nefe.org/HighSchoolProgram/tabid/146/Default.aspx
National Federation of Independent Businesses (NFIB)	Supports a three-module entrepreneurship curriculum, an online small business simulation game, an annual awards program, and a mentoring program.	Nationwide	http://www.nfib.com/tabid/85/Default.aspx/tabid/85/Default.aspx
Network for Teaching Entrepreneurship (NFTE)	The Network for Teaching Entrepreneurship (NFTE), formerly known as the National Foundation for Teaching Entrepreneurship, helps young people from low-income communities build skills through entrepreneurship education. NFTE functions include creating curricula and tools to improve academic, business and life skills, training and supporting teachers and youth professionals, partnering with schools, community-based organizations, and post-secondary institutions, providing services to program graduates, demonstrating outcomes of entrepreneurship education through research, and building public awareness to expand entrepreneurship education	Nationwide	http://www.nfte.com/
North Carolina REAL Enterprises	Provides entrepreneurship courses along with a youth entrepreneurship camp. [Also provides courses at the primary and post-secondary levels and teacher training.]	NC	http://www.ncreal.org/
Northeast Indiana Innovation Center	NIIC's BizWiz program helps university and high school students to plan, launch, and operate their own technology business ventures	IA	http://bizwiz.ning.com/
Ohio Business Week Foundation	Ohio Business Week (OBW) is weeklong summer program that gives eligible high school students from around the state a unique, hands-on experience with business and entrepreneurship. Students learn directly from the pros how to establish and run their own company.	OH	http://www.ohiobusinessweek.org/
Southwest Atlanta Youth Business Organization	SWAYBO is a business organization for youth from middle to high school age. Membership is competitive to a few exceptional elementary schoolers who have the ability to learn our curriculum and participate in our program.	GA	http://www.swaybo.org/

Organization	Description	State	Source
Students for the Advancement of Global Entrepreneurship (SAGE)	Organizes annual team entrepreneurial project competitions. Projects must be from an existing class or student organization.	Nationwide	http://www.sageglobal.org/
Technology Playground	YUE teaches entrepreneurship using its curriculum supported by the National Foundation of Teaching Entrepreneurship (NFTE). The school program focuses on middle school students while our after-school, Saturday, and summer component focuses on high school students. The curriculum is taught as a semester-long course during the year and on a year round basis for our after-school programs.	DC	http://www.techplay.org/
Young Entrepreneurs at Haas (YEAH)	The goals of the After School Business Clubs, Saturday Business Academy, and Springboard Leadership Programs are tailored to fit the needs of students at specific grade levels. Common to all of the programs are activities that support the 'four pillars' of YEAH's mission: <ul style="list-style-type: none"> • Learning how people, individuals and groups act in organizations • Connecting with others through community service • Studying and applying basic business principles • Leveraging opportunities to gain recognition 	CA	http://www.haas.berkeley.edu/groups/yeah/
Youth Entrepreneurs Kansas	This program for high school students teaches business and entrepreneurial skills and offers hands-on experience to help students succeed as business owners or employees. Members of the business community offer support as mentors and all YEK graduates are encouraged to pursue higher education. Alumni stay involved with the program through opportunities for continuing education and networking, scholarships, and partnerships with local businesses.	KS	http://yek.org/index.cfm
Young Entrepreneur Society (YES)	YES was founded in Orange, Massachusetts, in 1998 by Tim Cohen-Mitchell, a community organizer. To date, YES has helped over 2,000 teens and young adults ages 13–21 unlock their potential through entrepreneurship, job readiness, financial literacy and technology.	MA	http://www.yes-inc.org/
Youth Venture	Provides training, tools, networking, and web resources for youth entrepreneurs.	Nationwide	http://www.genv.net/

Table D-2. High Schools with Entrepreneurship Education Programs

School	Description	State	Source
Buchholz High School	A 4-year magnet program for students in entrepreneurship, marketing, and business management. Buchholz High School is also a member of f the Consortium for Entrepreneurship Education.	FL	http://www.spiritspotbhs.com/
Estill County High School	At the student run print-shop, classes learn to handle and appreciate sales, production, marketing, time management and the challenges of business management.	KY	http://www.arc.gov/images/programs/entrep/Learning_By_Doing.pdf
Randolph County Vocational-Technical Center	A school based entrepreneurship course teaching students to recognize opportunities, develop business ideas, manage small businesses, and give back to the community. Students developed a cookbook containing traditional recipes from the region and stories from community elders, learning not only about supply and demand, marketing, and business management but also about the region's history and the surrounding community. Students in another class learned valuable lessons about proper market analysis, losing money on some of their craft products before reassessing customer demand and input cost to revenue ratios.	WV	http://www.arc.gov/images/programs/entrep/Learning_By_Doing.pdf
South Shore School of Entrepreneurship	A school program dedicated to entrepreneurship and low-income, minority, and at-risk students. Its goals are to help students remain in school and shift them away from activities like drug dealing and towards healthy business achievements. The courses weave entrepreneurship themes in to standard coursework and raise awareness of opportunities.	IL	http://www.arc.gov/images/programs/entrep/Learning_By_Doing.pdf
Walhalla High School	A school based entrepreneurship course teaching students to identify needs, develop solutions, present business plans, and manage small businesses. Students learned the ropes studying famous entrepreneurs before developing their own business plans and presenting their ideas to professionals. The students then launched their businesses during school hours, selling mostly food items requiring capital fundraising, business management, and hours working at the business. Students net significant profits and gained confidence and valuable life skills.	SC	http://www.arc.gov/images/programs/entrep/Learning_By_Doing.pdf

Table D-3. University Entrepreneurship Education Programs

University	State	School	Associated Center	Degrees Offered	Source
Arizona State University	AZ	Entrepreneurship at ASU		<ul style="list-style-type: none"> • Certificate in entrepreneurship and innovation • Certificate in small business and entrepreneurship • Certificate in technology Entrepreneurship, ASU Fulton School of Engineering • Certificate for automotive entrepreneurs and leaders 	http://entrepreneurship.asu.edu/
Ball State University	IN	Miller College of Business	Entrepreneurship Center http://cms.bsu.edu/Academics/CentersandInstitutes/EntrepreneurshipCenter	<ul style="list-style-type: none"> • BS in entrepreneurship • Minor in entrepreneurship offered for BA in business administration • MBA with a specialization in entrepreneurship 	http://cms.bsu.edu/Academics/CentersandInstitutes/EntrepreneurshipCenter/AcademicsandAdmissions/ProgramsofStudy/BachelorofScienceinEntrepreneurship.aspx
Baylor University	TX	Hankamer School of Business	Baylor Entrepreneurship Program http://www.baylor.edu/business/entrepreneur	<ul style="list-style-type: none"> • BBA in entrepreneurship • MBA with a concentration in entrepreneurship 	www.baylor.edu/business
Babson College	MA	F.W. Olin Graduate School of Business	The Arthur M. Blank Center for Entrepreneurship at Babson http://www3.babson.edu/ESHIP/eship.cfm The Lewis Institute http://www3.babson.edu/Lewis/default.cfm	<ul style="list-style-type: none"> • Entrepreneurship Intensity Track (EIT) for 2-year MBA 	http://mba.babson.edu/default.aspx
Beloit College	WI	School of Economics and Management	Center for Entrepreneurship and Liberal Education	<ul style="list-style-type: none"> • Business Administration with courses in entrepreneurship 	http://www.beloit.edu/celeb/
Benedictine College	KS	School of Business	Cloud L. Cray Center for Entrepreneurship	<ul style="list-style-type: none"> • BA in business administration with a concentration in entrepreneurship 	http://www.benedictine.edu/benedictine.aspx?pgID=1420
Brigham Young University	UT	Marriott School of Management	Rollins Center for Entrepreneurship and Technology http://marriottschool.byu.edu/giving/entrepreneurship.cfm	<ul style="list-style-type: none"> • BS in management with an emphasis in entrepreneurship • MBA with a minor in entrepreneurship 	http://marriottschool.byu.edu/
City University of New York - Baruch College	NY	Zicklin School of Business	N/A	<ul style="list-style-type: none"> • MBA with a concentration in entrepreneurship and small business management • MS in business with a concentration in entrepreneurship 	http://zicklin.baruch.cuny.edu/

University	State	School	Associated Center	Degrees Offered	Source
Clemson University	SC	College of Business and Behavioral Science	Arthur M. Spiro Center for Entrepreneurial Leadership	<ul style="list-style-type: none"> Minor in entrepreneurship 	http://business.clemson.edu/Spiro/
College of Charleston	SC	School of Business and Economics	Tate Center for Entrepreneurship http://spinner.cofc.edu/~tate/?referrer=webcluster&	<ul style="list-style-type: none"> BS in business administration with Entrepreneurship Concentration 	http://spinner.cofc.edu/~mgmtentrep/?referrer=webcluster&
Columbia University	NY	Columbia Business School	The Eugene Lang Entrepreneurship Center http://www4.gsb.columbia.edu/entrepreneurship	<ul style="list-style-type: none"> MBA concentration in entrepreneurship 	http://www4.gsb.columbia.edu/entrepreneurship/program
Cornell University	NY	The Johnson School	Entrepreneurship@Cornell http://eship.cornell.edu/	<ul style="list-style-type: none"> MBA concentration in entrepreneurship 	http://www.johnson.cornell.edu/academic/mba/entrepreneurship/education.html
Dartmouth College	NH	Thayer School of Engineering		<ul style="list-style-type: none"> Master of Engineering Management Program PhD in Innovation 	http://engineering.dartmouth.edu/entrepreneurship/DEEP.html
DePaul University	IL	The Charles H. Kellstadt Graduate School of Business	Coleman Entrepreneurship Center http://cec.depaul.edu/blog/2009/02/the-coleman-entrepreneurship-center---where-everyb.php	<ul style="list-style-type: none"> MBA with a concentration in entrepreneurship 	http://kellstadt.depaul.edu/
Drexel University	PA	LeBow School of Business	Laurence A. Baiada Center for Entrepreneurship in Technology http://www.lebow.drexel.edu/Centers/Baiada/index.php	<ul style="list-style-type: none"> BS in business administration with a concentration in entrepreneurship MBA emphasis in entrepreneurship 	http://www.lebow.drexel.edu/index.php
Eastern Illinois University	IL	Lumpkin College of Business and Applied Science	Center for Entrepreneurship and Innovation http://www.eiu.edu/~eiu-cei/	N/A	
Fairleigh Dickinson University	NJ	Silberman College of Business	Rothman Institute of Entrepreneurial Studies http://view.fdu.edu/default.aspx?id=932	<ul style="list-style-type: none"> Undergraduate degree in entrepreneurship Concentration in entrepreneurship MBA with a concentration in entrepreneurship Certificate in entrepreneurship 	http://view.fdu.edu/default.aspx?id=99
Harvard University	MA	Harvard Business School	http://www.hbs.edu/entrepreneurship/	<ul style="list-style-type: none"> MBA concentration in entrepreneurship 	http://www.hbs.edu/entrepreneurship/
Illinois State University	IL	College of Business	Institute for Entrepreneurial Studies http://www.cob.ilstu.edu/ies/	<ul style="list-style-type: none"> Undergraduate degree in entrepreneurship and small business management 	http://www.cob.ilstu.edu/departments_programs/

University	State	School	Associated Center	Degrees Offered	Source
Indiana University-Bloomington	IN	Kelly School of Business	Johnson Center for Entrepreneurship and Innovation http://www.kelley.iu.edu/JCEI/	<ul style="list-style-type: none"> • BS in business administration, Entrepreneurship • MBA in entrepreneurship and corporate innovation • PhD in entrepreneurship 	http://www.kelley.indiana.edu/jcei/
Loyola Marymount University	CA	College of Business Administration	Hilton Center for Entrepreneurship http://cba.lmu.edu/academicprograms/centers/entrepreneurship.htm	<ul style="list-style-type: none"> • Undergraduate degree in business administration with an emphasis in entrepreneurship • MBA with a focus in entrepreneurship 	http://cba.lmu.edu/
Marquette University	WI	College of Business Administration	Kohler Center for Entrepreneurship http://www.mukohlercenter.org/	<ul style="list-style-type: none"> • Bachelor's in entrepreneurship • Graduate certificate in entrepreneurship 	http://www.marquette.edu/programs/
Massachusetts Institute of Technology	MA	Sloan School of Management	Entrepreneurship Center http://entrepreneurship.mit.edu/index.php	<ul style="list-style-type: none"> • MBA with an entrepreneurship and innovation track • MS in management science with a concentration in technology-based entrepreneurship • PhD with a concentration in technological innovation, entrepreneurship, and strategic management 	http://mitsloan.mit.edu/academic/overview.php
Miami University of Ohio	OH	Farmer School of Business	Page Center for Entrepreneurial Studies http://www.fsb.muohio.edu/centers/page-center	<ul style="list-style-type: none"> • BS in interdisciplinary business management, with a business track in entrepreneurship 	http://www.fsb.muohio.edu/centers/page-center
Montana State University	MT	College of Business	Center for Entrepreneurship for the New West http://www.montana.edu/cob/centernewwest/	<ul style="list-style-type: none"> • Minor in entrepreneurship and small business management 	http://www.montana.edu/cob/index.php
New York University	NY	Leonard N. Stern School of Business	Berkley Center for Entrepreneurial Studies	<ul style="list-style-type: none"> • MBA specialization in entrepreneurship and innovation 	http://w4.stern.nyu.edu/berkley/
Northwestern University	IL	Kellogg School of Management	The Kellogg School Entrepreneurship & Innovation Program	<ul style="list-style-type: none"> • MS in entrepreneurship and innovation 	http://www.kellogg.northwestern.edu
Nova Southern University	FL	H. Wayne Huizenga School of Business and Entrepreneurship	N/A	<ul style="list-style-type: none"> • MBA with a concentration in entrepreneurship 	http://www.huizenga.nova.edu/

University	State	School	Associated Center	Degrees Offered	Source
Northern Kentucky University	KY	Haile/US Bank College of Business	Fifth Third Bank Entrepreneurship Institute http://ei.nku.edu/	<ul style="list-style-type: none"> Undergraduate major in entrepreneurship minor in entrepreneurship Certificate in entrepreneurship MBA specialization MSIS specialization 	http://www.nku.edu/academics/undergraduate/index.php
Oklahoma State University	OK	Spears School of Business	Entrepreneurship and Emerging Enterprises http://entrepreneurship.okstate.edu/	<ul style="list-style-type: none"> BS in entrepreneurship Minor in entrepreneurship for business majors Minor in entrepreneurship for non-business majors MS in entrepreneurship MBA concentration in entrepreneurship PhD in entrepreneurship 	http://entrepreneurship.okstate.edu/academics
Pace University	NY	Lubin School of Business	Wilson Center for Social Entrepreneurship http://www.pace.edu/page.cfm?doc_id=15819	<ul style="list-style-type: none"> Bachelor's in business administration, concentration in entrepreneurship MBA with a concentration in entrepreneurship 	http://www.pace.edu/pace/lubin/
Princeton University	NJ	School of Engineering and Applied Sciences	The Keller Center for Innovation in Engineering Education http://commons.princeton.edu/kellercenter/entrepreneurship/courses.html	N/A	N/A
Purdue University	IN	Krannert School of Business	Burton D. Morgan Center for Entrepreneurship http://www.purdue.edu/dp/Entrepreneurship/	<ul style="list-style-type: none"> MBA with a concentration in entrepreneurship Undergrad certificate in entrepreneurship and innovation 	http://www.krannert.purdue.edu/
Rice University	TX	Jesse H. Jones Graduate School of Business	Rice Alliance for Technology and Entrepreneurship http://alliance.rice.edu/alliance/Default.asp	<ul style="list-style-type: none"> MBA with a concentration in entrepreneurship Education Entrepreneurship Summer Institute 	N/A
San Diego State University	CA	College of Business Administration	Entrepreneurial Management Center http://emc.sdsu.edu/	<ul style="list-style-type: none"> MBA specialization in entrepreneurship 	http://www.sdsu.edu/academicprogs.html
Seton Hill University	PA	Division of Social Sciences	National Education Center for Women, E-Magnify http://www.e-magnify.com/index.asp	<ul style="list-style-type: none"> BA in management with a specialization in entrepreneurial studies MBA with a specialization in entrepreneurship 16-credit graduate certificate in entrepreneurship 	http://www.setonhill.edu/academics/business/index.cfm
Sierra Nevada College	NV	N/A	Entrepreneurship program, Sharon M. Croom Center for Entrepreneurial Leadership	<ul style="list-style-type: none"> BS in business administration, with a concentration in entrepreneurship 	http://www.sierranevada.edu/157

University	State	School	Associated Center	Degrees Offered	Source
Simmons College	MA	School of Management		<ul style="list-style-type: none"> • MBA certificate in entrepreneurship 	http://www.simmons.edu/som/
Southern Methodist University	TX	Cox School of Business	Caruth Institute for Entrepreneurship http://www.cox.smu.edu/centers/caruthentrepreneurship/	<ul style="list-style-type: none"> • BA in business administration with a concentration in entrepreneurship • MS in entrepreneurship • MBA with a concentration in strategy and entrepreneurship 	http://www.cox.smu.edu/programs
St. Edward's University	TX	School of Management and Business	N/A	<ul style="list-style-type: none"> • BBA with a major in entrepreneurship • Entrepreneurship MBA concentration 	http://www.stedwards.edu/business/graduate/mba/entrepreneurship.htm
St. Louis University	MO	John Cook School of Business	Smurfit-Stone Center for Entrepreneurship http://www.slu.edu/x14531.xml	<ul style="list-style-type: none"> • BBA with a concentration in entrepreneurship 	N/A
Stanford University	CA	Graduate School of Business	Center for Entrepreneurial Studies http://www.gsb.stanford.edu/ces/	<ul style="list-style-type: none"> • Summer Institute in Entrepreneurship for graduate students 	
Syracuse University	NY	Whitman School of Management	Falcon Center for Entrepreneurship http://whitman.syr.edu/Centers/Falcone/index.asp	<ul style="list-style-type: none"> • BS in entrepreneurship • Minor in entrepreneurship. • MS in entrepreneurship • MBA with a concentration in entrepreneurship • PhD in entrepreneurship 	http://whitman.syr.edu/eee/
Temple University	PA	Fox School of Business	N/A	<ul style="list-style-type: none"> • Undergraduate degree in entrepreneurship • PhD in business administration with a concentration in entrepreneurship 	http://sbm.temple.edu/programs/entre.html
Tulane University	LA	Freeman School of Business	Levy Rosenblum Institute for Entrepreneurship http://www.freeman.tulane.edu/centers/lri/studies.php	<ul style="list-style-type: none"> • BS in business administration with a major in strategy and entrepreneurship • MBA with a concentration in entrepreneurship 	http://www.freeman.tulane.edu/
Texas A&M University	TX	Mays Business School	Center for New Ventures and Entrepreneurship http://mays.tamu.edu/cnve/	<ul style="list-style-type: none"> • Undergraduate certificate in entrepreneurial leadership • Graduate certificate in entrepreneurship 	http://mays.tamu.edu/degrees-and-majors/
Texas Christian University	TX	Neeley School of Business	Neeley Entrepreneurship Center http://neeley.tcu.edu/default.asp?nodeid=33	<ul style="list-style-type: none"> • BBA of entrepreneurial management 	http://neeley.tcu.edu/default.asp?IsDev=False&NodeId=2078
University of Akron	OH	College of Business Administration	Fitzgerald Institute for Entrepreneurial Studies http://www3.uakron.edu/cba/fitzgerald/index.htm	<ul style="list-style-type: none"> • Minor in entrepreneurship • Certificate in entrepreneurship • MBA concentration in entrepreneurship 	N/A

University	State	School	Associated Center	Degrees Offered	Source
University of Alabama - Tuscaloosa	AL	Culverhouse College of Commerce	The Alabama Entrepreneurship Institute http://aei.cba.ua.edu/	<ul style="list-style-type: none"> • Bachelor's in management with a concentration in entrepreneurship 	http://cba.ua.edu/
University of Arizona	AZ	Eller College of Management	McGuire Center for Entrepreneurship http://entrepreneurship.eller.arizona.edu/	<ul style="list-style-type: none"> • Undergraduate degree program • MBA concentration • Masters in MIS/entrepreneurship track • MS in entrepreneurship • MBA dual degree entrepreneurship concentration • PhD minor in entrepreneurship • MBA certificate in Entrepreneurship 	http://www.eller.arizona.edu/
University of California (Berkeley)	CA	Hass School of Business	Lester Center for Entrepreneurship and Innovation	<ul style="list-style-type: none"> • MBA certificate in Entrepreneurship 	http://entrepreneurship.berkeley.edu/students/mba.html
University of California (San Diego)	CA	Jacobs School of Engineering	William J. von Liebig Center	N/A	http://www.vonliebig.ucsd.edu/
University of Cincinnati	OH	College of Business	Center for Entrepreneurship Education and Research http://www.ecenter.uc.edu/	<ul style="list-style-type: none"> • Bachelor's in entrepreneurship 	http://www.uc.edu/degreeprograms/searchPrograms.aspx
University of Chicago	IL	Booth School of Business	Polsky Center for Entrepreneurship http://www.chicagobooth.edu/entrepreneurship	N/A	http://www.chicagobooth.edu/
University of Colorado-Boulder	CO	Leeds School of Business	Beverly A. Deming Center for Entrepreneurship http://leeds.colorado.edu/Centers_of_Excellence/index.aspx?id=548&terms=Deming+Center	<ul style="list-style-type: none"> • Undergraduate certificate in entrepreneurship and small business management • MBA with a concentration in management and entrepreneurship 	http://leeds.colorado.edu/
University of Florida	FL	Warrington College of Business Administration	Center for Entrepreneurship and Innovation http://www.cba.ufl.edu/fire/entrepreneurship/	<ul style="list-style-type: none"> • MS in entrepreneurship 	http://www.cba.ufl.edu/
University of Houston	TX	C.T Bauer College of Management	Wolff Center for Entrepreneurship http://www.bauer.uh.edu/centers/wce/	<ul style="list-style-type: none"> • BBA in entrepreneurship • Undergraduate certificate in entrepreneurship 	http://www.bauer.uh.edu/index.htm
University of Illinois at Chicago	IL	Liautaud Graduate School	Institute for Entrepreneurial Studies http://www.uic.edu/cba/ies/	<ul style="list-style-type: none"> • Undergraduate degree in entrepreneurship • MBA with a concentration in entrepreneurship 	http://www.uic.edu/cba/lgsb/mba/

University	State	School	Associated Center	Degrees Offered	Source
University of Iowa	IA	Tippie College of Business	John Pappajohn Entrepreneurial Center http://www.iowajpec.org/	<ul style="list-style-type: none"> Undergraduate certificate in entrepreneurship Graduate certificate in entrepreneurship MBA concentration in entrepreneurship 	http://tippie.uiowa.edu/
University of Dayton	OH	School of Business Administration	L. William Crotty Center for Entrepreneurial Leadership http://www.udayton.edu/business/crottycenter/index.php	<ul style="list-style-type: none"> Undergraduate degree in entrepreneurship Minor in entrepreneurship MBA with a concentration in entrepreneurship 	http://www.udayton.edu/business/aos.php
University of Louisville	KY	College of Business	Forcht Center For Entrepreneurship http://business.louisville.edu/content/view/716/918/	<ul style="list-style-type: none"> Undergraduate entrepreneurship minor for BS in business administration, IMBA- The MBA for Entrepreneurial Thinking PhD in entrepreneurship 	http://business.louisville.edu/content/view/726/949/
University of Maryland	MD	Robert H. Smith School of Business	Dingman Center for Entrepreneurship http://www.rhsmith.umd.edu/dingman/	N/A	http://www.rhsmith.umd.edu/index.aspx
University of Michigan	MI	Ross School of Business	Samuel Zell and Robert H. Lurie Institute for Entrepreneurial Studies http://www.zli.bus.umich.edu/	N/A	http://www.bus.umich.edu/
University of Missouri - Kansas City	MO	Bloch School of Business and Public Administration	Institute Entrepreneurship & Innovation http://www.entrepreneurship.bloch.umkc.edu/index.asp	<ul style="list-style-type: none"> BBA with a concentration in entrepreneurship MBA with a concentration in entrepreneurship Interdisciplinary PhD in entrepreneurship and innovation 	http://www.bloch.umkc.edu/index.aspx
University of North Carolina at Chapel Hill	NC	Kenan-Flagler Business School	N/A	<ul style="list-style-type: none"> An MBA concentration in entrepreneurship An undergraduate business concentration 	http://www.kenan-flagler.unc.edu/Programs/MBA/concentration/entrepreneurial/index.cfm?CFID=5983973&CFTOKEN=27492552
University of North Carolina-Greensboro	NC	N/A	North Carolina Entrepreneurship Center http://entrepreneur.uncg.edu/index	<ul style="list-style-type: none"> Bachelor in business administration with a concentration in entrepreneurship Minor in entrepreneurship 	http://www.uncg.edu/bae/
University of North Dakota	ND	College of Business and Public Administration	N/A	<ul style="list-style-type: none"> BBA with major in entrepreneurship Undergraduate certificate in entrepreneurship BBA with a track in entrepreneurship 	http://business.und.edu

University	State	School	Associated Center	Degrees Offered	Source
University of North Texas	TX	N/A	Murphy Center for Entrepreneurship http://www.murphycenter.unt.edu/	<ul style="list-style-type: none"> • Bachelor's of business administration in entrepreneurship 	http://www.cob.unt.edu/mgmt/
University of Oregon	OR	Lundquist College of Business	Lundquist Center for Entrepreneurship http://lcb.uoregon.edu/lce/	<ul style="list-style-type: none"> • Undergraduate concentration in entrepreneurship • MBA with a concentration in entrepreneurship 	http://www2.lcb.uoregon.edu/
University of Pennsylvania	PA	Wharton School of Business	N/A	<ul style="list-style-type: none"> • MBA Major in entrepreneurial management • Undergraduate secondary concentration in entrepreneurship 	http://www.wharton.upenn.edu/whartonfacts/entrepreneurship/
University of St. Thomas	MN	Opus College of Business	Schulze School of Entrepreneurship http://www.stthomas.edu/Business/schulzeschool/default.html	<ul style="list-style-type: none"> • BA in entrepreneurship • BA in business administration with a concentration in entrepreneurship • MBA with a new business/entrepreneurship track 	http://www.stthomas.edu/business/academicdepts/entrepreneurship/default.html
University of South Florida	FL	College of Business	Center for Entrepreneurship http://www.entrepreneurship.usf.edu/	<ul style="list-style-type: none"> • MBA with a track in entrepreneurship through the college of business • MS in entrepreneurship in applied technologies 	http://www.coba.usf.edu/
University of Southern California	CA	Marshall School of Business	Lloyd Greif Center for Entrepreneurial Studies http://www.marshall.usc.edu/greif/index.htm	<ul style="list-style-type: none"> • MBA with entrepreneurship concentration • BS in business with an entrepreneur major 	http://marshall.usc.edu
University of Washington	WA	Michael G. Foster School of Business	Center for Innovation and Entrepreneurship http://www.foster.washington.edu/centers/cie/Pages/cie.aspx	<ul style="list-style-type: none"> • BA in business administration with a concentration in entrepreneurship • MBA certificate in innovation and entrepreneurship • Technology entrepreneurship certificate • PhD in technology entrepreneurship • MBA concentration in entrepreneurship 	http://www.foster.washington.edu/Pages/home.aspx
University of Wisconsin - Madison	WI	Wisconsin School of Business	Weinert Center for Entrepreneurship http://www.bus.wisc.edu/weinertcenter/	<ul style="list-style-type: none"> • MBA concentration in entrepreneurship 	http://www.bus.wisc.edu/pr essroom/
Wake Forest University	NC	The Wayne Calloway School of Business and Accountancy	N/A	<ul style="list-style-type: none"> • BS in management with a minor of entrepreneurship and social enterprise 	http://business.wfu.edu/default.aspx?id=1203
Wake Forest University	NC	The Babcock Graduate School of Management	N/A	<ul style="list-style-type: none"> • Primary and secondary concentration in entrepreneurship in the full-time MBA program 	http://business.wfu.edu/default.aspx?id=218

University	State	School	Associated Center	Degrees Offered	Source
Washington State University	WA	College of Business	Center for Entrepreneurial Studies http://www.business.wsu.edu/academics/Entrepreneurship/Pages/index.aspx	<ul style="list-style-type: none"> • BA in business administration with a concentration in entrepreneurship 	http://www.business.wsu.edu
Washington University in St. Louis	MO	Olin Business School	Skandalaris Center for Entrepreneurial Studies http://www.sc.wustl.edu/	<ul style="list-style-type: none"> • Undergraduate degree in entrepreneurship • Undergraduate certificate of accomplishment in entrepreneurship • MBA concentration in entrepreneurship 	http://www.olin.wustl.edu/Pages/default.aspx
William Jewell College	MO	Business and Leadership Department	N/A	<ul style="list-style-type: none"> • BS in business administration with an emphasis in entrepreneurial leadership 	http://www.jewell.edu/william_jewell/gen/william_and_jewell_generated_pages/Business_Administration_Welcome_p2673.html
Xavier University	OH	Williams School of Business	Xavier Entrepreneurship Center http://www.xavier.edu/entrepreneurial_center/	<ul style="list-style-type: none"> • Undergraduate degree in entrepreneurship • Undergraduate minor in entrepreneurship 	http://www.xavier.edu/williams/

Table D-4. Community College Entrepreneurship Education Program

Community College	State	Entrepreneurship Curriculum	Entrepreneurship Center or Organization	Center or Organization Web Site
Adirondack Community College Foundation	NY	Associate in applied science in business administration with a entrepreneurship option	N/A	N/A
Anne Arundel Community College	MD	AAS degree in entrepreneurship Certificate in entrepreneurship	Entrepreneurial Studies Institute	http://www.aacc.edu/esi/
Catawba Valley Community College	NC	Entrepreneurship degree Entrepreneurship certificate	Small business center	http://www.cvcc.edu/Workforce_Development/Small_Business_Center/index.cfm
Central Piedmont Community College	NC	New ventures entrepreneurship certificate	Institute for Entrepreneurship	http://cce.cpcc.edu/e-institute
Century College	MN	Classes in Entrepreneurship in the marketing department	N/A	N/A
Clover Park Technical College	WA	Offers continuing education, non credit hours in entrepreneurial issues	N/A	N/A
Cochise College	AZ	Certificate in Entrepreneurship/Small Business Management,	N/A	N/A
Collin College	TX	N/A	Small business development Center	http://www.ccccd.edu/sbdc/
Community College Of Philadelphia	PA	AAS in management with an entrepreneurship option	N/A	N/A
Danville Community College	VA	None identified	Collegiate entrepreneurship organization	http://www.dcc.vccs.edu/Departments/B&EIT/Marketing_BusMan/CEO_Club.htm
Flathead Valley Community College	MT	AAS in small business management Certificate in entrepreneurship	N/A	N/A
Foothill College	CA	Career Certificate in Entrepreneurship	The Foothill Entrepreneur Center	http://www.foothillentrepreneurs.com/
Glendale Community College	AZ	Small business entrepreneurship certificate	N/A	N/A
Gulf Coast Community College	FL	None identified	Small business development center	http://www.gulfcoast.edu/continuingEd/business_ed/small_business/default.htm
Harold Washington College	IL	continuing classes in entrepreneurship	N/A	N/A
Harrisburg Area Community College	PA	Classes in entrepreneurship	Institute for Entrepreneurial Studies	http://www.hacc.edu/NonCredit/InstituteforEntrepreneurialStudies/index.cfm
Johnson County Community College	KS	Business plan certificate AAS in entrepreneurship Entrepreneurship Certificate Program specific entrepreneurship certificates	N/A	N/A

Community College	State	Entrepreneurship Curriculum	Entrepreneurship Center or Organization	Center or Organization Web Site
Lehigh Carbon Community College	PA	None identified	Business Enterprise Center	http://www.lccc.edu/departments/business/business%2Denterprise%2Dcenter/
Lone Star College - Cy-Fair	TX	Entrepreneurship certificate	Entrepreneurship conference	http://www.lonestar.edu/departments/corporatecollege/entrepreneur_agenda.pdf
Lone Star College - Tomball	TX	Entrepreneurship certificate	N/A	N/A
Lorain County Community College	OH	Associate of Applied Business Administration in Entrepreneurship	The Entrepreneurship Innovation Institute	www.lorainccc.edu/eii
Metro Community College - Elkhorn	NE	AA in applied science with a concentration in entrepreneurship	N/A	N/A
Metropolitan Community College - Kansas City	MO	Certificate in entrepreneurship	N/A	N/A
Monroe Community College	NY	Classes in entrepreneurship offered	Emerging entrepreneurship scholarship	http://www.monroecc.edu/depts/business/entrepreneurs/enroll.htm
Montgomery College	AL	Non-credit training in small business management	N/A	N/A
Piedmont Technical College	SC	Entrepreneurship certificate	N/A	N/A
Pima Community College	AZ	Entrepreneurship concentration in leadership post-certificate degree	N/A	N/A
Richard J. Daley College	IL	none identified	N/A	N/A
Richland College	TX	Small business certificate	N/A	N/A
Riverside City College	CA	Cosmetology Business Admin – Entrepreneurial Concentration	N/A	N/A
Saint Paul College	MN	none identified	N/A	N/A
Sandhills Community College	NC	Entrepreneurship certificate	Small business center	http://www.sandhills.edu/continuing-education/small-business-center/small-business-center.html
Santa Barbara City College	CA	A skill competency award in entrepreneurship	The Scheinfeld Center for Entrepreneurship and Innovation	http://scheinfeld.sbccc.edu/scheinfeld_center_info.html
Schoolcraft College	MI	Classes in entrepreneurship	Business development center	http://www.schoolcraft.edu/bdc/
Sitting Bull College	ND	One-year certificate in entrepreneurship Classes offered in entrepreneurship in the business curriculum.	Tribal business information center	http://www.sittingbull.edu/community/tbic/
South Arkansas Community College	AR	Entrepreneurship program through the workforce development division	N/A	N/A
Southeast Community College	NE	AAS in business administration with a focus in entrepreneurship	Southeast Community College Entrepreneurship Center	http://www.southeast.edu/discover/entrepreneur.asp

Community College	State	Entrepreneurship Curriculum	Entrepreneurship Center or Organization	Center or Organization Web Site
Southwestern Community College	NC	N/A	The Sequoyah Fund Community College Contest for a small business	http://www.southwesterncc.edu/businesscontest/
Southwestern Illinois College	IL	Entrepreneurship certificate within the business division	N/A	N/A
SOWELA Technical Community College	LA	Entrepreneurship class in the Workforce Development Program	N/A	N/A
Stark State College	OH	Associates degree in business management technology with an option in entrepreneurship	N/A	N/A
SUNY/Broome Community College	NY	Certificate in entrepreneurship	N/A	N/A
Vance-Granville Community College	NC	Entrepreneurship classes through the small business center	Small business center	http://www.vgcc.edu/Econ-Workforce-Development/small-business-center.cfm
Wake Technical Community College	NC	"Planning the Entrepreneurial Venture" class Entrepreneurship Certificate	Small business center	http://smallbusinesscenter.waketech.edu/
Waukesha County Technical College	WI	Certificate in entrepreneurship	Small business center	http://www.wctc.edu/business_resources/small_business_center/index.php
Western Nebraska Community College	NE	Entrepreneurship classes through the business technology department	N/A	N/A
Wilbur Wright College	IL	AA in entrepreneurship	N/A	N/A

Appendix E: Opportunities to Leverage Federal Legislation and Programs

Some funding opportunities within Federal legislation (current and proposed) and Federal programs align well with entrepreneurship education goals and competencies. The tables in this appendix describe Federal legislation and programs that incorporate one or more dimensions of entrepreneurship education, such as youth training, technical, financial, economic, and vocational skills, workforce development, and innovative institutional reform. They are as follows:

- **Existing Federal Legislation (Table E-1)** – Describes existing Federal government legislation that enhances opportunities for entrepreneurship education.
- **Existing Federal Programs (Tables E-2 through E-14)** – Summarize key descriptive points and opportunities to incorporate entrepreneurship education within various programs in the following Federal agencies
 - Corporation for National and Community Service Programs (Table E-2)
 - Department of Agriculture Programs (Table E-3)
 - Department of Commerce Programs (Table E-4)
 - Department of Defense Programs (Table E-5)
 - Department of Education Programs (Table E-6)
 - Department of Health and Human Services Programs (Table E-7)
 - Department of Housing and Urban Development Programs (Table E-8)
 - Department of Interior Programs (Table E-9)
 - Department of Justice Programs (Table E-10)
 - Department of Labor Programs (Table E-11)
 - Department of Transportation Programs (Table E-12)
 - Environmental Protection Agency Programs (Table E-13)
 - Small Business Administration Programs (Table E-14)

Leveraging Federal Legislation

As Table E-1 indicates, at least fifteen pieces of legislation could be aligned with entrepreneurship education. Among these are the following:

- America Creating Opportunities to Meaningfully Promote Excellence in Technology Education and Science (COMPETES) Act,
- Community Reinvestment Act (CRA),

- Carl D. Perkins Act,
- Elementary and Secondary Education Act (ESEA),
- President’s Financial Literacy Advisory Council,
- Financial Literacy Commission, and
- Workforce Investment Act (WIA).

Proposed legislation that could be leveraged includes the following:

- STEM Coordination Act,
- 21st Century Investment Fund Act,
- Job Creation Through Entrepreneurship Act, and
- Green Energy Education Act.

Leveraging Federal Programs

Entrepreneurship education could be aligned with current Federal programs. Tables E-2 through E-14 summarize the key descriptive points and opportunities to incorporate entrepreneurship education within various programs in Federal agencies. A program marked with an asterisk in the tables could provide an exemplary model or expansion opportunity for entrepreneurship education. These model programs are concentrated within the following agency offices:

- Department of Education (28 programs):
 - Office of Elementary and Secondary Education (OESE)
 - Office of Innovation and Improvement (OII)
 - Office of Vocational and Adult Education (OVAE)
 - Office of Postsecondary Education (OPE)
- Department of Labor (19 programs)
 - Employment and Training Administration (ETA)
 - Office of Job Corps
- Department of Justice (10 programs)
 - Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention
- Department of Commerce (4 programs)
 - Office of Innovation and Entrepreneurship
 - National Advisory Council on Innovation and Entrepreneurship
 - International Trade Administration (ITA)
 - Minority Business Development Agency
- Small Business Administration (3 programs)
 - Office of Entrepreneurship Education
 - Office of Small Business Development Centers

The tables also list agencies involved with youth training programs and overlapping goals for reducing the drop-out rate, developing self-sufficiency skills and activities, offering mentoring services, preparing and training workforce, or supporting institutional systems. These goals were chosen as relevant to current entrepreneurship education programs and offer an additional opportunity for the inclusion of programs, material, or content.

Table E-1. Opportunities for Entrepreneurship Education within Existing Federal Policies

Legislation	Status	Key Legislative Points	Opportunity Description
S. 1029 21st Century Investment Fund Act of 2009	Introduced May 13, 2009 and referred to committee	The 21st Century Investment Fund Act includes a 1-3 year matching grant fund to “encourage States to adopt the 21st Century Skills Framework.” This includes “\$100 million for fiscal year 2010; \$100 million for fiscal year 2011; and such sums as may be necessary for each of the fiscal years 2012, 2013, and 2014.” (http://thomas.loc.gov/home/gpoxmlc111/s1029_is.xml)	Entrepreneurship education could be incorporated into the 21st Century Skills Framework since it develops and exercises critical thinking and problems solving skills and promotes creativity and innovation. As such, entrepreneurship programs may qualify for grant funding under this act.
Amendments to the Higher Education Act of 1965	Signed into law October 1998	The Amendments to HEA include: <ul style="list-style-type: none"> Title II Teacher Quality: Possible grant funding for teacher education depending on definitions. Title III Institutional Aid: Possible grant funding for academic program development/improvement. (http://www.ed.gov/policy/highered/leg/hea98/index.html)	Entrepreneurship education and training may qualify for grant funding for teacher education and academic program development and improvement.
America Creating Opportunities to Meaningfully Promote Excellence in Technology Education and Science Act (COMPETES)	Signed into law August 9, 2007	This law establishes a variety of STEM education and research initiatives including research funding, a President’s Council on Innovation and Competitiveness, STEM education funding, and teacher training through OSTP, NASA, NIST, NOAA, DOE, DOD, and NSF. (http://science.house.gov/legislation/leg_highlights_detail.aspx?NewsID=1938)	An entrepreneurship education initiative could take advantage of the existing programs and collaborative partnerships established by this act. The STEM education programs may have opportunities to incorporate entrepreneurship as a related skill set.
The Carl D. Perkins Vocational and Technical Education Act	Originally passed in 1998, Reauthorized in 2006	The reauthorization of the Perkins Act consists of the following: <ul style="list-style-type: none"> State Boards for vocational training apply for grants and distribute the funds to local agencies/postsecondary institutions according to the state plan (the act funds secondary and postsecondary programs) The act is administered by the Department of Education’s Vocational and Adult Education office (OVAE) to “ensure equal access to programs, services, and activities addressing the nation’s education and workforce needs.” “According to the National Assessment of Vocational Education study, the most frequent uses of funds included: occupationally-relevant equipment, vocational curriculum materials, materials for learning labs, curriculum development or modification, staff development, career counseling and guidance activities, efforts for academic-vocational integration, supplemental services for special populations, hiring vocational staff, remedial classes, and 	The act provides funding for “vocational-technical education programs.” Currently, many secondary education institutions teach entrepreneurship through the career and technical education (C&TE) program at their respective institutions. Because much of the funding for C&TE falls under the Perkins Act, amending the act to incorporate entrepreneurship specifically as imparting technical education to youth may provide necessary incentives and a funding mechanism to sustain existing and create new entrepreneurship education programs

Legislation	Status	Key Legislative Points	Opportunity Description
		<p>expansion of tech prep programs." (2004 study for Congress, can be found at http://www.ed.gov/rschstat/eval/sectech/nave/naveexesum.pdf)</p> <ul style="list-style-type: none"> • Amendments in 2006: "an increased focus on the academic achievement of career and technical education students, strengthen the connections between secondary and postsecondary education, and improve state and local accountability" (http://www.ed.gov/policy/sectech/leg/perkins/index.html). • Basic Grants to States for Vocational Education) (http://www.ed.gov/programs/ctesbg/index.html): <ul style="list-style-type: none"> ○ Support for state leadership activities; administering the state's vocational and technical education plan; and sub-grants for vocational and technical education program improvements ○ Eligible programs must: <ul style="list-style-type: none"> ▪ Improve skills (academic, vocational, and technical) through a course sequence; ▪ Provide a strong understanding of the target industry ▪ Expands technology use in vocational/technical education and improves program quality ▪ Gives teachers/administrators/councilors professional development programs ▪ Connects vocational/technical training at the high school level with vocational/technical programs at the postsecondary level 	
Community Reinvestment Act (CRA)	Enacted in 1977	<p>The CRA includes:</p> <ul style="list-style-type: none"> • A requirement for financial institutions to invest some portion of their holdings in local disadvantaged communities. • Lending and investing that may be used for construction of affordable housing, support for financial planning and consulting, or for lending to minority-owned businesses. 	<p>Currently, CRA regulations do not explicitly permit the use of CRA credits to support youth entrepreneurship education (The Aspen Institute, 2008a). There is an opportunity to include youth entrepreneurship education as an approved "community development service" meeting the spirit and intent of CRA's support for community development.</p>
ESEA Title I LEA Allocations Under ARRA (NCLB)	Elementary and Secondary Education Act of 1965 reauthorized in	<p>The ESEA includes:</p> <ul style="list-style-type: none"> • Various programs for school improvement, teaching materials, and educational services. • Allocations under AARA (http://www.ed.gov/about/overview/budget/titlei/fy09recove) 	<p>There may be possible funding opportunities for entrepreneurship education programs under part A, "Improving Basic Programs Operated by Local Educational Agencies." Note, that Part</p>

Legislation	Status	Key Legislative Points	Opportunity Description
	2002 as No Child Left Behind	ry/index.html)	H "School Dropout Prevention" may also be a place for entrepreneurship education (http://www.ed.gov/programs/dropout/index.html). Although, funds have not been appropriated since Fiscal Year 2006. There may also be funding opportunities under Title II "Preparing, Training, and Recruiting High Quality Teachers and Principals."
Farm Bill - Rural Microentrepreneur Assistance Program, Title VI, Section 6022	Passed in 2008	The Farm Bill supports the following: <ul style="list-style-type: none"> A new program authorized for \$15 million for "technical and financial assistance to micro-enterprises and small businesses in rural areas with fewer than 10 employees" (http://agriculture.house.gov/inside/Legislation/110/FB/Conf/Title_VI_fs.pdf). "Grants and loans to qualified microenterprise-development organizations providing technical assistance, training, grants, and small loans to rural microentrepreneurs." \$4 million annually for FY 2009-11 and \$3 million for FY 2012. A public meeting on implementation held on January 26, 2009. Further regulations/ implementation are pending. 	Entrepreneurship education programs or initiatives may qualify for funding under this act depending on how the rulemaking and implementation proceed.
H.R. 957 Green Energy Education Act	Introduced February 10, 2009. Passed the House April 2009 (http://www.govtrack.us/congress/bill.xpd?bill=h111-957).	The Green Energy Education Act allows the DOE to allocate research and development funds to the NSF for 1) energy project related graduate education and research traineeship and 2) undergraduate and/or graduate interdisciplinary curriculum development in high performance building architecture and engineering. (http://www.govtrack.us/congress/bill.xpd?bill=h111-957&tab=summary).	Entrepreneurship education programs can be integrated into the funded programs to encourage innovative science and technology transfer to the business environment.
Higher Education Opportunity Act - Part W- Path to Success (sec. 892)	Enacted August 14, 2008	The Higher Education Opportunity Act includes the following: <ul style="list-style-type: none"> Community colleges can apply for grants to "enter into and maintain partnerships with juvenile detention centers and secure juvenile justice residential facilities to provide assistance, services, and education to eligible individuals who reenter the community and pursue . . . a certificate of completion for a specified study area . . . [or] . . . an associate's degree." The purpose of the program is to support programs that among other things, "leverage and enhance community support for at-risk young adults by facilitating the transition of such young adults who are eligible individuals into 	This Act provides a funding mechanism for entrepreneurship education through community colleges. Unfortunately this program has not been funded as of December 2008 (http://ifap.ed.gov/dpccletters/GEN0812FPO810.html)

Legislation	Status	Key Legislative Points	Opportunity Description
		productive learning environments where such young adults can obtain the life, social, academic, career, and technical skills and credentials necessary to strengthen the Nation's workforce"	
H.R. 2352 Job Creation Through Entrepreneurship Act of 2009 – Amendment to the Small Business Act	Introduced May 12, 2009 and Passed by the House on May 20, 2009 (http://www.opencongress.org/bill/111-h2352/show).	This Act amends the Small Business Act to establish, alter, and/or expand a variety of programs: Veterans Business Center Program; Educating Entrepreneurs Through Technology; Enhancing Native American Entrepreneurship; Broadening the Women's Business Center Program; SCORE Program Improvements; Expanding Entrepreneurship; and Modernizing the Small Business Development Center Program (http://thomas.loc.gov/home/gpoxmlc111/h2352_ih.xml).	Youth entrepreneurship programs match the themes and intent of this bill but are not included. Potential amendments to a complementary senate bill including youth programs could introduce requirements for youth entrepreneurship efforts at the SBA.
No Child Left Behind Supplemental Education Services (SES) (http://www.ed.gov/nclb/choice/help/ses/index.html)	Enacted 2001	"The term 'supplemental educational services' refers to free extra academic help, such as tutoring or remedial help, that is provided to students in subjects such as reading, language arts, and math. This extra help can be provided before or after school, on weekends, or in the summer." This Act supports funds available for low-income students at qualifying schools (determined by states), and services are provided by state-selected providers from which parents can select the organization of their choice. The programs are designed to be "consistent with the instruction provided and content used by the local educational agency and State, and are aligned with State student academic achievement standards."	It may be possible to implement entrepreneurship education within institutions that meet the criteria as a Title I. In 2008, only 19% of the SES funds had been allocated by states (The Aspen Institute, 2008b). The Aspen Institute. 2008b. Advancing Entrepreneurship Education. A Report of the Youth Entrepreneurship Strategy Group. The Aspen Institute: Washington, DC.
President's Financial Literacy Advisory Council	Established January 2008	This Advisory Council is tasked "to work with the public and private sector to help increase financial education efforts for youth in school and for adults in the workplace, increase access to financial services, establish measures of national financial literacy, conduct research on financial knowledge and to help strengthen public and private sector financial education programs."	This Advisory Council could provide a possible role as a catalyst, collaborator, and promoter, raising entrepreneurship education's visibility, connecting it with institutions like the US Treasury and the council members' various organizations, and contributing institutional knowledge. The Council may help to provide legitimacy to Federal proposals and any entrepreneurship education related programs or initiatives it supports.

Legislation	Status	Key Legislative Points	Opportunity Description
H.R. 1709 STEM (Science, Technology, Engineering, Mathematics) Coordination Act of 2009	Passed by the House June 8, 2009	The STEM Coordination Act requires (OSTP) to create a committee under the National Science and Technology Council to coordinate Federal STEM programs and activities. (http://www.govtrack.us/congress/bill.xpd?bill=h111-1709&tab=summary).	The proposed committee could serve as a model for a similar group for entrepreneurship education. The committee could also recommend incorporating entrepreneurship into STEM programs as a complete package.
U.S. Financial Literacy and Education Commission	Established through Title V of the Fair and Accurate Credit Transaction Act (FACT Act) , 2003	The Financial Literacy and Education Commission is an inter-agency effort involving 20 member agencies dedicated to providing information and education resources in financial literacy topics. It maintains an informational "My Money" website, a "My Money tool kit," financial education grants, and collaborating/networking opportunities for agencies and actors at the state and Federal levels.	As an established interagency partnership the commission can serve as a model for a similar entrepreneurship education commission or could take on additional responsibilities for promoting entrepreneurship as a combined entrepreneurship-financial literacy program effort.
Workforce Investment Act (WIA)	Passed in 1998, Possible reauthorization activity in 2009	<p>The WIA consists of the following provisions:</p> <ul style="list-style-type: none"> • Included special provisions for youth in the workforce. Low income youth aged 14-21 facing at least one challenge criteria are eligible for a variety of educational or employment programs. The programs focus on preparing students for postsecondary education or unsubsidized employment opportunities. • Challenge criteria: "(1) school dropout; (2) basic literacy skills deficiency; (3) homeless, runaway, or foster child; (4) pregnant or a parent; (5) an offender; or (6) need help completing an educational program or securing and holding a job." From 1998 US Dept of Labor, Employment and Training Administration, "Workforce Investment Act of 1998." (Summary publication available at http://www.doleta.gov/USWORKFORCE/WIA/plaintext.pdf). <p>Through the Department of Labor's Employment and Training Administration funds programs like YouthBuild, Multiple Education Pathways, and a variety grant "investments," particularly for youth offenders.</p> <p>Title VIII of the American Recovery and Reinvestment act included "\$1,200,000,000 for grants to the States for youth activities including summer employment for youth" (excluding specific Migrant & Seasonal Workers program provisions from WIA sec 167) with the eligible age limit raised to 24 years from 21 (http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=111_cong_bills&docid=f:h1enr.pdf).</p>	One of the main challenges to incorporating entrepreneurship education within the WIA is the need to produce youth performance metrics. There is an opportunity to incorporate relevant entrepreneurship indicators within the current indicators in the following manner: (1) goals for literacy – may be further specified to include financial, economic, and entrepreneurship literacy, (2) goals for receiving a diploma or certificate – it is possible to set up an entrepreneurship certification program at secondary and post-secondary education in order to achieve goals, (3) workplace employment – may be possible to make special inclusion of self-employment and those not necessarily listed as providing a salary to themselves while enterprise is starting up.

Legislation	Status	Key Legislative Points	Opportunity Description
		<p>ARRA Title VIII (2), Department of Labor; Employment & Training Administration; Training & Employment Services</p> <p>The measure of success for this funding will be "attainment of basic skills and, as appropriate, work readiness or occupational skills." (From WIA Section 136(b)(2)(A)(ii)(I) as per ARRA Title VIII: "That the work readiness performance indicator described in Section 136(b)(2)(A)(ii)(I) of the WIA shall be the only measure of performance used to assess the effectiveness of summer employment for youth provided with such funds."</p>	

Table E-2. Corporation for National and Community Service Programs

Program Name	Key Descriptive Points	Opportunity Description
AmeriCorps State National	A coordinating organization for citizen for state and national volunteer service.	This organization could be leveraged for professional volunteering and mentoring for an entrepreneurship initiative.
AmeriCorps- National Civilian Community Corps (NCCC)	A full time residential volunteer program concerned with intensive community programs.	This organization could be leveraged for professional volunteering and mentoring for an entrepreneurship initiative, especially for distressed areas.
AmeriCorps VISTA	A national service program dedicated to poverty alleviation through full time volunteer efforts.	This organization could be leveraged for professional volunteering and mentoring for an entrepreneurship initiative, especially for distressed areas.
Learn and Serve America – Higher Education	Provides grants to higher education institutions to enhance learning and social responsibility; improve service opportunities; strengthen teacher’s leadership and instructional capabilities; and meet community needs in their local area.	Entrepreneurship skills and knowledge fit this program’s focus areas and might qualify for funding under this program.
Learn and Serve America – Community Based Organization/School-Based Organizations	Provides grants to local educational agencies to support teacher and staff training and service learning opportunities.	Entrepreneurship skills and knowledge fit this program’s focus areas and might qualify for funding under this program.

Table E-3. Department of Agriculture Programs

Program Name	Key Descriptive Points	Opportunity Description
Children, Youth, and Families at Risk (CYFAR)	Supports collaborative programs and research that address children’s needs and provide educational resources technological skills for individuals in at-risk environments.	Entrepreneurship activities could possibly be encouraged through this program, leveraging existing efforts.
Community Food Projects Competitive Grant Program	Fights food insecurity through developing community food projects that help promote the self-sufficiency of low-income communities. Supports projects that increase the self-reliance of communities in providing for their own food needs	Entrepreneurship activities could possibly be encouraged through this program as an added entrepreneurial element to existing self-sufficiency efforts.

Table E-4. Department of Commerce Programs

Program Name	Key Descriptive Points	Opportunity Description
Office of Innovation and Entrepreneurship*	<p>Unleashes and maximizes the economic potential of new ideas by removing barriers to entrepreneurship and the development of high-growth and innovation-based businesses.</p> <p>Focus areas include Encouraging Entrepreneurs through Education, Training, and; Improving Access to Capital; Accelerating Technology Commercialization of Federal R&D; Strengthening Interagency Collaboration and Coordination; Providing Data, Research, and Technical Resources for Entrepreneurs; and Exploring Policy Incentives to Support Entrepreneurs and Investors.</p>	<p>This new office has a mission to promote entrepreneurship through education. Although specific functions of this office are not yet formulated or formalized, there is high potential to support entrepreneurship education programs.</p>
National Advisory Council on Innovation and Entrepreneurship*	<p>Advises Commerce Secretary Locke and the administration on key issues relating to innovation and entrepreneurship.</p>	<p>Although the council consists of successful entrepreneurs, innovators, investors, and non-profit leaders, there is potential to identify entrepreneurship education as a primary target of support through the Office of Innovation and Entrepreneurship.</p>
Minority Business Development Agency*	<p>Assists minority entrepreneurs with business plan writing, business management, technical assistance, financial planning, and locating financing.</p>	<p>The capabilities within this office are aligned with those necessary to teach entrepreneurship. The target population of minority entrepreneurs is in line with the vision for a national entrepreneurship education strategy focused on at-risk youth.</p>
Entrepreneurship.gov/org (managed by the Department of Commerce in conjunction with the Kauffman Foundation)*	<p>Offers information resources for a variety of audiences (entrepreneurs, investors, the research community, and business mentors, etc).</p> <p>The initiative was formed from a public-private partnership focused on leveraging best practices in entrepreneurial leadership to advance economic growth around the world.</p>	<p>Entrepreneurship.org is a Web site that has not reached its potential to incorporate sufficient information to understand the landscape of entrepreneurship education programs at the Federal, state, or local levels; to collect, evaluate and disseminate knowledge on best-practice teaching models, cases, etc; and to engage the various stakeholders (students, educators, researchers, policymakers, non-profits) in a dialogue to facilitate collaboration and sharing through this portal.</p>

* Programs that could be exemplary models or expansion opportunities for entrepreneurship education.

Table E-5. Department of Defense Programs

Program Name	Key Descriptive Points	Opportunity Description
National Guard About Face! Program	An after-school and summer outreach program providing life-skills classes and employment training.	Entrepreneurship activities could be incorporated into existing programs and activities or expanded from current efforts. The program may include a business-running class.
National Guard Youth Challenge Program	A 22-week residential program for at-risk youth covering citizenship ; GED/high school diploma attainment; life-coping skills; service to community; health and hygiene; job skills training; leadership/followership; and physical training.	Entrepreneurship skill-developing activities could possibly be incorporated into existing programs and services.
Young Marines	An education and service program for students ages 8 through high school focused on promoting character building, leadership, and healthy lifestyles.	Entrepreneurship skill developing activities could possibly be incorporated into existing programs and services.
Junior Reserve Officers' Training Corps	Three-year course programs in each armed forces division for high school students stressing citizenship and patriotism; self-reliance, leadership, and responsiveness to constituted authority; oral and written communication; physical fitness; respect for the U.S. Armed Forces; Knowledge of basic military skills.	Entrepreneurship skill developing activities could possibly be incorporated into existing programs and services.
Naval Sea Cadet Corps	Program for youth aged 13–17 interested in Navy, Marine Corps, Coast Guard, and Merchant Marine service. Develops pride, patriotism, courage, and self-reliance and maintains drug- and gang-free environments.	Entrepreneurship skill developing activities could possibly be incorporated into existing programs and services.

Table E-6. Department of Education Programs

Program Name	Key Descriptive Points	Opportunity Description
Career and Technical Education National Programs*	<p>Current major activities include:</p> <ul style="list-style-type: none"> • National Center for Research in Career and Technical Education (# 84.051A)—This program supports the establishment of a national center to conduct scientifically based research and evaluation, development, dissemination, technical assistance and training activities in the field of career and technical education. • State Scholars Initiative (# 84.051U)—This initiative is designed to dramatically increase the percentage of high school students who have the solid academic foundation that is necessary to succeed in postsecondary education and in an increasingly dynamic labor market. • Promoting Rigorous Programs of Study (#84.051C)—The purpose of this project is to promote rigorous programs of study through the creation of statewide or multistate articulation agreements. <p>FY 2008 Appropriation: \$7,860,000</p>	<p>Increased funding for career and technical education (C&TE) programs inclusive of support and guidelines for incorporating entrepreneurship education could fit well within this program. Career and technical education is closely linked with entrepreneurship concepts, and in many secondary education programs, entrepreneurship teaching falls under C&TE. Additionally, this program could serve to engage youth and meet the vision to reduce the drop-out rate among secondary education students.</p>
Excellence in Economic Education*	<p>Promotes economic and financial literacy among all students in kindergarten through grade 12 through the award of one grant to a national nonprofit education organization that has as its primary purpose the improvement of the quality of student understanding of personal finance and economics.</p> <p>FY 2005, a 5-year grant was awarded to the National Council on Economic Education (NCEE).</p> <p>FY 2008 was Appropriation: \$1,447,267.</p>	<p>Sub-grants are given to organizations that can show a primary component of their mission promotes financial and economic literacy. Entrepreneurship education organizations may be players within this program as sub-grantees if they can make the case that economic and financial literacy is a critical component of their mission.</p>

Program Name	Key Descriptive Points	Opportunity Description
21st Century Community Learning Centers*	<p>Supports the creation of community learning centers that provide academic enrichment opportunities during non-school hours for children, particularly students who attend high-poverty and low-performing schools.</p> <p>Helps students meet state and local student standards in core academic subjects, such as reading and math; offers students a broad array of enrichment activities that can complement their regular academic programs; and offers literacy and other educational services to the families of participating children.</p> <p>Formula grants are awarded to State Education Agencies (SEA), which, in turn, manage statewide competitions and award sub-grants to Local Education Agencies (LEA) and community-based organizations.</p> <p>FY 2008 Appropriation: \$1,081,166,187</p>	<p>There may be an opportunity to incorporate youth entrepreneurship education programs or content within the academic enrichment opportunities during non-school hours. This program may be particularly beneficial in targeting at-risk or high-risk youth communities.</p>
Promise Neighborhoods*	<p>Supports innovative and effective strategies to improve educational achievement.</p> <p>Modeled after Harlem Children's Zone, which combines K-12 education with full network of supportive services.</p> <p>More than an education program for children and youth. Either through collaboration or full integration with other programs, the program must address the multiple interrelated issues affecting children, families and the communities they live in. It must also go beyond children and touch every generation in the community.</p> <p>Could incorporate the views and unique skills, talents and needs of new Americans.</p>	<p>This program may provide the incentives necessary to incorporate entrepreneurship education as a comprehensive education tool, which benefits from local business collaboration and community support. Youth are trained to contribute to the local economy and acquire 21st-century life skills.</p>

Program Name	Key Descriptive Points	Opportunity Description
Fund for the Improvement of Postsecondary Education (FIPSE)*	<p>Provides grants to improve postsecondary education, and awards in a number of areas including: postsecondary education access; retention and completion; student preparation for college; cost-effectiveness; and curricula reform.</p> <p>All nonprofit institutions and organizations offering postsecondary education programs are eligible to receive FIPSE grants.</p> <p>Supports a wide range of practical reform initiatives and assists grantees in assessing their results and disseminating what is learned to other institutions and agencies.</p> <p>Welcomes proposals addressing any and all topics of postsecondary improvement and reform.</p>	<p>FIPSE grants provide an opportunity to fund programs and curricula reform at the post-secondary education level. The funding and support through the Office of Post-secondary Education offers another avenue to share information and best-practices to advance the entrepreneurship education field and practice.</p>
School Improvement Programs and State Grants *	<p>FY 2010 budget includes \$1.5 billion for the School Improvement Fund, almost triple of FY2009 budget and not inclusive of American Recovery and Reinvestment Act (ARRA)</p> <p>ARRA provides an additional \$3 billion for School Improvement Programs</p> <p>Title I, Section 1003(g) of the ESEA authorizes formula grants to State Educational Agencies (SEAs) to assist schools identified for improvement, corrective action, and restructuring. Funds are used for the purpose of strengthening the capacity of States to carry out their program improvement responsibilities</p> <p>Programs include:</p> <ul style="list-style-type: none"> • Improving Teacher Quality State Grants • Mathematics and Science Partnerships • Educational Technology State Grants • 21st Century Learning Centers • Education for homeless children and youths • Alaska Native Education Equity • Rural Education • Supplemental Education Grants • Comprehensive Centers <p>FY 2008 Appropriation: \$1,605,454</p>	<p>Several programs may be aligned with entrepreneurship education within the School Improvement Fund.</p>

Program Name	Key Descriptive Points	Opportunity Description
Mathematics and Science Partnerships*	<p>Improves the content knowledge of teachers and the performance of students in the areas of mathematics and science by encouraging states, Institutions of Higher Education (IHE), Local Education Agencies (LEA), and elementary and secondary schools to participate in programs that:</p> <ul style="list-style-type: none"> • Improve and upgrade the status and stature of mathematics and science teaching by encouraging IHEs to improve mathematics and science teacher education; • Focus on the education of mathematics and science teachers as a career-long process; • Bring mathematics and science teachers together with scientists, mathematicians, and engineers to improve their teaching skills; and • Provide summer institutes and ongoing professional development for teachers to improve their knowledge and teaching skills. 	<p>Although the programs are specifically focused on the teaching of math and science, because entrepreneurship education is multi-disciplinary, it may be feasible to incorporate entrepreneurship concepts within curricula (e.g. financial literacy within math objectives). Additionally, the merging of entrepreneurship and science/engineering concepts and application also provides an avenue to convey skills that are essential in the 21st-century economy and beyond.</p>
Enhancing Education Through Technology (Ed-Tech) State Program*	<p>Improves student achievement through the use of technology in elementary and secondary schools. FY 2008 Appropriation: \$267,493,792</p>	<p>Because the use of technology is observed as a challenge in current teaching of entrepreneurship education, it may be beneficial to leverage this program with entrepreneurship concepts. In this way, the use and student exposure to technology combined with entrepreneurship will instill necessary 21st-century skills.</p>
Ready to Learn Television*	<p>Supports the development of educational television programming and supplemental materials for young children and their families. FY 2008 Appropriation: \$23,831,265</p>	<p>A potential avenue for integrating entrepreneurship concepts and values for younger children.</p>
ARRA Title I, Part A – Grants to Local Educational Agencies	<p>Provides additional funding for ESEA/NCLB programs under Title I, Part A for Improving Basic Programs Operated by Local Educational Agencies.</p>	<p>Entrepreneurship education may qualify for this additional funding through existing programs.</p>
Innovative Programs	<p>Supplies grant funding for research based school and education improvements and reforms, instructional and educational materials, technology, and addressing at-risk students' needs. FY 2007 Appropriation: \$99,183,447 (est.)</p>	<p>Entrepreneurship education's characteristics fit under the allowable program areas and may qualify for funding under this program if it receives future funding allocations.</p>

Program Name	Key Descriptive Points	Opportunity Description
Reading is Fundamental	Covers 75% of the cost of books provided to non-profit organizations and public agencies for low-income children in an effort to encourage reading. Also supports initiatives encouraging parents reading with their children and some peer-mentoring arrangements. FY 2008 Appropriation: \$24,605,499	The program may be able to promote entrepreneurship by emphasizing books that involve entrepreneurial themes.
School Drop-out Prevention	Provides grant funds to state and local education agencies for dropout prevention and reentry programs. FY 2006 Appropriation: \$4,851,000	As a demonstrated approach for combating dropout rates and reintroducing students to academics entrepreneurship education efforts may qualify for funding under this program if it receives future funding allocations.
Technology Development, Demonstration, and Utilization and Media Services	Supports technology development, demonstration, and utilization (including educational media activities) to improve educational quality for students with disabilities. FY 2008 Appropriation: \$39,301,200	This program may be able to help transfer entrepreneurship education curricula and materials into classrooms for students with disabilities.
Demonstration and Training Programs	Provides grant funding for expanding and improving rehabilitation services that lead to employment outcomes for individuals with disabilities. Quantifying programs include demonstration projects, and technical assistance centers. FY 2008 Appropriation: \$10,150,517 (includes 14 earmarks)	Rehabilitation efforts may represent a valuable growth sector for entrepreneurship education outreach.
Projects with Industry	Supports private industry partner projects that identify and provide services for competitive opportunities and job placement, career skill development, and training programs, especially for individuals with disabilities. FY 2008 Appropriation: \$19,196,671	Entrepreneurship skills and knowledge fit this program's objectives and could probably be incorporated into existing programs and services.
Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP)	Provides 6-year grants for services at high-poverty middle and high schools and for low-income college scholarships designed to increase college attendance and postsecondary academic success. FY 2009 Appropriation: \$313,212,000	Increased interest in college education can be a benefit of entrepreneurship education, potentially qualifying it for funding under this program.
Upward Bound	In preparation for postsecondary education, offers instruction and tutoring (math, science, literature and composition, foreign language), counseling, mentoring, and work-study programs. FY 2009 Appropriation: \$313,300,000 (est.)	It may be possible to integrate entrepreneurship curricula and themes into this program's existing efforts.

Program Name	Key Descriptive Points	Opportunity Description
Upward Bound Math-Science	Funds math and science centers with training programs, counseling and advisement, and professional research mentorship to promote math and science skills and encourage postsecondary degrees in math and science. FY 2009 Appropriation: \$31,200,000 (est.)	It may be possible to integrate entrepreneurship curricula and themes into this program's existing efforts with a special emphasis on technology transfer and science's practical applications.
Life Skills for State and Local Prisoners Program	Funds programs for reducing criminal relapse rates through education and including communication, career, financial, and stress and anger management skills. FY 2005 Appropriation: \$4,960,000	Entrepreneurship education's characteristics fit under the allowable program areas and may qualify for funding under this program if it receives future funding allocations.
Mentoring Grants	Provides grant funding for programs providing mentoring services to improve children's academics and relationships and reduce dropout rates and gang behavior. Applicable in for grades 4-8 in rural, high crime, or violent areas. FY 2007 Appropriation: \$29,347,000	Entrepreneurship education programs benefit from mentoring relationships and could benefit from involvement with this type of program if it receives future funding allocations.
Tech Prep Demonstration Program	Provides grants for vocational education at the secondary level. FY 2005 Appropriation: \$4,899,488	A possible avenue for integrating entrepreneurship education into vocational education if the program receives future funding allocations.
National FFA (Future Farmers of America) Organization	Offers agricultural education programs, including an Agri-Entrepreneurship program (sponsored by the Department of Agriculture) with entrepreneurial education lesson plans provided in partnership with the Kauffman Foundation, mentoring opportunities, and a business plan competition.	An existing youth program to leverage for agri-business entrepreneurship education.
Migrant Education –High-School Equivalency Program (HEP)	Aids migratory and seasonal farm workers and their families obtain high school diploma equivalents, find jobs, and/or enroll in postsecondary education or training. FY 2008 Appropriation: \$18,225,931	Migrant farm workers may represent a valuable growth sector for entrepreneurship education outreach.
Office of Indian Education	Offers grant support for a variety of education and assistance programs for American Indians and Alaskan Natives.	Native American students may represent a valuable growth sector for entrepreneurship education outreach. Youth entrepreneurship education programs may qualify for funding through this office.
Even Start Family Literacy Program Grants for Tribes and Tribal Organizations	Integrates education and reading programs for all age levels into a family centered program focused on literacy. FY 2008 Appropriation: \$951,816	Native American students may represent a valuable growth sector for entrepreneurship education outreach. It may be possible to integrate entrepreneurship themes into this program's existing activities.

Program Name	Key Descriptive Points	Opportunity Description
Research in Special Education	Supports research concerning early intervention and education issues surrounding children with disabilities. FY 2008 Appropriation: \$78,125,325	Students with disabilities may represent a valuable growth sector for entrepreneurship education outreach. This program could assess entrepreneurship's potential effects for such students and help identify curriculum integration opportunities.
National Institute for Education Sciences – National Center for Education Statistics	Classifies Instructional Programs (CIP 2000) at http://nces.ed.gov/ , Entrepreneurship is currently placed in Marketing Operations Marketing and Distribution.	The agency can update its current taxonomy of instructional programs to include a distinct category or program area focused on the incorporation of broad perspectives of entrepreneurship (and entrepreneurship education).

** Programs that could be exemplary models or expansion opportunities for entrepreneurship education.*

Table E-7. Department of Health and Human Services Programs

Program Name	Key Descriptive Points	Opportunity Description
Social Economic Development Strategies (SEDS) for Native Americans	Provides funding for projects supporting sustainable local communities economically, socially/culturally, and governmentally.	Entrepreneurship activities could possibly be incorporated into existing programs and services.
Community Based Family Resource and Support Program	Supports state efforts concerning community-based programs providing for child welfare and education.	Entrepreneurship education activities could possibly be incorporated into existing programs and services.
Runaway and Homeless Youth-Basic Center Program	Funds shelters providing basic shelter, basic necessities, outreach services, and crisis intervention for runaway and homeless youth.	Entrepreneurship education could possibly be incorporated into existing programs and services.
Runaway and Homeless Youth-State Collaboration/ Demonstration Grants for Positive Youth Development	Pilots new methods for improving local youth development in collaboration with local actors to provide healthy activities, skill development, and employment and volunteer opportunities.	This program targets a youth demographic also targeted by many entrepreneurship education programs. Entrepreneurship education could possibly be incorporated into any of this initiative's existing programs and services.
Runaway and Homeless Youth-Education and Prevention Grants to Reduce Sexual Abuse of Runaway, Homeless, and Street Youth (Street Outreach)	Provides grant funding for street-based services for to runaway, homeless and street youth, who have been subjected to, or are at risk of being subjected to, sexual abuse, prostitution, or sexual exploitation.	This program targets a youth demographic similar to one targeted by many entrepreneurship education programs. Entrepreneurship education could possibly be incorporated into any of this initiative's existing programs and services especially as a way of fostering confidence and ownership.
Community Services Block Grant	Provides funding for services and activities concerning employment, education, income management, housing, nutrition, emergency services, and health.	Entrepreneurship skills and knowledge fit this program's focus areas and might qualify for funding under this program.
Social Services Research and Demonstration Program	Funds research, demonstrations, and evaluations pertaining to the Administration for Children and Families (ACF) program priorities.	Research funding could help identify how entrepreneurship education can complement or enhance ACF efforts.

Table E-8. Department of Housing and Urban Development Programs

Program Name	Key Descriptive Points	Opportunity Description
Neighborhood Networks Centers*	<p>Provides job-training for residents and afterschool activities and mentoring for local youth.</p> <p>One of the first Federal initiatives aimed at promoting self-sufficiency and providing technology access to residents living in the U.S.</p> <p>Encourages property owners and managers to open onsite, multiservice technology centers.</p>	<p>Entrepreneurship education may be best incorporated within this program through the youth educational afterschool activities and mentoring programs that support job training, apprenticeships, and learning of 21st-century skills. In addition, there is a vital emphasis on exposure to technology and computers.</p>
Empowerment Zones/Enterprise Communities Program*	<p>Innovative because of its required component of broad community participation and resource allocation based on a comprehensive community vision for neighborhood revitalization.</p> <p>Provides tax incentives and performance grants and loans to create jobs and expand business opportunities. It also focuses on activities to support people looking for work, including job training, child care, and transportation.</p>	<p>With respect to the job-training aspect of the program, it is possible to effectively incorporate entrepreneurship education since the program's strategic vision is focused on job creation and support through community based partnerships. In this way, youth training may be incorporated and partnerships formed with local post-secondary education academic institutions.</p>
Weatherization Assistance Program* (joint program with Department of Energy)	<p>Enables low-income families to permanently reduce their energy bills by making their homes more energy efficient.</p> <p>Operates in conjunction with the Department of Education.</p> <p>Provides job training for technicians and weatherization service providers that work in almost 1000 local weatherization agencies around the country.</p>	<p>With respect to the job-training aspect of the weatherization assistance program, entrepreneurship education may be interwoven within the content and certification programs of weatherization training centers. In this way, funds for job training may be leveraged, which may be particularly beneficial for national entrepreneurship education goals by offering classes at the post-secondary education level.</p>
HOPE VI	<p>A public housing revitalization program that includes community and supportive services.</p>	<p>Entrepreneurship activities could possibly be incorporated into existing programs and services.</p>
Community Outreach Partnership Centers Program	<p>Provides grant funding for colleges and universities for revitalizing distressed communities through their human, intellectual, and institutional resources.</p>	<p>Entrepreneurship activities could possibly be encouraged through this program, leveraging existing college and university efforts.</p>

* Programs that could be exemplary models or expansion opportunities for entrepreneurship education.

Table E-9. Department of Interior Programs

Program Name	Key Descriptive Points	Opportunity Description
Indian Child and Family Education (FACE)	Provides funding for early childhood and adult education and parenting skills to increase high school graduation rates among Indian parents, and to encourage life-long learning.	Entrepreneurship activities could possibly be incorporated into existing programs and services.
Indian School Equalization Program	Provides funding for Indian American schools for educational purposes.	Native American students may represent a valuable growth sector for entrepreneurship education outreach. Youth entrepreneurship education programs may qualify for funding through this program.

Table E-10. Department of Justice Programs

Program Name	Key Descriptive Points	Opportunity Description
Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention*	Offers various grants and programs for juvenile delinquency prevention and gang reduction. A Shared Youth Vision Partner.	Generally, entrepreneurship education may provide a method of engaging youth and targeted at specific communities and youth in need.
Blueprints/Life Skills Training Program*	Provide training and technical assistance to community organizations and program providers interested in implementing programs focused on reducing adolescent violent crime, aggression, and substance abuse. Funds 10 Blueprints programs including Big Brother/Big Sisters of America, Life Skills Training, and Quantum Opportunities, which focus on mentoring, child development, and academic services.	Many of the prevention programs designed under Blueprints are focused on instilling general life skills through a strong social or community connection (e.g. through mentoring). The implementation of entrepreneurship education concepts might help achieve goals for increasing academic abilities while offering students a form of engagement and self-value critical to improving attitudes about drug use. This program may also target communities and youth at-risk.
Boys and Girls Club of America	An array of services in the areas of academic enrichment, test preparation, tutorial and homework assistance, vocational counseling and guidance, leadership development and workplace learning for in-school youth.	Entrepreneurship skills and knowledge fit this program's objectives and could probably be incorporated into existing programs and services.
Big Brothers/Big Sisters of America	Provides volunteer youth mentoring services.	Entrepreneurship activities could be encouraged during mentoring interactions and/or the program could reach out for entrepreneur mentors.
Gang Resistance Education and Training (G.R.E.A.T.)	Provides a law enforcement officer-instructed classroom curriculum focused on preventing youth delinquency, violence, and gang activity.	Entrepreneurship skills and knowledge fit this program's objectives and could probably be incorporated into existing programs, curricula, and services

Program Name	Key Descriptive Points	Opportunity Description
Tribal Youth Program	Provides resources in support of tribal delinquency prevention efforts and tribal juvenile justice system improvements.	Tribal initiatives may represent a valuable growth sector for entrepreneurship education outreach. Entrepreneurship activities could possibly be incorporated into existing programs and services.
Tribal Youth Training and Technical Assistance Program	A variety of support and training services provided for tribal youth, provided through the Tribal Youth Training and Technical Assistance Center.	Tribal initiatives may represent a valuable growth sector for entrepreneurship education outreach. Entrepreneurship activities could possibly be incorporated into existing programs and services. The Center also represents existing infrastructure that could be leveraged for entrepreneurship education initiatives.
West Farms Technology & Career Center – Phipps Community Development Corporation	A non-profit organization providing with GED classes, technology training, career counseling, and employment services to local youth and adults.	Entrepreneurship skills and knowledge fit this program's objectives and could probably be incorporated into existing programs and services. The program is based on a promising model that could be applied to entrepreneurship education initiatives.
Youth Violence Alternative Project	DOJ funded program supported by the Curry School of Education at the University of Virginia. Concerned with identifying youth violence prevention method, providing schools with youth violence training, and conducting research on youth violence reduction.	A possible avenue for integrating entrepreneurship education into troubled schools and violence prevention efforts.
Juvenile Mentoring Program (JUMP)	Provides one-to-one mentoring programs for at-risk youth.	Entrepreneurship activities could be encouraged during mentoring interactions and this program could reach out for entrepreneur mentors.

* Programs that could be exemplary models or expansion opportunities for entrepreneurship education.

Table E-11. Department of Labor Programs

Program Name	Key Descriptive Points	Opportunity Description
Workforce Innovation in Regional Economic Development (WIRED) Initiative*	<p>Managed by the Employment and Training Administration</p> <p>Competitive process to select 13 regions across the country to receive approximately \$5 million each year for three years, as well as technical assistance. (U.S. Department of Labor 2008)</p> <p>Focuses on (i) importance of science, technology, engineering, and math (STEM) competency in all spheres of activity, (ii) an increased recognition that innovation is critical to global competitiveness, (iii) close interaction among industrial, research, education, and commercializing institutions, and (iv) talent development, integrating education and workforce training institutions with innovators and entrepreneurs within each region.</p> <p>Does not require matching funds in order to receive a WIRED grant.</p>	<p>WIRED offers a significant opportunity for youth training and entrepreneurship education. For instance, even though regions may customize their own models for the initiative, many regions are heavily focused on entrepreneurship-related activities (Pederson). Youth entrepreneurship and curricula reform may be a critical component of a region's innovative infrastructure (such as in the Mid-Michigan region). It may be useful to emphasize working with the entrepreneurship community within WIRED since creating an entrepreneurial culture is delineated within goals for social and community development and workforce investment (U.S. Department of Labor 2008).</p>
Employment and Training Administration, Division of Youth Services*	<p>Responsible for coordinating, supporting, and guiding youth programs authorized under the Workforce Investment Act of 1998; a Shared Youth Vision partner and manages the YouthBuild program, the Multiple Education Pathways initiative, and grant "investments" in youth programs, particularly for youth offenders.</p> <p>FY 2010 proposed budget request: \$924 million</p>	<p>There are a variety of programs under the DOL's youth activities. It may be possible to incorporate entrepreneurship within workforce training and economic development goals within youth services.</p>
Competency Model for Entrepreneurship*	<p>US DOL-ETA Competency Model for Entrepreneurship is an addition to the 10 Industry Models available for One-Stop Career Centers (www.careeronestop.org/competencymodel/pyramid.aspx?ENTRE=y). This was part of a new report about entrepreneurship with unemployment services (completed by the Consortium for Entrepreneurship Education, though not publicly released yet).</p>	<p>The Competency Model could help to add legitimacy to the education and training of entrepreneurship.</p>
Career Pathways Innovation Fund - renamed from Community Job Training Grants*	<p>Competitive grants provided by this Fund will continue support for community colleges provided by Community-Based Job Training Grants (CBJTG), but will focus on helping individuals of varying skill levels enter and pursue careers in high-demand and emerging industries such as clean energy.</p> <p>FY 2010 budget funding: \$135 million</p>	<p>The support through this fund is specific to community colleges, thus, it may serve as an opportunity to fund entrepreneurship teaching of related concepts in emerging industries (particularly those relevant to new technologies, clean energy, and green jobs).</p>

Program Name	Key Descriptive Points	Opportunity Description
Green Jobs Innovation Fund*	<p>Supports competitive grant opportunities to help workers receive job training in green industry sectors and occupations and access green career pathways.</p> <p>FY 2010 proposed budget request: \$50 million</p>	<p>Although this fund may serve adult education, post-secondary entrepreneurship education levels may have an opportunity for funding curricula focused on green career pathways.</p>
Project GATE (Growing America Through Entrepreneurship)*	<p>Microenterprise program with DOL training and SBA microloans; involves \$9 million in 6 cities (ME, PA, MN) over 5 years.</p> <p>Helps emerging entrepreneurs in rural and urban communities achieve the American dream of owning their own business.</p> <p>The community outreach, participant screening, implementation plan development, and implementation stages have been completed.</p>	<p>Although focused more on the implementation and practice of starting a business, this program may serve as a viable model for the implementation of large-scale demonstration projects focused on starting businesses at the post-secondary education level if combined with additional educational and technical support.</p>
YouthBuild*	<p>Highly successful alternative education program that assists youth who are often significantly behind in basic skills with obtaining a high school diploma or GED credential.</p> <p>YouthBuild program is perfectly aligned with the Interagency Youth Vision and demand-driven investments supported by WIA formula funds.</p> <p>FY 2008 Total Awarded: \$8,974,543</p>	<p>Because the YouthBuild program is focused on a specific target population of secondary education students, this program could fit well within the vision for entrepreneurship education being accessible not only to all students, but also emphasizing the needs of at-risk youth and low-income (or other high burdened) communities.</p>
Registered Apprenticeship Program (Apprenticeship and Training)*	<p>Helps in developing a workforce in many key industries.</p> <p>Highly flexible training model combining on-the-job learning and related classroom instruction in which paid employees receive technical and practical training in highly-skilled occupations.</p> <p>The system's success is based on its ability to grow and adapt to the needs of a changing economy, an evolving workforce, and a broad range of employers.</p>	<p>Although this program offers those already in the workforce additional training opportunities, the apprenticeship system may be expanded to the secondary or post-secondary education levels. Many emerging and technical fields are emphasized, such as biotechnology, aerospace, and advanced manufacturing. The specific goals for achieving a ready workforce and adapting to a changing economy are in line with those for entrepreneurship education.</p>
Women in Apprenticeship	<p>Provides grant funding for technical assistance for employers and labor unions to support the recruitment, hiring, training, and retention of women in apprenticeships and nontraditional occupations.</p>	<p>Entrepreneurship activities could possibly be incorporated into existing programs and services.</p>
Job Corps	<p>A federally funded education and vocational training program for youth aged 16 to 24. The program helps students achieve high school degrees or GEDs, and provides some job placement services.</p>	<p>Entrepreneurship does not appear to be a current training area, however, could be interwoven into the vocational training services.</p>

Program Name	Key Descriptive Points	Opportunity Description
Workforce Investment Act Formula Youth	Helps low-income youth, ages 14–21, acquire the educational and occupational skills, training, and support needed to achieve academic and employment success and successfully transition to careers and productive adulthood. Approximately \$828 million in funding FY2009. Youth activities funds are allotted to states under the formula described in the Act based on the distribution of unemployed individuals and disadvantaged youth by state.	Entrepreneurship education's skills and knowledge fit this program's objectives and program offerings and could probably be incorporated into existing programs and services.
WIA Youth Employment Enhancement Program, In-School Youth, Ages 14–21	Offers Basic Academic Learning/High School Diploma; Paid Year-Round Work Experience in Construction; Horticulture, and Office Tech; Career Development; Case Management; Job Search Assistance/Job Placement/ Post-Secondary Opportunities; Follow-Up Services.	Entrepreneurship education's skills and knowledge fit this program's objectives and program offerings and could probably be incorporated into existing programs and services.
WIA E-Learning Program – Out-of-School Youth, Ages 17–21	Offers Case Management; On-Line Diploma Module/Basic Academic Services; Career Development Module/ Career Planning; Tutoring, Study Skills Assistance; Paid Year Round Work Experience; High School Diploma Issued By Local School District; Job Readiness Module/ Job Search Assistance/Post-Secondary Vocational Training Opportunities; Follow-Up Services.	Entrepreneurship education's skills and knowledge fit this program's objectives and program offerings and could probably be incorporated into existing programs and services.
Rewarding Youth Achievement Grant	Provides grant funding to high poverty areas for summer employment and academic achievement bonuses for low income youth.	Entrepreneurship activities could possibly be incorporated into existing programs and services.
Migrant and Seasonal Farm Worker Youth Activities	Offers employment and training programs for migrant and seasonal farm worker youth.	Migrant farm workers may represent a valuable growth sector for entrepreneurship education outreach. Entrepreneurship activities could possibly be incorporated into existing programs and services.
Youth Opportunity Grants	Funds long-term employment opportunities for youth in high poverty areas.	Entrepreneurship activities could possibly be incorporated into existing programs and services.
Responsible Reintegration for Young Offenders	A pilot/demonstration initiative to integrate resources with the Departments of Justice and Health and Human Services. and test new reintegration approaches.	Entrepreneurship education's characteristics fit under the program initiative and may qualify for funding under this or other similar programs.
High-School/High-Tech Program	Provides students with disabilities with opportunities and services concerning science, technology, and mathematics careers.	Students with disabilities may represent a valuable growth sector for entrepreneurship education outreach. Entrepreneurship activities could possibly be incorporated into existing programs and services.

Program Name	Key Descriptive Points	Opportunity Description
Girls' E-Mentoring in Science, Engineering, and Technology	Offers online group mentoring services for girls interested in science, engineering, and/or technology careers.	Entrepreneurship activities could be encouraged during mentoring interactions and/or this or similar programs could reach out for entrepreneur mentors.
Integrating Entrepreneurship into the Workforce Investment	A study conducted with the Consortium for Entrepreneurship Education detailing best practices and lessons learned from entrepreneurship assistance programs at all government levels and recommending approaches for integrating entrepreneurship assistance and training into the workforce investment system. Study conducted July 2008 through June 2010.	Implementing the study's findings could improve entrepreneurship education's effectiveness and reach throughout government agencies.

** Programs that could be exemplary models or expansion opportunities for entrepreneurship education.*

Table E-12. Department of Transportation Programs

Program Name	Key Descriptive Points	Opportunity Description
National Organizations for Youth Safety (NOYS)	Provides funding for mentoring services and youth developmental activities.	Entrepreneurship activities could possibly be incorporated into existing programs and services.

Table E-13. Environmental Protection Agency Programs

Program Name	Key Descriptive Points	Opportunity Description
Environmental Education Grants	Provides mentoring services and youth developmental activities.	Entrepreneurship activities could possibly be incorporated into existing programs and services.

Table E-14. Small Business Administration Programs

Program Name	Key Descriptive Points	Opportunity Description
Office of Entrepreneurship Education*	<p>Manages SCORE, a comprehensive online resource center for entrepreneurs.</p> <p>Offers several Web sites aimed at educating youth and providing information regarding entrepreneurship.</p>	Although the Office of Entrepreneurship Education provides several useful resource links, it is highly limited in information. This may be due to several factors (funding, resources within the SBA, etc). Nonetheless, the Web site provides a fruitful opportunity to become a comprehensive database and 'one-stop-shop' for student entrepreneurs and teachers searching for entrepreneurship content.
Small Business Development Centers	Local centers providing free to low-cost training, business development resources, and counseling for small business owners.	The development centers represent existing infrastructure from which youth entrepreneurship education initiatives can be launched and supported.
SBIR-STTR Program	Competitive grant awards supporting small business technology development and transfer. SBIR funded by 11 Federal departments; STTR funded by 5 Federal departments.	This program could reach out to young entrepreneurs to increase the number of grant applications from their businesses.

* Programs that could be exemplary models or expansion opportunities for entrepreneurship education.

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